Agenda Item D.1
Situation Summary
March 2014

# NATIONAL MARINE FISHERIES SERVICE REPORT

National Marine Fisheries Service (NMFS) Northwest Region will briefly report on recent regulatory developments relevant to groundfish fisheries and issues of interest to the Council.

NMFS Northwest Fisheries Science Center (NWFSC) will also briefly report on groundfish-related science and research activities.

**Council Task:**

**Discussion.**

Reference Materials:

1. Agenda Item D.1.c, NMFS NWFSC Report.

Agenda Order:

| | | |
|---|---|---|
| a. | Agenda Item Overview | Kelly Ames |
| b. | Regulatory Activities | Frank Lockhart |
| c. | Fisheries Science Center Activities | Michelle McClure, John Stein |
| d. | Reports and Comments of Advisory Bodies and Management Entities | |
| e. | Public Comment | |
| f. | Council Discussion | |

PFMC
02/12/14

**Groundfish and Halibut Notices**
**10/1/13 through 2/18/2014**

**Documents available at NMFS Sustainable Fisheries Groundfish Web Site**
**http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/index.cfm**

78 FR 68764. Pacific Coast Groundfish Fishery Management Plan; Commercial, Limited Entry Pacific Coast Groundfish Fishery; Program Improvement and Enhancement. ACTION: Final Rule - 11/15/13

78 FR 72586. Biennial Specifications and Management Measures; Inseason Adjustments. ACTION: Final rule; inseason adjustments to biennial groundfish management measures - 12/3/13

78 FR 75268. Pacific Coast Groundfish Fishery; Trawl Rationalization Program; Cost Recovery. ACTION: Final rule - 12/11/13

78 FR 76570. Pacific Coast Groundfish Fishery; Pacific Whiting and Non-Whiting Allocations; Pacific Whiting Seasons. ACTION: Temporary rule; reapportionment of tribal whiting allocation - 12/18/13

79 FR 7156. Pacific Halibut Fisheries; Catch Sharing Plan. ACTION: Proposed rule – 2/6/14

**Midwater Trawl Restrictions and Prohibited Species Retention for the Shorebased Trawl Individual Fishing Quota (IFQ) Program**

NMFS is taking action to address several regulatory issues pertaining to vessels using midwater trawl gear in the shorebased IFQ program. While preparing for a rulemaking to revise the Pacific whiting IFQ fishery primary season, discrepancies and omissions in related regulations were identified. Because the Pacific whiting IFQ fishery primary season date is also used as the start date for midwater non-whiting trawl fishing, it is necessary to revise the regulations before changing the season start date. Action is needed to revise unclear and inconsistent regulatory language, to add regulatory provisions that were inadvertently omitted with the implementation of Amendment 20, and to implement certain terms and conditions of the 2012 Section 7 Endangered Species Act (ESA) biological opinions (BOs). The proposed changes would be implemented through a full rulemaking accompanied by an Environmental Assessment (EA) and are intended to be consistent with prior Council recommendations and the Amendment 20 Environmental Impact Statement. An EA is needed to consider environmental impacts that were not fully considered in previous NEPA documents.

Relative to vessels on Pacific whiting IFQ trips, the regulations would be amended to add the following provisions:

- An allowance for prohibited and protected species to be retained until landing on "maximized retention" trips.
- Disposition procedures for salmon landed at IFQ first receivers on "maximized retention" trips consistent with the groundfish and salmon FMPs.
- Disposition procedures for protected species landed at IFQ first receivers on "maximized retention" trips consistent with the 2012 BOs.
- Within the definition for a Pacific whiting IFQ trip, a requirement for each landing to be 50% or more Pacific whiting by weight.

Relative to all midwater trawling, the regulations would be amended as follows:

- North of 40°10' N. lat. - declarations for either "limited entry midwater trawl, non-whiting shorebased IFQ" or "limited entry midwater trawl, Pacific whiting shorebased IFQ" would be allowed after the start date for the Shorebased IFQ pacific whiting fishery. Non-whiting vessels would no longer be obligated to also fish in the Pacific whiting fishery.
- The restriction at 660.130(c)(4)(F) allowing midwater trawl only for vessels participating in the primary whiting season would be removed.
- North of 40°10' N. lat. - Regulations at 660.130 (c)(3) would be revised to clearly state that vessels with declarations for either "limited entry midwater trawl, non-whiting shorebased

IFQ" or "limited entry midwater trawl, Pacific whiting shorebased IFQ" would be allowed to fish within the RCAs after the start date for the for Shorebased IFQ Pacific whiting fishery.

To address unclear language and inconsistencies between sections the following minor changes would be made:

- Regulations at 660.130 (c)(3) and (c)(4) (F) would be revised to allow vessels with declarations for either a "limited entry midwater trawl, non-whiting shorebased IFQ" or "limited entry midwater trawl, Pacific whiting shorebased IFQ" to fish north of 40°10' N. lat.
- Regulations at 660.130 (e)(4) would be revised to clarify that vessels with declarations for either a "limited entry midwater trawl, non-whiting shorebased IFQ" or "limited entry midwater trawl, Pacific whiting shorebased IFQ" would be allowed to fish within the trawl RCAs after the start of the primary season for the Pacific whiting IFQ fishery north of 40°10' N. lat.
- Regulations at 660.60(d)(1) would update term and be modified for clarity, (d)(2) would add clarity to the effective time and date for automatic actions and revise an inactive internet address, and (e) would be modified to state the overarching management measures that apply to prohibited species.
- Regulations at 660.130(c)(4) would be modified to clearly state that multiple types of midwater trawl could be on a vessel simultaneously and (d)(2) would be modified to clearly stats the sorting requirements that apply to the Pacific whiting fishery
- In regulations at 660.131, the dates when the primary whiting seasons are open would be clearly stated for all sectors, and closed areas applying to all midwater trawl would be moved to 660.130.
- Throughout the regulations, words and phrases defined in sections at 660.11 and 660.111 would be used to replace undefined terms that were primarily in place prior to trawl rationalization.
- Duplicate language in prohibitions at 660.112 (b)(2) would be removed, but retained in 660.130(d).
- In section 660.140 duplicate text would be removed and the sorting and weighing requirements would be clearly stated.

**Biological Opinions for ESA Listed Salmon**

On January 22, 2013, NMFS requested the reinitiation of the ESA Section 7 consultation for listed salmonids to address changes in the fishery. The trawl rationalization program has been the primary change in the management structure of the groundfish trawl fisheries from that considered under previous consultations. The BOs prepared prior to trawl rationalization considered a distinct midwater trawl fishery with three sectors targeting only Pacific whiting and a bottom trawl fishery targeting multiple non-whiting groundfish species. Fishing behavior has changed over the first three years of the IFQ program, with fishermen using midwater trawl gear to harvest non-whiting species, particularly north of 40°10' north latitude, and increasing numbers of fishermen are using fixed gears to harvest their trawl allocations. The consultation is scheduled to be completed before implementation of the 2015-2016 Biennial Harvest Specifications and Management Measures.

NATIONAL MARINE FISHERIES SERVICE –
NORTHWEST FISHERIES SCIENCE CENTER REPORT

**Programmatic Review of Data**

As part of a national, 5-year series of programmatic reviews, the NW Fisheries Science Center hosted an independent review of data used in California Current groundfish assessments September 17-20, 2013. Other key participants include the SW Fisheries Science Center, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, and Pacific States Marine Fisheries Commission. Each of the Panel members submitted comments, along with an overview prepared by the Chair, addressing all of the major data-collection programs which currently supply data to groundfish assessments, as well as other focal areas, such as Resource Allocation, Data Management/Access, and New Technologies. These comments, which were favorable overall, also included many constructive suggestions for program improvements and highlighted areas of resource limitation. The NWFSC has subsequently prepared responses to the major recommendations of Panel members and developed a set of action items in each area. The Science Report will include a brief overview of major themes in the review comments and some of the Center's responses. Documents containing all reviewer comments and NWFSC responses are now available on the Center's website: http://www.nwfsc.noaa.gov/news/events/program_reviews/2013/index.cfm.

**Economic Data Collection**

The NWFSC greatly appreciates the time and effort many fishermen have put into completing the surveys. This data is used for economic analyses of the fisheries, including in the IO-PAC model.

- The open access survey collects economic data from fishermen participating in the open access groundfish, non-tribal salmon, crab, and shrimp fisheries on the West Coast. Fielding was completed at the end of 2013, with 426 responses.
- Fielding of the limited entry fixed gear survey began on February 1 and will continue through late March. This survey collects economic data from the owners of vessels that operated with a limited entry fixed gear groundfish permit, and did not operate in the limited entry trawl fishery; their data is submitted through the EDC program.
- The recreational WA and OR charter operator survey was fielded December 2013-January 2014, with 153 responses. The CA charter operator survey was completed by the SWFSC.

**Survey Planning for Cowcod Conservation Areas**

Several recent stock assessments suggest a need for fishery-independent survey coverage within the Cowcod Conservation Areas (CCAs). In response to Council member requests, the NWFSC, in conjunction with the SWFSC, is currently studying possibilities for extending survey coverage into these areas. Due to funding uncertainty, it is not clear what the extent of this sampling will be, or what gear or protocols may be involved, so we are exploring a range of options. One proposal under consideration expands the footprint of the hook and line survey into the CCAs. NWFSC is currently working with local sport and commercial fishing industry members to develop a database of potential sampling locations that includes coverage of all of the major banks and reefs within the CCAs. Industry input was critical in developing the survey's current sampling frame. We encourage anyone interested in contributing information to this effort to contact John Harms at (206) 860-3414; John.Harms@noaa.gov.

**Summary Reports on 2013 Bycatch Reduction Engineering Research Projects**

In March, FRAM's Marine Habitat Ecology group will release two informational reports (developed with input from the Pacific States Marine Fisheries Commission and the fishing industry) that summarize the results of last year's bycatch reduction engineering research projects. One report focuses on testing of an industry-designed Bycatch Reduction Device (BRD) to reduce bycatch of Pacific halibut, while the second report provides the initial test of a BRD designed to improve trawl selectivity in the flatfish fishery.

Science, Service, Stewardship

Agenda Item D.1.c
Supplemental NWFSC PowerPoint
March 2014

# Groundfish Science Report

John Stein and Michelle McClure
Northwest Fisheries Science Center

March 8, 2014

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NWFSC NORTHWEST FISHERIES SCIENCE CENTER

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# Overview

- Program Reviews
- Economic Update
- CCA Survey Scoping
- Hake Assessment 2014

Science, Service, Stewardship

# 2013 Programmatic Review of Data Used in Stock Assessments

## Overview of review comments and NWFSC responses

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# 2013 Programmatic Review of Data Used in Stock Assessments

## Overview of review comments and NWFSC responses

"Panel members acknowledged **the high caliber and depth of expertise, and significant creativity among the staff from the NWFSC and SWFSC and their state and PSMFC partners.** All should be commended for their work and extraordinary efforts to provide the fishery independent and dependent data needed to support West Coast groundfish stock assessments and management."

"**Groundfish monitoring is a large and complex enterprise.** The staff has done heroic work with limited manpower to implement a program that is truly impressive. They have demonstrated high expertise and effort and deserve tremendous credit."

Reports at: http://www.nwfsc.noaa.gov/news/events/program_reviews/2013/index.cfm

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# Major Panel Recommendations

Information management needs for the entire data collection enterprise were substantive and pervasive, and should be addressed comprehensively.

- **In the process of hiring a data manager**
- **Working with NWFSC data management team**
- **Working with external partners to secure additional funding**

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# Major Panel Recommendations

Clearly identify which data are most important for assessment accuracy and precision; prioritize among types of biological data needs, and apply these to survey collections.

- **Determine data inputs that have the greatest effect on assessment results**

- **Increase efficiency of biological sampling and planning, given resource constraints**

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# Major Panel Recommendations

Better document and evaluate survey designs

- **Compile documentation for all surveys**
- **Evaluate alternate survey designs**
  - Impacts of varying frequency, intensity, etc. on accuracy and precision

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# Major Panel Recommendations

- Prioritize mission elements; allocate resources strategically to meet data collection objectives for assessments
- Given the importance of fishery-independent surveys: Develop untrawlable-habitat survey methods
- Operationalize novel technologies, enhance current data collection in anticipation of a greater ecosystem focus in future assessments, and expand the use of genetic data to elucidate stock structure.

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# Coming Soon to a Science Center Near YOU!!

- Program Review of Assessment Process
  - June 9-13, 2014
  - NWFSC
- Opportunity to:
  - Take stock of assessment quality
  - Enhance current processes

Science, Service, Stewardship

# Economic and Social Science Research

## Economic Data Collection Update

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# Economic Data Collection Update

- 2011 reports finalized:
  - www.nwfsc.noaa.gov/research/divisions/fram/economic/economic_data.cfm.
- 2012 data
  - Expected presentation = September 2014 meeting

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# Updates on Other Economic Data Collections

- Open Access Survey:
  - Open access groundfish, non-tribal salmon, crab and shrimp fisheries
  - Completed December 2013
  - 426 responses
- Limited Entry Fixed Gear Survey
  - Feb 1., 2014- March 31, 2014
  - Limited entry fixed gear groundfish permit operators that did not operate in the limited entry trawl fishery
- Recreational WA and OR charter operator survey
  - Completed January 2014
  - 153 responses
- CA charter operator survey was completed by the SWFSC

Science, Service, Stewardship

# Southern California Shelf Rockfish Hook and Line Survey

## Potential Survey Coverage inside Cowcod Conservation Areas (CCAs)

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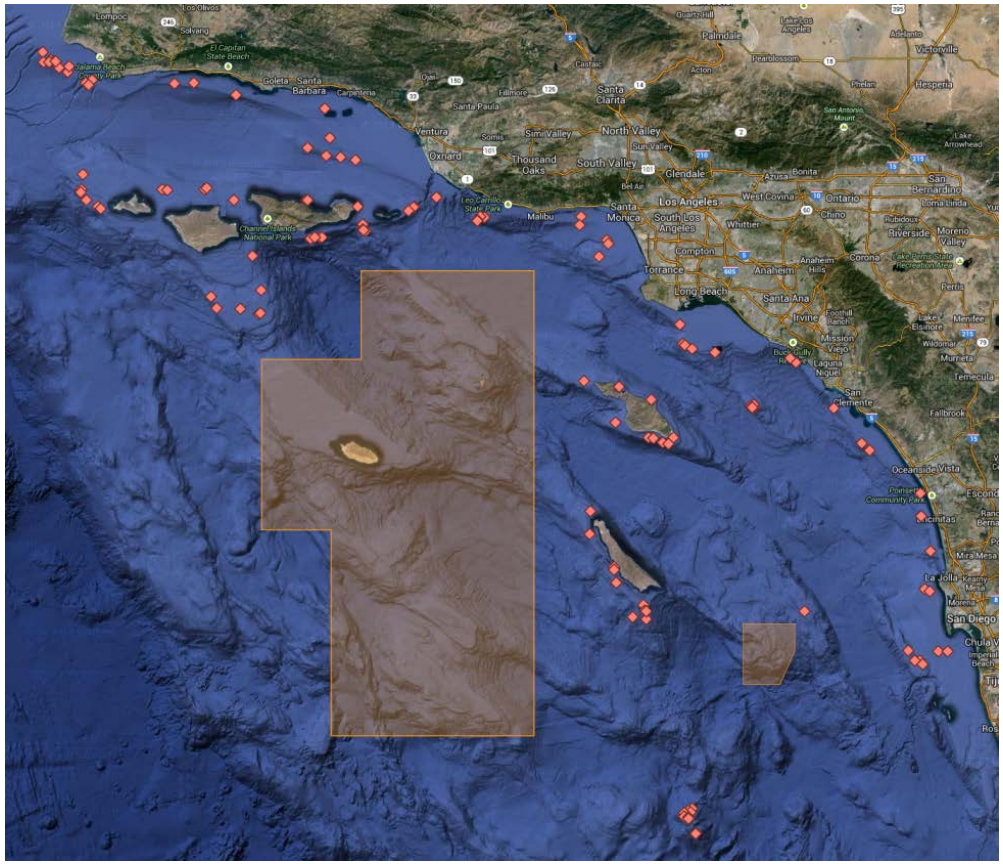
# Southern California Shelf Rockfish Hook and Line Survey

## Potential Survey Coverage inside Cowcod Conservation Areas (CCAs)

- Core Cowcod areas unsurveyed
- Assessment suggests higher abundance
- Need for CCA survey coverage
  - PFMC
  - CDFW
  - Stock assessments



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# Southern California Shelf Rockfish Hook and Line Survey

## Potential Survey Coverage inside CCAs

•Staff currently working with industry to develop potential survey sites inside the CCAs; contact John Harms at the NWFSC (John.Harms@noaa.gov) for information on how to contribute to this process.

•Working with SWC to maximize info from effort

Science, Service, Stewardship

# 2014 Hake Assessment

As reported by the Joint Technical Committee

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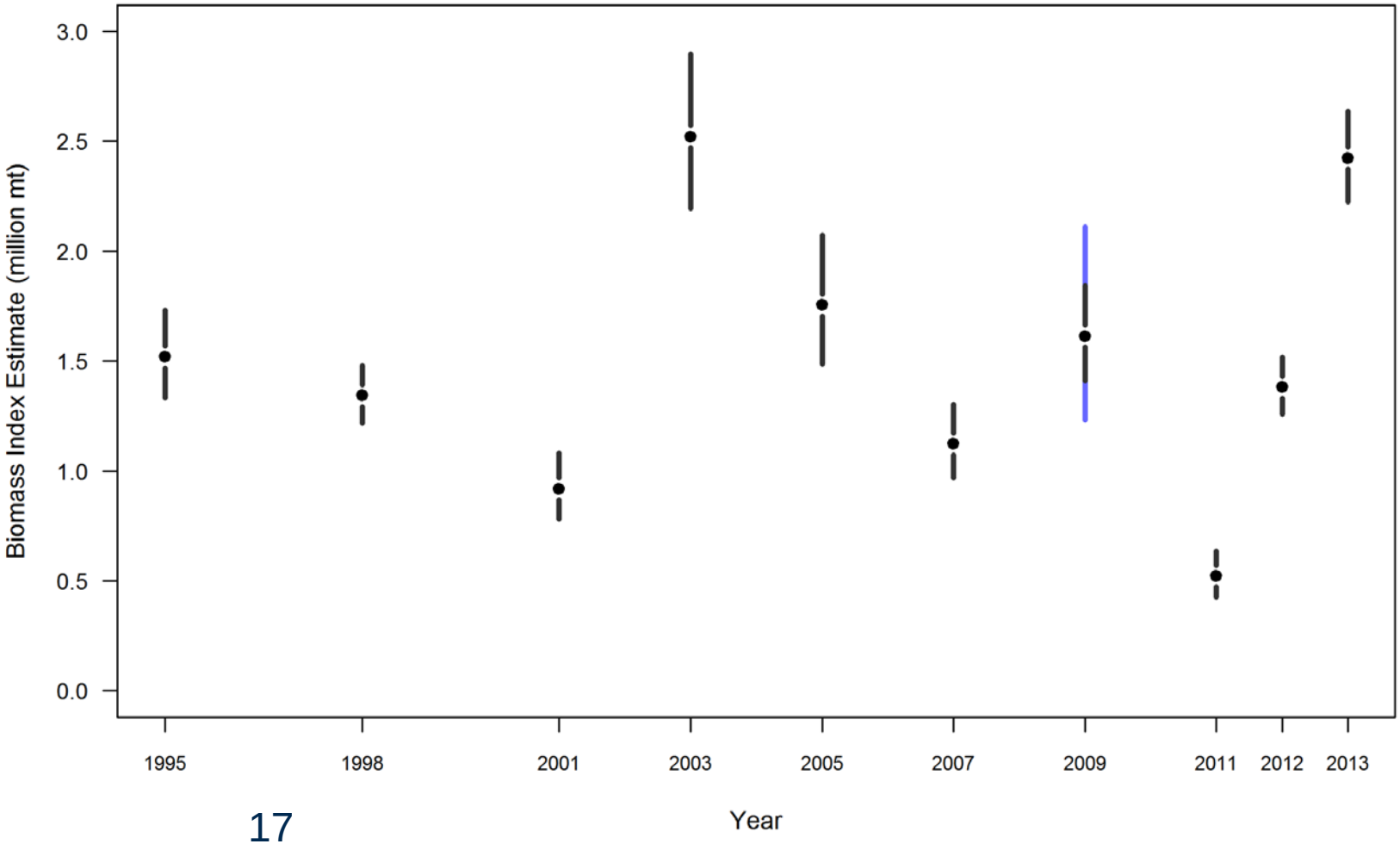
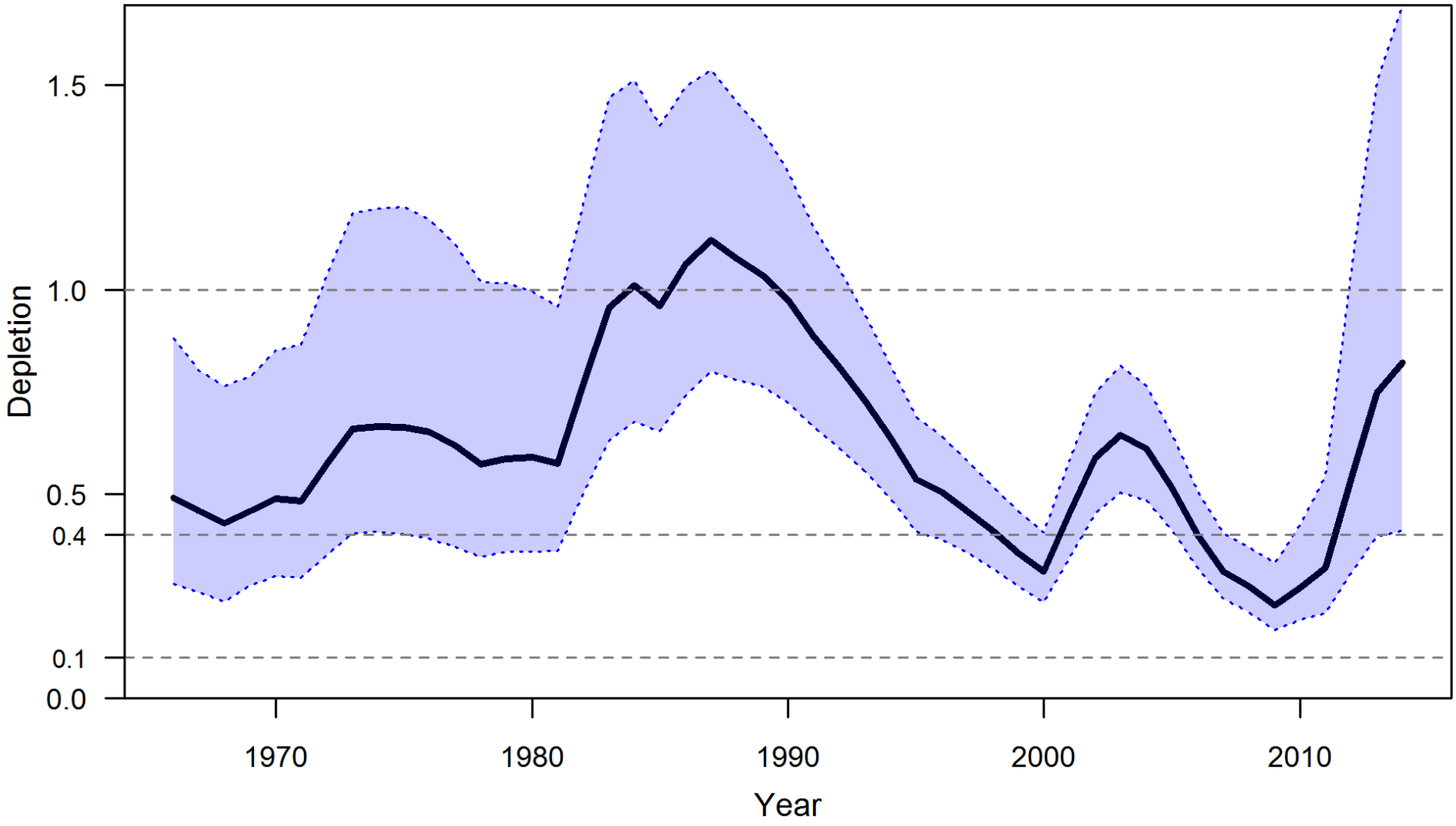
# Survey biomass estimates



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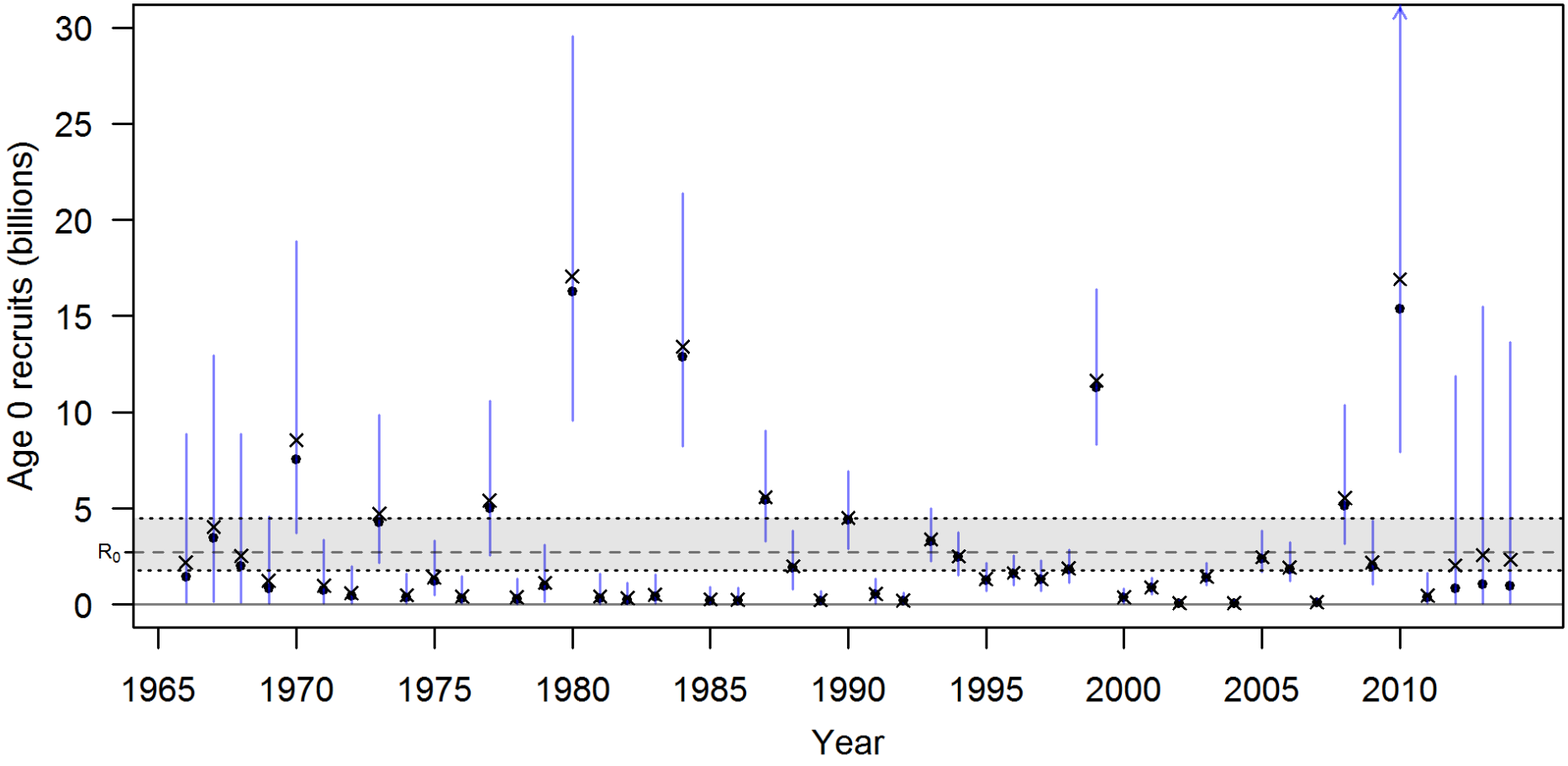
# Estimated Recruitment



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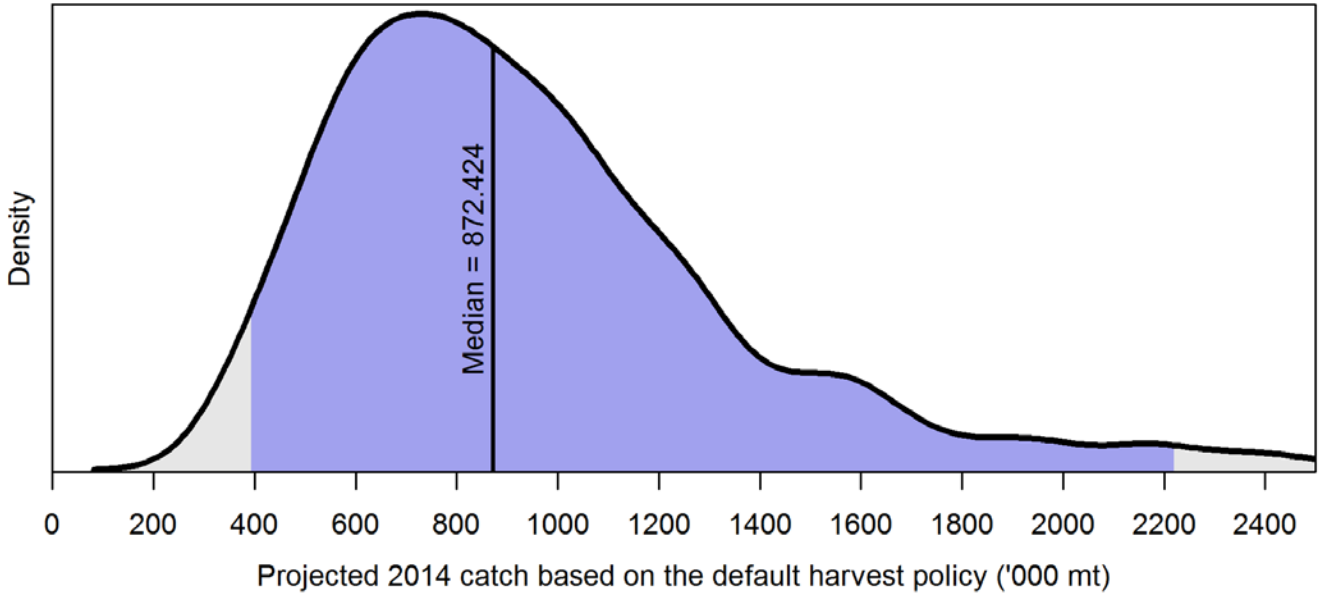
# Forecasts and catch predictions




The 2014 coastwide (US + Canada) OFL is 872,424 mt

- More than twice the highest realized catch

Biomass expected to decline with catch greater than 190,000 mt

Even under low state of nature, status quo catch target (365,000 mt) has less than a 50% probability of overfishing

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# High priority recommendations from SRG

Continued development of the Management Strategy Evaluation

Improve understanding of life-history and biology

Conduct research to improve the acoustic survey and biomass estimate

- —An index of age-1 abundance
- —Target verification (making sure our acoustic interpretation is right)
- —Survey design

Investigate best practices for time-varying selectivity



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# ESSENTIAL FISH HABITAT (EFH) EVALUATION CRITERIA AND PHASE 2 REPORT

At its November 2013 meeting, the Council considered a draft Phase 2 Report of the Essential Fish Habitat Review Committee (EFHRC), eight proposals submitted containing potential changes to groundfish essential fish habitat (EFH), statements from Advisory Bodies, and public comment towards a decision on whether to move to Phase 3 of considering changes to Pacific Coast groundfish EFH. The Council determined that there was sufficient new information to move to Phase 3 of the EFH review, and provided guidance on the next steps in the process. The Council asked the Northwest and Southwest Fisheries Science Centers to provide a potential approach to evaluating the question of whether current EFH designations are working as expected, including criteria for objective evaluation of the question. The Council also directed the EFHRC to "simply finalize" the draft Phase 2 Report, which had remained in draft form at the time of the November Council meeting as a result of the Federal government shutdown during the first half of October 2013. These two tasks were scheduled for further consideration at the March 2014 meeting.

The Northwest and Southwest Fisheries Science Centers (NW/SWFSC) have worked to develop potential scientific approaches to address the question of whether our current EFH provisions are working as expected. Agenda Item D.2.c, Supplemental NW/SWFSC Report, will include discussion regarding elements of such approaches with current information and with new data collection efforts.

The EFHRC met via conference call twice to discuss their charge to finalize the Phase 2 Report. The primary differences between the draft report viewed by the Council at the November meeting and this report (Agenda Item D.2.b, EFHRC Report) advanced by the EFHRC are 1) completion of recommendations for Phase 3, and 2) the presence of minority opinions in three sections of the report.

At this meeting, the Council will provide further guidance on the process to consider changes to groundfish EFH, including the Science Centers' recommendations on an effectiveness evaluation. The Council is tentatively scheduled to consider the scope of an amendment process, and a report on the effectiveness evaluation at the September 2014 meeting. The Council will also consider finalizing the EFHRC Phase 2 Report.

**Council Action:**

1. **Provide guidance on the evaluation criteria and approach.**
2. **Provide guidance on further process for considering changes to groundfish EFH, as appropriate.**
3. **Consider finalizing the EFHRC Phase 2 Report.**

Reference Materials:

1. Agenda Item D.2.b, EFHRC Report.
2. Agenda Item D.2.c, Supplemental NW/SWFSC Report.
3. Agenda Item D.2.d, Public Comment.

Agenda Order:

a. Agenda Item Overview — Kerry Griffin
b. Essential Fish Habitat Review Committee (EFHRC) Report — Brad Pettinger
c. Reports and Comments of Advisory Bodies and Management Entities
d. Public Comment
e. **Council Action**: Provide Guidance on Criteria for Evaluating the Effectiveness of Existing EFH Provisions and Consider Finalizing the EFHRC Phase 2 Report

PFMC
02/14/14

# REVIEW OF PACIFIC COAST GROUNDFISH ESSENTIAL FISH HABITAT

## PHASE 2 REPORT TO THE PACIFIC FISHERY MANAGEMENT COUNCIL

## MARCH 2014

**PACIFIC FISHERY MANAGEMENT COUNCIL**
**7700 NE AMBASSADOR PLACE, SUITE 101**
**PORTLAND, OR 97220**
**(503) 820-2280**
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**WWW.PCOUNCIL.ORG**

## Members of the Pacific Coast Groundfish Essential Fish Habitat Review Committee:

Brad Pettinger (Chair), Oregon Trawl Commission
Megan Mackey (Vice Chair), Ecotrust
Ed Bowlby, NOAA National Ocean Service, Olympic Coast National Marine Sanctuary
Steve Copps, NOAA Fisheries Service West Coast Region
Robert Eder, F/V Timmy Boy
Chris Goldfinger, Oregon State University
H. Gary Greene, Moss Landing Marine Laboratories
Jennifer Hagen (Designee), Quileute Indian Nation
Dayna Matthews, NOAA Office of Law Enforcement
Karen Reyna (Designee), NOAA Ocean Service, Gulf of the Farallones National Marine Sanctuary
Geoff Shester, Oceana
Joe Schumacker, Quinault Indian Nation
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## Other key contributors:

Joe Bizzarro, University of Washington and University of California Santa Cruz
Chris Romsos, Oregon State University, College of Earth, Ocean, and Atmospheric Sciences
Curt Whitmire, NOAA Fisheries Northwest Fisheries Science Center
Marlene Bellman, NOAA Fisheries Northwest Fisheries Science Center
Kerry Griffin, Pacific Fishery Management Council
Chuck Tracy, Pacific Fishery Management Council
Eric Chavez, NOAA Fisheries Service West Coast Region

NOAA = National Oceanic and Atmospheric Administration

# Contents

# 1 Introduction

The purpose of this report is to finalize Phase 2 of the Groundfish Essential Fish Habitat (EFH) review process, and to make recommendations to the Council on the scope of potential changes to the EFH provisions of the Pacific Coast Groundfish Fishery Management Plan (FMP). This process is pursuant to Council Operating Procedure (COP) 22 and regulation[1]. EFH provisions of the FMP were established in 2005 by Amendment 19 and include: (1) the description and identification of EFH and HAPC; (2) measures to minimize to the extent practicable the adverse effects of fishing on EFH; (3) the identification of data gaps and research needs; and (4) the identification of other actions to encourage the conservation and enhancement of EFH (PFMC 2011).

## 1.1 Background

Amendment 19 established a comprehensive strategy to identify and conserve EFH for species managed under the Pacific Coast Groundfish FMP pursuant to section 303(a)(7) of the Magnuson-Stevens Act (MSA). The purpose of Amendment 19 was to "account for the function of Pacific Coast groundfish EFH when making fishery management decisions; ensure that EFH is capable of sustaining groundfish stocks at levels that support sustainable fisheries; and, ensure that EFH is capable of sustaining enough groundfish to function as a healthy component of the ecosystem (NMFS 2005, pp 1-3)."

The technical basis for Amendment 19 included the Council's Risk Assessment, Environmental Impact Statement (EIS), and Record of Decision (RoD). The Risk Assessment was developed on the advice of the National Research Council's Committee on the Ecosystem Effects of Fishing (NRC 2002, Chapter 7) to determine if EFH-related problems existed and, if so, which of those problems could be addressed through Council and NEPA processes (MRAG 2004). The EIS and RoD established the technical rationale for the final decision to implement Amendment 19 (NMFS 2005; NMFS 2006).

A significant component of this current groundfish EFH review is the consideration of new information available since the adoption of Amendment 19 and of necessary changes to the technical foundation for the Council's 2005 decision. New information under consideration in this review includes:

- Pacific Coast Groundfish 5-year Review of Essential Fish Habitat Report to the Pacific Fishery Management Council Phase 1: New Information:

[1] CFR 600.815(a)(10): *Review and revision of EFH components of FMPs.* Councils and NMFS should periodically review the EFH provisions of FMPs and revise or amend EFH provisions as warranted based on available information. FMPs should outline the procedures the Council will follow to review and update EFH information. The review of information should include, but not be limited to, evaluating published scientific literature and unpublished scientific reports; soliciting information from interested parties; and searching for previously unavailable or inaccessible data. Councils should report on their review of EFH information as part of the annual Stock Assessment and Fishery Evaluation (SAFE) report prepared pursuant to § 600.315(e). A complete review of all EFH information should be conducted as recommended by the Secretary, but at least once every 5 years.

- http://www.pcouncil.org/groundfish/background/document-library/pacific-coast-groundfish-5-year-review-of-efh/ ; and, http://efh-catalog.coas.oregonstate.edu/overview/
- Groundfish Essential Fish Habitat Synthesis Report: http://www.pcouncil.org/wp-content/uploads/Groundfish_EFH_Synthesis_Report_to_PFMC_FINAL.pdf
- Phase 2 proposals[2] to modify EFH: http://www.pcouncil.org/resources/archives/briefing-books/november-2013-briefing-book/#groundfishNov2013

## 1.2 Limitations of this Phase 2 Report

This report is limited to Council guidance that narrowed the original scope of Phase 2 as described in COP 22 and to the scientific information that has been compiled for this review.

### 1.2.1 Council Guidance for this Report

This report is designed to assist the Council in determining the scope of analysis for Phase 3. It does not consider whether or not new information warrants reconsideration of Amendment 19 and initiation of Phase 3 because those decisions were already made (PFMC November 2013). In making those decisions, the Council narrowed the scope of this report to "high-level recommendations on critical subject areas (e.g. socioeconomic) for development of alternatives for Phase 3 (not recommendations on specific proposals or proposal elements).[3]"

### 1.2.2 Available Science

The EFHRC notes that there are important limitations to some subject areas in the Phase 1 and Phase 2 information, as described by the Council and committees during the November 2013 Council meeting. The Council's GMT, SSC, and GAP each recommended that conducting an assessment of the current program is needed (PFMC GMT 2013; PFMC SSC 2013; PFMC GAP 2013). Statements from these committees suggest that we do not yet know if Amendment 19 is working, what problem(s) need to be fixed, or what opportunities exist for refinement of groundfish EFH. Because we do not have an understanding of the performance or of Amendment 19, the Council lacks a scientifically informed problem statement to guide Phase 3 (particularly in regards to the fishing subject areas). The Northwest and Southwest Fisheries Science Centers are developing potential scientific approaches to address the question of whether our current EFH provisions are working as expected.

To understand the limits of the Phase 1 & 2 information, it is helpful to conceptualize an idealized process. For example, NMFS Habitat Assessment Improvement Plan (HAIP NMFS 2010) describes a habitat assessment/management process modeled after the stock assessment/harvest management process, whereby relevant data are consolidated (e.g. fishery independent and fishery dependent data

[2] The Council's Request for Proposals is available online at: http://www.pcouncil.org/wp-content/uploads/Groundfish_EFH_RFP.pdf

[3] Quoted from text of the Council's final action to initiate Phase 3 in November 2013 as displayed on the Council floor for Council agenda item H.7 – Groundfish EFH Phase 2 Report and Proposals to Modify EFH.

sets), analyzed (e.g., stock assessment), and peer reviewed (e.g., STAR Panel). Such assessments articulate scientifically derived problem statements that are used as the basis for management decisions. A data gap analysis is a fundamental component of these assessments and can be used by managers to formulate risk-based management strategies (e.g., precautionary approaches) and support research (NMFS 2010, Sec. 2).

Data and analyses in a habitat assessment must cover the full range of relevant information (e.g., not just fishing impacts). The emphasis on analysis and interpretation is designed to integrate diverse data and identify problems or opportunities for managers to address through the Council process. By definition, the habitat assessment includes analysis of current management approaches relative to policy goals (NMFS 2010). The idealized process is identical to the NRC recommendation (NRC 2002) and Risk Assessment approach that was used to inform Amendment 19 (MRAG 2004).

The Council's COP 22 established a 3-phase process as follows:

- Phase 1: Data Consolidation;
- Phase 2: Request for Proposals to modify Amendment 19; and,
- Phase 3: Management Decisions

The COP 22 does not include assessment or scientific peer review - two critical steps included in the idealized process. As a supplement to Phase 2, a NMFS Synthesis report provided useful summaries and interpretation of new information but was not intended to be a comprehensive assessment (NMFS 2013, p. 1). The new data identified in Phase 1, the analyses and interpretations developed in the Synthesis report, and the scientific basis of each of the 8 public proposals have not yet been peer-reviewed.

## 1.3 Moving Forward

The lack of a scientifically peer-reviewed habitat assessment of the effectiveness of Amendment 19 is the product of a process that was based on a narrow interpretation of the 5-year review requirement as being limited to the consolidation of new data. While such an interpretation may be technically correct (we defer to legal experts), it clearly puts the Council in the difficult position of making decisions without thorough data analyses, scientific peer review, and a problem statement.

It is challenging, in the absence of a more complete assessment, to advise the Council on focal areas for Phase 3. Therefore we attempt to characterize how relevant new information influences our understanding of Amendment 19 in order to make recommendations that focus potential changes on appropriate subject areas as identified in regulation[4]. The structure applied to each of the nine EFH subject areas is:

[4] The EFH Subject Areas identified at 50 CFR 600.815 are: (1) EFH description and identification; (2) MSA fishing activities; (3) Non-MSA fishing activities; (4) Non-fishing activities; (5) Cumulative impacts analysis; (6) Conservation and enhancement; (7)

1. summarize relevant information from the current Amendment 19 program;
2. describe our current understanding based on new information developed through Phases 1 and 2 and the eight public proposals; and,
3. present committee recommendations on any change to the current program, based on new relevant information.

While this Phase 2 report does not provide a detailed review of the eight public proposals to modify EFH, it offers brief summaries of each proposal. As a means to assist in evaluation and discussion of the proposals during its September 4-5, 2-14 meeting, the EFHRC used a Bayesian Analysis for Spatial Siting (BASS) tool as a means to clarify and organize their opinions regarding these proposals, the results of which may be valuable to Council during Phase 3. BASS results demonstrate Committee members' levels of satisfaction and certainty associated with various aspects of proposals, based on metrics that were outlined in the Council's Request for Proposals. A description of the BASS tool, as well as some results are included in Appendix A of this Report.

Although an assessment of the effectiveness of Amendment 19 would help to inform the Council when making decisions relative to EFH, the EFHRC relied upon the expert opinion of the EFHRC in making recommendations to the Council. For example, the report includes recommendations to correct mistakes made in Amendment 19 and to consider changes that have broad stakeholder support or other clearly identified opportunities to refine the current program. In addition, the EFHRC use of the BASS tool informs a recommendation to establish a Phase 3 process that ensures minimum standards of scientific objectivity. BASS is helpful in fostering transparency particularly in data-poor scenarios that rely on expert opinion in making significant decisions (such as the development of EFH alternatives).

**Minority Section**

A minority statement was submitted that presents an analysis of the BASS scores that were produced by members of the EFHRC. Endorsers of the minority report were Chris Goldfinger, Steve Copps, Mary Yoklavich, Gary Greene, Waldo Wakefield Joe Schumaker, and Bob Eder. During the EFHRC's most recent meeting, the committee voted to remove a section of the BASS Appendix that presents the more detailed analysis of scores and identifies outlier scores. The endorsers disagreed with the decision to exclude the more detailed analysis of BASS scores. Nonetheless, because the committee voted explicitly to remove those scores, the minority report is not included here.

*End of Minority Section*

## 1.4 Recommendations

Identification of major prey species; (8) Identification of HAPCs; (9) Research and information needs. Our analysis of the Conservation and Enhancement subject area is included in fishing and non-fishing subject areas.

- A comprehensive habitat assessment, as described in the NMFS 2010 HAIP and implemented for Amendment 19, should be integrated into the 5-year review process. If there is not an opportunity to develop such an assessment for this current process, it should be integrated into the next 5-year review.
- The Council should consider implementing an independent scientific peer review of select Phase 1 and Phase 2 products, modeled after the STAR process.

## 1.5 Minority Statement

*Endorsed by EFHRC members Ed Bowlby, Dayna Matthews, Geoff Shester, and Megan Mackey*

A minority of the Committee believed an alternative version of the introduction is required because the current introduction is unnecessarily lengthy, and focuses heavily on detailing potential concerns and perceived problems with the Council's EFH Review process. Specifically, the introduction in the report focused several paragraphs and subsequent recommendations on the lack of an idealized process that includes an assessment and scientific peer review. The use of best available science is the standard established in Amendment 19. An assessment and peer review of the Phase 1 and Phase 2 documents is not required. Although we believe it is important to briefly capture the point regarding the need for an assessment of effectiveness and acknowledge that other Council committees have raised this issue, we note that the Council is aware of this and that NMFS has offered to scope out what such an assessment might entail. The minority of the committee is concerned that the lecturing tone of the introduction can be construed as questioning the policy decisions of the Council, thus distracting the reader from the core of the Phase 2 Report. Furthermore, the introduction did not offer any constructive guidance for an assessment nor did it specify which products should be considered for peer review.

The minority of the Committee did not feel that the introduction was an appropriate place to include recommendations based on the specific guidance from the Council. The report introduction includes new statements and recommendations that either deviated from previous Committee statements or were never discussed previously by the Committee. Since the introduction is not an EFH subject area, we do not believe it is an appropriate place for substantive recommendations. Rather, if points were made regarding specific topic areas, they would be better served under the appropriate section related to that topic so that the reader would be able to connect the topic to the point of concern.

A minority of the Committee prefers a short, simple introduction that clearly states why there is a need for action and briefly summarizes elements of the proposals reflecting the last four years of solid work by the Council, its Committees, and proposal proponents. Therefore, we offer the following alternative introduction.

**Alternate Introduction**

### 1.5.1 Background

The adoption of Amendment 19 to the PFMC's Groundfish FMP established the PFMC and NMFS as leaders in fish habitat protection and ecosystem-based fishery management. By protecting habitats

important to the spawning, breeding, feeding, and growth to maturity, these habitat protections help to ensure the continued productivity and recovery of west coast groundfish for the benefit of west coast communities, the California Current Ecosystem, and the Nation. The successes of Amendment 19 are embodied both in the substantive regulatory protections established based on the best available science at the time and in the establishment of an ongoing adaptive management regime designed to collect, incorporate, and respond to new information about the distribution and function of groundfish habitat.

Beginning in September 2010, the Pacific Fishery Management Council initiated its required 5-year review of Pacific Coast Groundfish Essential Fish Habitat designation and management through a deliberate process. This Phase 2 report represents the conclusion of the effort by the PFMC, NMFS, the EFHRC, and stakeholders to build upon the success of Amendment 19. Throughout this first EFH 5-year review, the PFMC has made several key decisions that have prioritized a robust process over expediency, such as making additional data requests, providing for NMFS synthesis of available data, and requesting an assessment of the effectiveness of the current suite of Amendment 19. While this has extended the originally conceived timeline, these additional efforts have resulted in a substantially improved informational basis over what was available in Amendment 19, placing the PFMC on stronger ground for refining EFH management.

### 1.5.2 Summary of Key Elements of the Phase 2 Proposals to Modify EFH and Phase 2 Report Guidance

During Phase 2, the Council released a RFP based on the extensive work of the EFHRC, and in response, a total of eight proposals were submitted to the Council for consideration. All proposals requested modifying components of EFH. See Appendix B for descriptions and Committee recommendations on the eight proposals.

All proposals were considered complete by the EFHRC, meaning that all met the minimum requirements of the RFP that was released by the Council. Together, these proposals illustrate a suite of specific management changes that are consistent with the Council's Amendment 19 criteria and approach, including actions that may further minimize adverse impacts of fishing on EFH to the extent practicable. However, these proposals have yet to be analyzed by the EFHRC, NMFS or the PFMC.

The Phase 2 EFHRC report is based on Council Operating Procedure (COP) 22 guidance. Specifically, through the evaluation of the eight proposals, the EFHRC has reviewed groundfish EFH designations and areas currently closed to bottom contact fishing gear to protect groundfish habitat and to recommend to the Council options for elimination of existing areas, addition of new areas, or modification of existing areas. The EFHRC has also included recommendations for modifying HAPCs consistent with the proposed modification of the location and extent of areas closed to bottom trawling or other bottom contact fishing gear. The information presented includes considerations of proposed modification to groundfish EFH or its components consistent with EFH regulations at 50 CFR § 600.815(a)(1)-(a)(10), and based on the new information presented in Phase 1.

This report is designed to assist the Council in determining the scope of analysis for Phase 3. It does not consider whether or not new information warrants reconsideration of Amendment 19 because the decision to initiate Phase 3 has already been made by the Council (PFMC November 2013).

*End of Minority Section*

**Minority Section on Literature Review**

A minority statement was submitted by Dr. Geoff Shester that consisted of a literature review on corals and sponges. However, was not included because the Chair and the Staff Officer determined that it was not in bounds as a minority section to this report.

*End of Minority Section*

# 2 EFH Description and Identification

## 2.1 A Summary of Amendment 19

Fishery management plans must describe and identify EFH for all managed species [50 CFR 600.815(a)(1)]. EFH *description* comprises information necessary to understand the use of waters and substrate necessary for spawning, breeding, feeding, or growth to maturity for each life-stage of the managed species. EFH for groundfishes is described in Appendices B2 and B3 of the groundfish FMP. Appendix B2 contains life history summaries, and Appendix B3 contains habitat types used by each species and life-stage (as found in the Pacific Habitat Use Relational Database (HUD)). From HUD information developed in 2005, habitats were characterized in terms of depth range, latitude range, species-habitat associations by activity (breeding, feeding, and growth to maturity), and prey. It was intended that the HUD be updated periodically with new information.

*Identifying* EFH means that the geographic location or extent of habitats used by each species and life-stage must be clearly delineated in the FMP using both text and maps. To assist NMFS and the Council in identifying EFH during the Amendment 19 process, a model of Habitat Suitability Probability (HSP) was developed to predict an overall measure of the suitability of habitat in particular locations for as many species as possible. From the HSP model, habitat for each species and life stage was predicted in terms of three variables (largely drawn from the HUD): depth, latitude, and substrate (both physical and biogenic components, where possible). These three variables are readily available and represent a subset of the essential features of habitat that influence the distribution of the FMP groundfish species. HSP predictions were coupled with coastwide geo-referenced data on habitat, and the resultant mapped habitats (polygons in the GIS) were allocated values between 0 and 100%. These values were then used to develop a proxy for areas regarded as “essential”. The higher the HSP value, the more likely the area should be identified as EFH.

Using the HSP model, spatially explicit values were predicted and mapped for the adults of all species in the FMP as well as some sub-adult life-stages for some species. However, data were insufficient to predict HSP values for all life-stages of all species. Therefore, a precautionary approach was taken whereby all locations with an HSP of >0% for any species or life-stage was identified as the combined EFH for all groundfish species and life-stages. As a result, EFH for Pacific Coast groundfishes currently encompasses all areas off the coasts of California, Oregon, and Washington from depths less than or equal to 3,500 m (1,914 fm) shoreward to the mean higher high water level or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 parts per thousand during the period of average annual low flow. EFH also includes the portions of specific seamounts within the EEZ that rise above 3,500 m. Although the identification of groundfish EFH in the FMP also includes areas designated as HAPCs that were not within the 3,500 m zone or on specific seamounts, no such HAPCs exist.

The best scientific data available when Amendment 19 was written did not support the presence of managed groundfishes at depths beyond 3,400 m and no fisheries were being conducted at these depths. Although no link was established between FMP groundfish species and waters deeper than 3,400 m, the Council took the precautionary approach of extending EFH to 3,500 m, to account for any scientific uncertainty regarding the depth distribution of managed groundfish species.

## 2.2 Our Current Understanding

The Phase 1 and NMFS Synthesis reports provide a great amount of new information relevant to the description of Pacific Coast groundfish EFH that could be incorporated into Appendices B2 and B3. New life-history information is available for only some FMP species and life-stages, so updating the life-history summaries would not be a major task. The HUD was updated with information on nine groundfish species not specifically considered in Amendment 19. An ongoing development and maintenance plan for the HUD and regular updates of new information would provide the best habitat information to users.

A significant amount of new information relevant to the identification of groundfish EFH, including geographic location and extent of various components of habitat, was provided in the Phase 1 and NMFS Synthesis reports. A total of 442 new sources of data on seafloor bathymetry, backscatter, and substratum type were integrated with existing 2005 habitat maps, thereby improving our knowledge of the distribution and extent of hard, soft, and mixed seafloor types. Also, new geo-referenced data on the presence of biogenic habitat (i.e., deep-sea coral and sponge taxa [DSC]) have been collected largely during underwater visual surveys, compiled, and mapped. Additional observations of DSC from NMFS bottom trawl surveys and bycatch in commercial fisheries became available during Phase 1. Distributions of macro-algae or eelgrass were not updated in the Phase 1 and NMFS Synthesis reports. However, considerable effort has been made by the individual states to map the locations of these habitats in the years since Amendment 19, and that information could be used to update maps in the FMP. Although maps of such dynamic habitats may not be definitive, they can provide a first approximation of the distribution of such habitats.

As part of the NMFS Synthesis, a model was developed that examined species-habitat relationships for subadult and adult life stages of six groundfish species (generally representative of the west coast groundfish complex[5]). From these models, habitat covariates were identified to help describe fish species distribution and abundance at depths covered by the NMFS west coast bottom trawl survey (50-1280 m). Model output was coupled with the new geo-referenced seafloor data to produce maps of probability of occurrence and abundance for the six groundfish species. From these models and maps,

[5] The extent to which the six groundfish species are reasonable proxies for the 91 species of groundfish has not been discussed by the EFHRC.

there is a high probability of occurrence of subadult and adult stages of at least one of these six species in most habitats within the depth range of the trawl survey[6].

One of the public proposals to the Council requested a change in the description and identification of groundfish EFH that would add all waters deeper than 3,500 m within the West Coast EEZ to the designation of Pacific Coast Groundfish EFH. There is no new biological information or scientific data to indicate that any of the 91 species of groundfishes in the FMP occur at depths deeper than 3,500 m, and therefore areas at depths greater than 3,500 m are not considered habitat for those species. New information in the Phase 1 and NMFS Synthesis reports is consistent with both the description and identification provided in Amendment 19, which is considered precautionary because 3,500 m is greater than the known maximum depth distribution of all life stages of the 91 FMP species. Available information indicates that the maximum depth of the deepest-dwelling fishes in the Pacific coast groundfish FMP (e.g., Pacific grenadier and Pacific flatnose) is no more than 3,300 m (Pearcy et al. 1982; Love et al. 2005; Love 2011; Scripps Institute Oceanography, Oceanographic Collections: Marine Vertebrates, https://scripps.ucsd.edu/collections/mv). The usual occurrence of these deep-dwelling species is much shallower than their maximum depth of distribution, and therefore habitat for FMP species is fully encompassed by the current EFH boundaries.

## 2.3 Recommendations

Although a large amount of new information has been brought to light on the distribution of groundfish species and their habitats, there still are significant data gaps. After considering the new information in the Phase 1 report and the output of the modeling work in the Synthesis, there are no new results or understanding that would support a change to the identification of EFH for the collective 91 groundfish species other than eliminating text that refers to HAPCs that are outside the 3,500 m zone and not on specific seamounts. The new information regarding the description of EFH likely will be important to ongoing conservation decisions and evaluation of impacts of future actions on EFH at the species level (including those species of particular interest to the Council, such as vulnerable or overfished species). The EFHRC therefore recommends that the Council:

- Update aspects of the descriptions of EFH for Pacific Coast groundfish, specifically the life-history summaries in Appendix B2 and the HUD/Appendix B3. This can be done outside the formal FMP amendment process.
- Rerun HSP models using updated HUD and improved bathymetry and substratum data. This can be done outside the formal FMP amendment process.
- Revise the text that identifies EFH for Pacific Coast groundfishes to eliminate HAPCs that are outside of the 3500 m zone and not on specific seamounts.

[6] The extent to which the occurrence and abundance of a fish species are representative of that species EFH has not been evaluated by the EFHRC.

## 2.4 Minority Statement on EFH Description and Identification

*Drafted by Geoff Shester*

This minority statement focuses narrowly on the question of whether changes to EFH description and identification may be warranted during this 5-year review, and in particular, whether areas deeper than 3,500 m can be added as EFH. Section 2.2 discusses this idea and concludes it is not feasible. To the contrary, it would be feasible to add areas deeper than 3,500 m as EFH, and the Council should consider doing so in Phase 3.

The majority appears to believe that EFH cannot be designated outside the areas indicated by the HSP model from Amendment 19. Yet in Amendment 19, some areas shallower than 3,500 m which were not directly indicated by the HSP model were included as EFH—as a precautionary measure. Furthermore, seamounts outside 3,500 m were included as EFH with no knowledge of their relationship to groundfish use or productivity—as a precautionary measure. There is no reason why this kind of precautionary designation cannot be applied to the areas of the EEZ deeper than 3,500 m, based on the limited knowledge we have of those areas and the potential for interrelationships between those deep areas and shallower areas.

Such a designation would allow the Council to complete its intended action from 2005, which was to freeze the footprint of bottom trawling in all waters seaward of 700 fathoms to the EEZ boundary. Implementation of this closure is consistent with NOAA's precautionary approach to manage bottom-tending gear, especially mobile bottom tending gear and other adverse impacts of fishing on deep-sea coral and sponge ecosystems. NOAA's policy, described in the NOAA Strategic Plan for Deep Sea Coral and Sponge Ecosystems is to "freez[e] the footprint" of mobile bottom-tending gear, in order "to protect areas likely to support deep-sea coral or sponge ecosystems until research surveys demonstrate that proposed fishing will not cause serious or irreversible damage to such ecosystems in those areas" (NOAA 2010, PP.27-28).

The information in Phase 1 from the Deep Sea Coral and Sponge Database identifies 195 distinct coral observations and 1,141 sea pen observations in the area of the US EEZ that was not designated as EFH based on being deeper than 3,500 m, indicating that corals and sponges are known to be present in discrete locations and may occur throughout this deepwater area. While NMFS in its Record of Decision disapproved the portion of the Council's motion deeper than 3,500m because the area was not currently designated as Groundfish EFH, it did state that: "All or most of the deep sea environments are likely to be highly sensitive to impact, including very low levels of fishing effort (e.g. a single trawl), and have extended recovery times (over 7 years). Thus, they can be very sensitive to bottom trawling and would take a long time to recover from this impact" (NMFS 2006, P.25).

We recommend that the Council consider implementing a bottom trawl closure in all waters deeper than 3,500m by first designating the area as EFH and then completing the trawl footprint closure as a management measure to minimize the potential for adverse impacts to EFH. If this option does not prove desirable, other routes to achieve the full footprint closure are as follows:

1. Use the new MSA discretionary authority contained in:

a. Section 303(b)(2)(B) (protection zones for deep sea corals);
b. Section 303(b)(2)(A) (excluding specific gear types); or
c. Section 303 (b)(12) (conserve non-target species and habitats) to protect deep sea coral and sponge habitats from impacts of fishing. This could be done in conjunction with Phase 3 for groundfish EFH.

2. Use the addition of "other grenadiers" into the Groundfish FMP as Ecosystem Component Species (November 2013 PFMC Action), to designate the deepwater area as EFH. This grenadier category includes the full suite of grenadier species caught in the groundfish fishery, including abyssal grenadier (*Coryphaenoides armatus)* with a depth range of 282 - 5180 m (Russian Academy of Sciences 2000).[7] This depth range would allow expansion of EFH to encompass the full EEZ boundary.

*End of Minority Section*

[7] Russian Academy of Sciences, 2000. Catalog of vertebrates of Kamchatka and adjacent waters. 166 p. (as cited by FishBase.org)

# 3 Magnuson Act Fishing Activities that May Adversely Affect EFH

## 3.1 A summary from Amendment 19

### 3.1.1 Risk Assessment

FMPs must include an evaluation of potential adverse impacts of fishing on EFH and a plan of action to minimize those impacts to the extent practicable (CFR 600.815(a)(2)(i-ii)). Acting on advice from the National Research Council's Committee on the Ecosystem Effects of Fishing (National Research Council 2002, Chapter 7), NMFS and the Council developed a comprehensive risk assessment to consider EFH-related issues through the Council and NEPA processes. A significant portion of this risk assessment focused on fishing impacts, including the following products:

- **Description of fishing gears used on the U.S. Pacific Coast** (Recht 2003), with attention to components of gear that could impact structural features of habitat.
- **The Effects of Fishing on Habitat: A West Coast Perspective** (MRAG 2004; Appendix A-10), in which adverse impacts were indexed for each gear type and recovery times were estimated for each habitat type.
- **Impacts Model for Groundfish Essential Fish Habitat (**MRAG 2004), in which cumulative anthropogenic impacts to habitat (from fishing and non-fishing sources) were considered using limited data.
- **Other relevant data products as described elsewhere in this report** (e.g., groundfish life history information, substratum data, etc.).

### 3.1.2 Rationale for Management Measures

Significant data gaps (FMP Appendix B.5) prevented a definitive determination of adverse impacts at a functional scale (e.g., quantifying population and ecosystem effects resulting from fishing impacts to habitat). However, the risk assessment focused attention on sensitive habitats with slow recovery times as the scientific basis for Council action (NMFS 2006, sections 3.3 and 5.3). Management measures were designed to: 1) protect diverse habitat types within and across biogeographic zones; 2) protect the full range of benthic habitats to account for each managed species; 3) prioritize pristine or sensitive habitats, and gear types likely to have highest impact; 4) prioritize biogenic habitat and hard bottom (NMFS 2006, p. 14); 5) distribute socioeconomic costs resulting from implementation of the alternative, and 6) implement area closures for different gear types across habitat types to foster comparative scientific research (NMFS 2006, p. 12).

Other factors that influenced the development of management measures included the use of the precautionary principle in data-poor situations (NMFS 2006, pp. 12 & 23); negotiation and support by a coalition of non-governmental organizations, fishing industry representatives, and state governments (NMFS 2006, p. 14); privately funded buy-out of displaced fishermen (NMFS 2005, Appendix F); treaty fishing rights (NMFS 2005; and50 CFR 660.385); displaced fishing effort threshold (NMFS 2006, p. 23); and extent of EFH (NMFS 2006, p. 24).

### 3.1.3 Management Measures

The management measures established by the Council included gear prohibitions (FMP Section 6.6.1.1) such as exclusion of bottom trawl gear of various sizes in various depths and elimination of the comparatively high impact dredge and beam trawl gear (MRAG 2004, Appendix 10). The Council also established ecologically important closed habitat areas (excluding bottom trawl and/or bottom contact gear) for the protection of groundfish EFH (FMP Section 6.8.5). In addition, important procedural steps were taken to establish an EFH Oversight Committee (FMP Section 6.2.4), facilitate private purchase of

groundfish limited entry permits and vessels (FMP Section 6.9.4), and consider treaty fishing rights (FMP Section 6.2.5) that apply in the usual and accustomed (U&A) harvest areas of the Makah, Hoh, and Quileute Tribes and the Quinault Indian Nation.

### 3.1.4 Treaty Indian Fisheries and MSA Fishing Activities

In recognition of the sovereign status and co-manager role of treaty Indian tribes over shared federal and tribal fishery resources, the regulations at 50 CFR 660.324(d) establish procedures that will be followed for the development of regulations regarding tribal fisheries within the U&A harvest areas. They state that the agency will develop regulations in consultation with the affected tribe(s) and insofar as possible, with tribal consensus. Application of management measures intended to mitigate the adverse impacts of fishing on EFH within U&A harvest areas are subject to these procedures (FMP Section 7.4).

The agency and tribes will need the time to determine potential impacts and effects on treaty rights. This will require a detailed analysis process carried out in a government to government consultation forum. Some tribes have informed the agency that concerns will include EFH closures in U&As, thus limiting commercial CPUE data used to determine treaty rights in their areas. Tribes have also noted that management measures restricting fishing activities for EFH or other reasons in areas outside of tribal U&As can impact tribal treaty rights (e.g. displaced fishing pressure into U&As) and may also require consultation.

## 3.2 Our Current Understanding

Several new publications (including peer-reviewed literature, white papers, and technical memorandums) on the effects of fishing gear on benthic habitats, fish associations with biogenic habitats, and predictive modeling of biogenic habitats have been identified in the EFHRC Phase 1 report. In addition, the spatial distribution of fishing effort using bottom trawl, mid-water trawl, and fixed gears was compared before and after implementation of Amendment 19 regulations. From the Phase 1 report, (1) effects of fishing with mobile, bottom-contact fishing gear on benthic habitats are increasingly well-established worldwide; (2) there is little new information on recovery of seafloor habitats from the effects of fishing and, therefore, an improved evaluation of fishing impacts is hindered; (3) long estimates of recovery time, on the order of 100s of years, should be used for hard corals; and (4) with regard to impacts from recreational fishing gear, biogenic habitats are most at-risk followed by hard substrata and soft sediments.

Data useful to the development of public proposals to change EFH and/or regulatory measures to minimize adverse effects to EFH were summarized in the NMFS Synthesis report. Recognizing that a scientific peer review has yet to be conducted, some findings in the Synthesis report are: (1) approximately 10% of the upper slope and shelf of all habitat along the west coast is included in ecologically important closed areas (EFH conservation areas), and the bottom trawl closure seaward of 700 ftm accounts for the majority of the conservation areas; (2) effort from federally observed groundfish fisheries is highest in the Northern region, and is heavily concentrated on the upper slope and shelf over soft habitats along the entire coast; (3) patterns of fishing effort have remained moderately stable over the previous decade, but have likely varied over longer periods; there has been some displacement of trawling activity seaward from conservation areas; (4) EFH conservation areas protect some groundfish species from fishing more than others; and (5) EFH conservation areas protect

many deep-sea coral and sponge habitats, but additional areas remain open to some or all bottom contact gears.

Several recent studies of deep sea corals and sponges (DSC), including three years of research funded by the NOAA Deep Sea Coral Research and Technology Program and a geo-referenced database, have increased our understanding of diversity, habitat associations, distribution and abundance of DSC on the continental shelf and slope of the west coast. DSC, as well as other relatively large invertebrate taxa, add complexity and structure to seafloor habitat (which also is referred to as biogenic habitat). Many fishes associate with various types of structure, such as rocks, depressions in soft sediment, kelp, thermal gradients, man-made debris, and DSC. DSC mostly occur on rocky substrata (e.g., boulders, pinnacles, rock outcrops), although sea pens in particular are found in mud and sand sediments. Many FMP groundfish species, especially the rockfishes, co-occur with DSC in the same rocky areas. DSC taxa are slow growing and vulnerable to disturbance by bottom-tending fishing gears that target North Pacific groundfish species. Adverse impacts of such disturbance can be long lasting and recovery of DSC likely can be slow.

Six of the eight public proposals submitted to the Council used new geo-referenced data on DSC as justification to suggest more areas be closed to bottom-tending fishing gear. These new data, as identified primarily from visual surveys and research and commercial trawl bycatch records included in the Phase 1 report and data catalog, depict the presence of as few as a single coral colony or sponge, while some data represent density of these organisms at particular locales. Presence-only data are strongly influenced by where and how the observations were made, and do not necessarily reflect the regional or coast wide distribution of DSC and associated habitats. Much of these data also are not species specific but rather represent higher taxonomic groups, although species-specific information is available for some localized areas. Higher taxonomic groups include multiple species that have differing environmental needs and requirements. These data limitations make it difficult to distinguish areas of importance to DSC.

However, the six public proposals include elements that suggest new areas be closed to bottom-tending fishing gear in order to protect more DSC as EFH for groundfish. Although the co-occurrence of some species of DSC and groundfishes has been described for various habitats, the degree to which any species of Pacific groundfish depends on any species of DSC for spawning, breeding, feeding or growth to maturity has not been determined. The type, size, density, and/or coverage of DSC (or any other structure-forming invertebrate taxon) that might be considered EFH have not been established for any species in the groundfish FMP. The value of DSC as a component of groundfish EFH (as defined under the MSA), therefore, remains unknown.

Some of the proposals also suggest new fishery closures to protect rocky banks and other hard substrata, based on improved information on location of seafloor sediment types (i.e., hard, mixed, and soft sediments).

Separate from the DSC issue, we have identified some inaccuracies in Amendment 19. For example, one of the eight public proposals describes the need to modify one boundary of an EFH no-trawl area in northern California based on our new understanding of seafloor substratum in the area. Specifically, a relatively small section of this particular EFH closure was originally classified as untrawlable rocky habitat and is now known to be a sunken barge in soft sediment. Opening this area to fishing would allow access to flatfishes in this sandy habitat. Based on new information on seafloor habitats, consideration of boundary modifications also may be warranted for other current EFH closures (e.g., Potato Bank closed area in the Southern California Bight).

## 3.3 Recommendations

An assessment of the effectiveness of Amendment 19 has yet to be conducted and a clear problem statement has not been established relevant to this MSA fishing impacts subject area. Also, with particular regard to the six public proposals that include elements suggesting increased protection of DSC from bottom-tending fishing gear, the function, extent, and value of DSC as groundfish EFH (as defined under MSA) remain uncertain. That said, there are topics relevant to the fishing impact subject area that may be worthwhile for consideration by the Council during Phase 3. In addition, while the EFHRC has not reviewed the technical merits of the suite of public proposals received by the Council, these proposals hold some opportunities to consider changes to the fishing subject area. The EFHRC therefore makes the following recommendations to be pursued during Phase 3 of this review:

1. Spatial fishery closures to protect DSC as groundfish EFH are appropriate to the scope of Phase 3; however, we recommend that the Council maintain a clear understanding that such measures would be precautionary (i.e., risk averse in the absence of scientific certainty). The EFHRC cautions that the function of DSC as groundfish habitat has not been scientifically established, and it is technically impossible to predict impacts (positive or negative) of spatial closures on groundfish populations. However, DSC co-occur with groundfish, contribute to habitat complexity, are sensitive and highly vulnerable to impact from fishing, and could take 100s of years to recover from such impact. Consistent with Amendment 19, consideration of precautionary action to protect DSC as groundfish EFH is reasonable, particularly if consensus to do so can be reached among diverse stakeholder groups.
2. Independent from the EFH authorities of MSA, the Council should consider the use of MSA discretionary authority contained in Section 303(b)(2)(B) (protection zones for deep sea corals), Section 303(b)(2)(A) (excluding specific gear types), and 303 (b)(12) (conserve non-target species and habitats) to protect deep sea coral habitats from impacts of fishing. This could be done in conjunction with Phase 3 for groundfish EFH.
3. The Council may reasonably choose to narrow the geographic scope of Phase 3 for the MSA Fishing subject area in order to proceed on a shorter timeline and be more responsive to local initiatives. Proceeding to Phase 3 on a coast-wide scale will take considerable time and may not be an efficient use of Council resources. Rather, the Council may be most effective by tailoring Phase 3 to respond to local initiatives that are supported by diverse stakeholder groups (e.g., the MBNMS proposal). Correspondingly, the Council may be less effective in regions of the coast in which co-managers have not reached agreement on the scope of potential changes (e.g., tribal U & As). While such proposals may be reasonably excluded from consideration during Phase 3 and revisited later, there may be consequences in the form of habitat impacts associated with delaying action that the Council should consider as well. To this end, information compiled for the 5-year review provided no evidence to suggest that the function of EFH is imperiled under current fishing practices, so there may not be an urgent need to revise Amendment 19 fishing measures on a coast-wide basis; on the other hand, there is insufficient baseline information and monitoring to confirm that EFH is adequately protected.
4. To support the likely analytical demands for Phase 3 (regardless of mandate), the Council should:
    a. Develop a Longterm Effect Index (LEI) for DSC (see Fujioka 2006 and Oceana Proposal, p.16);
    b. Integrate LEI with updated sensitivity and recovery tables in the NMFS Synthesis Appendices (Tables A3a.1-A3a.4, p. 154-155); and
    c. Initiate scientific peer review of DSC sensitivity and recovery information, including LEI and NMFS Synthesis, to be used in Phase 3 NEPA analysis.

5. Modify boundaries of current EFH closures to fix clear mistakes in Amendment 19, such as the misidentification of a sunken barge as a rocky reef in the Eel River Canyon and the location of Potato Bank.
6. Make minor technical revisions to the FMP (e.g., consistency between the FMP and regulations regarding names of EFH Conservation Areas).

## 3.4 Minority Statement on MSA Fishing Activities

*Drafted by Geoff Shester*

This minority statement proved necessary due to irreconcilable differences that emerged among EFHRC members, during the drafting of the Phase 2 report section on Magnuson-Stevens Act fishing activities. One key message of the majority's Section 3 is that changes do not need be made to EFH regulations on a coastwide basis during this five-year review, despite the tremendous amount of new information produced, because there has been no definitive proof that the Amendment 19 measures are failing. This view is not supported by the law or science, and would amount to an abdication of the Council's important stewardship obligations for ocean habitats and species. It is also inconsistent with the Council's precautionary approach as adopted in Amendment 19. Because the disagreements between the majority and minority of the EFHRC are fundamental on this issue, this minority statement provides an alternative perspective through a full treatment of all three sections regarding MSA fishing activities (summary of Amendment 19, our current understanding, and recommendations). This minority statement also provides an alternative set of overall recommendations on the MSA Fishing Effects subject area, as well as specific recommendations in light of the concerns raised by the majority's regarding the lack of a purpose and need statement and Assessment of Amendment 19.

*Note: This minority statement includes an alternative section on MSA fishing activities, and is contained in Appendix B of this Report.*

*End of Minority Section*

# 4 Non-MSA fishing activities that may adversely affect EFH

## 4.1 Summary of Amendment 19

Gear and area prohibitions apply to MSA and non-MSA fisheries via parallel regulations implemented by states. The non-MSA fisheries (identified in Phase 1) are as follows: pink shrimp (trawl), Dungeness crab (pot), spot prawn (pot), hagfish (pot) and California halibut (trawl). Tribes currently have extensive Dungeness crab fisheries, and potential to enter the shrimp, prawn, and hagfish fisheries.

<u>Environmental Impact Statement</u>

- Non-MSA fishing activities were incorporated into the Risk Assessment model. See Appendix A, Section 2.4 in NMFS 2005.

- All fishing gears used on the west coast were described with a generalized assessment of the potential impact on EFH. This included MSA and non-MSA gear types. See Appendix 8 NMFS 2005 to the Risk Assessment.
- Appendix 11 to the Amendment 19 Risk Assessment, Pilot Project to Profile West Coast Fishing Effort Based on the Practical Experience of Fishermen provided a spatial analysis of MSA and non-MSA fisheries in areas of Oregon.

## 4.2 Our Current Understanding

Phase 1 Report

- Section 4.1 of the Phase 1 report supplements Appendix 8 to the Amendment 19 Risk Assessment by summarizing gear types (including non-MSA) deployed on the West Coast.
- Section 4.5 of the Phase 1 report presents an updated and improved spatial analysis of state-managed fisheries from what was available for Amendment 19.

NMFS Synthesis Report

- Limited to federally managed groundfish fishery

Proposals

The following is a review of the information presented in each proposal as it relates to the discussion on non-MSA fisheries. This is not an analysis of the proposals, but a review of the information provided in the proposals. In cases where information about non-MSA fisheries was not clear, additional points are provided for consideration based on known uses of areas proposed. This may not in all cases be an exhaustive list of uses, but rather a summary of potential interactions with non-MSA fisheries.

Of the five non-MSA fisheries listed above, the pink shrimp fishery has the most potential to be impacted, followed by the spot prawn fishery and then the Dungeness crab fishery.

- Pink Shrimp: Of the eight proposals submitted, three of them would potentially close areas, while one would re-open an area. Of the three proposals closing off fishing grounds, one would impact six different areas along the coast, including all of the area considered to be Fort Bragg's shrimp grounds. Another proposal would close shrimp grounds in nine areas distributed along the three states. A third proposal has two options that would close shrimp grounds on the Washington Coast.
- Spot prawn: two proposals could potentially limit this fishery. Of the two affected areas, one is located in Washington and the other in California.
- Dungeness Crab: One proposal has an option that could possibly close some crab grounds off of California.

*Note: In one proposal, if longline or pot gear were designated a destructive gear type then the number of areas affected by that proposal would increase.*

## 4.3 Additional Considerations

- The closures in the proposals may not seem particularly onerous when being looked at individually and they may even seem rather negligible when taken as a whole, as to their overall effect on the non-MSA fisheries on the west coast. However, they may very well have a detrimental effect on an individual fishermen or a given port. In a more normal year in the pink shrimp fishery, even a distance of a couple hundred yards can make or break a trip for a fisherman in some areas.

- In some of the proposals, the time frame used for the footprint of the shrimp fishery does not adequately represent the true historical footprint of the fishery. This has been exacerbated by record CPUE (2013 ODFW Annual Pink Shrimp Review, Fig. 8) in the fishery the past 4 years which has concentrated vessel activity in areas of the very best production, while other areas that have been having historically good production are being ignored.

## 4.4 Recommendations

- The nature of habitat conservation demands consideration of the full range of impacts regardless of the authorizing statute. For example, if non-MSA fisheries were to occur in a Habitat Conservation Area closed to MSA fisheries, the closure would probably not be effective in conserving habitat. For this reason, the approach taken in Amendment 19 of applying conservation measures to both MSA and non-MSA fisheries should be carried forward to Phase 3 of this 5-year review.

- If new gear restrictions or area closures are considered during Phase 3, the Council and NMFS should conduct outreach to participants in non-MSA fisheries in order to accurately characterize the socio-economic impacts of alternatives.

# 5 Non-fishing activities that may adversely affect EFH

## 5.1 Summary of Amendment 19

Non-fishing activities have the potential to adversely affect the quantity or quality of EFH in riverine, estuarine, and marine systems. Broad categories of such activities include, but are not limited to, mining, dredging, fill, impoundment, discharge, water diversions, thermal additions, actions that contribute to non-point source pollution and sedimentation, introduction of potentially hazardous materials, introduction of exotic species, and the conversion of aquatic habitat that may eliminate, diminish, or disrupt the functions of EFH.

The MSA (§305(b)) provides a mechanism for NMFS and the Regional Fishery Management Councils to address these impacts to EFH. Federal agencies are required to consult with NMFS on all activities, and proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH, whether it occurs within or outside EFH. For example, certain terrestrial activities, such as paving a parking lot which can lead to increased stormwater runoff and the associated conveyance of pollutants into aquatic habitat, may adversely affect EFH and require consultation. 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 include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. NMFS must provide recommendations to address these adverse effects to Federal agencies undertaking those actions.

Fishery management plans are required to identify those non-fishing activities that may adversely affect EFH and describe the known and potential adverse effects to EFH [50 CFR 600.815(4)]. For each activity, the FMP must also identify recommended options to avoid, minimize, or compensate for the adverse effects from these activities [50 CFR 600.815(6)]. These are intended to inform the Federal action agency and its applicants during the project planning and design phase as well as to those same parties and NMFS staff during the EFH consultation process.

To meet this mandate, Appendix D to the Pacific Coast groundfish FMP (NMFS 2003) contains detailed descriptions of 31 non-fishing activities that may adversely affect EFH and recommended conservation measures to address those effects. The document is organized by activities that may potentially impact EFH occurring in four discreet ecosystems: upland, riverine, estuarine, and coastal/marine systems.

## 5.2 Our Current Understanding

Since Amendment 19 was published, our understanding of the potential effects of many of the 31 non-fishing activities, and the potential conservation measures to address those effects, has improved. In addition, the Phase 1 Report identified four additional non-fishing activities that may adversely affect

EFH: alternative energy development, liquefied natural gas projects, desalination, and activities that contribute to climate change and ocean acidification.

The NMFS Synthesis Report presented an example of how the pressures exerted on groundfish EFH by non-fishing activities can be analyzed in order to inform the management framework for West Coast groundfish EFH. This work was modified from its previous application in the California Current Integrated Ecosystem Assessment (CCIEA). Halpern et al. (2009) identified 16 non-fishing pressures on the California Current ecosystem, seven of which are most relevant to West Coast groundfish EFH and had enough data to be useful for a coast-wide analysis. The NMFS Synthesis Report reported these seven pressures individually along with two climate change pressures. In addition, the 16 non-fishing pressures were summarized in a "combined" data layer. The analysis found that:

- Non-fisheries pressures were greatest in the Salish Sea sub-region, which is highly exposed to numerous land-derived pressures.
- Among other sub-regions, offshore pressures were more intense in the north, while nearshore pressures were more intense in the south.
- There was little variation in the mean intensity of non-fisheries pressures across EFH conservation areas compared to other spatial management regions. This was likely because EFH conservation areas were located offshore and relatively unexposed to land-derived pressures.
- Habitat areas of particular concern (HAPCs) were proportionately more exposed to high non-fisheries pressures than other spatial management areas.

Updating the descriptions and conservation measures for the non-fishing activities in Appendix D and incorporating the non-fishing pressures analysis from the NMFS Synthesis Report into the appendix would inform the Council when making management decisions and Federal agencies, their applicants, and NMFS during the EFH consultation process or other processes that manage non-fishing pressures.

While this new information may warrant updating Appendix D, Amendment 19 specifically states that this appendix is supporting information for the management program, does not describe the management framework or Council groundfish management policies and procedures, and is published under separate cover. It may, therefore, be periodically updated without being subjected to the Secretarial review and approval process described in §304(a) of the MSA.

## 5.3 Recommendations

- The EFHRC recommends that the Council update the descriptions, and associated conservation measures, of the non-fishing activities in Appendix D and include the four additional activities identified in the Phase 1 report.

- The EFHRC recommends that the Council incorporate the non-fishing pressures analysis, including the GIS layers used in the analysis, from the CC IEA into Appendix D.

- If the Council decides to update Appendix D, the EFHRC recommends that it do so outside of an FMP amendment process, as described in Amendment 19.

# 6 Cumulative Impacts Assessment

## 6.1 Summary from Amendment 19

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 (50 CFR 600.815(a)(5)). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. An assessment of the cumulative and synergistic 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. A cumulative impacts analysis for EFH has a narrower focus than one conducted under the National Environmental Policy Act (NEPA), which analyzes the cumulative impacts on the environment as a whole, including the biological resources, historic and archaeological sites, socioeconomic services and issues, and community structure and character.

The assessment of cumulative impacts of fishing and non-fishing activities on EFH for Amendment 19 was limited for several reasons. First, it was not possible to measure the cumulative impacts of different gear types operating in a single location, primarily because of the lack of spatially explicit effort data and a need to better interpret the sensitivity and recovery scales for different gear types. However, Amendment 19 did recognize that doing so would be possible if better effort data was available to develop gear "footprints" and develop a better calibration of impacts using indices of sensitivity and recover rates. The second, and perhaps bigger, issue was the different pathways for the effects from fishing and non-fishing activities. Fishing gears have a primarily physical impact on habitat, although other less obvious effects, such as the selective removal of portions of the food chain and sediment suspension, also occur. Non-fishing impacts, however, range from similar kinds of physical disturbance to sedimentation and chemical alteration of the seawater, among many other things. Evaluating the cumulative effects of all of these potentially impacting processes is an immensely complicated task, for which sufficient data were lacking.

## 6.2 Our Current Understanding

The Phase 1 and Synthesis reports contain analyses of the fishing effort for a number of gear types used in both Council-managed and state-managed fisheries: bottom trawls, mid-water trawls, roundhaul gear, and pot and trap gear. Working within the confidentiality limits of the MSA, EFHRC estimated the footprints for each gear type. While these footprints fill in one of the major gaps from Amendment 19, they do not address the lack of a common metric for assessing the cumulative impacts of these gear types.

The Synthesis Report contains analyses of 16 non-fishing pressures, both individually and cumulatively. These pressures include various types of pollution (atmospheric, inorganic, organic, ocean-based, light, etc), changes in sediment inputs, nutrient inputs, coastal engineering, shipping activity, power plants, oil

rigs, aquaculture, and species invasions. While these analyses do not directly address all of the non-fishing activities, they provide a first estimate of the cumulative pressures from these activities. The areas that are most highly impacted by these stressors are those along the coast and in the estuaries, where development pressures are the greatest.

While gaps in the data remain, the situation is vastly improved over that of Amendment 19. With this new information, it may be possible to assess, at least qualitatively, the cumulative impacts of fishing and non-fishing activities.

Like the information in the appendices to the groundfish FMP, a cumulative impacts assessment can be viewed as supporting information for the management program and does not describe the management framework or Council groundfish management policies and procedures. It may, therefore, be possible to conduct and periodically update this assessment without being subjected to the Secretarial review and approval process described in §304(a) of the MSA.

## 6.3 Recommendation

The EFHRC recommends that the Council consider assessing the cumulative impacts of fishing and non-fishing activities, using the information in the Phase 1 and Synthesis Reports.

# 7 Prey species

## 7.1 Summary from Amendment 19

The EFH Final Rule[8] states that "FMPs should list the major prey species for the species in the fishery management unit" and indicates that "actions that reduce the availability of a 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." Subsequent NMFS guidance[9] clarified that "prey should be included in EFH descriptions as a component of EFH." However, the term "major prey species" has yet to be defined by NMFS, and no criteria currently exist for determining which prey species should be considered "major."

Amendment 19 provided general lists of prey categories for various life stages of FMP groundfish, typically at broad levels of taxonomic specificity (general prey types or families, e.g., "Clupeids"). These lists are found in the HUD database and in Appendix B3 of the Pacific Coast Groundfish FMP. The full list is included in Table 14 of the EFHRC's Phase 1 Report. However, the EFHRC notes that Amendment 19 did not include or synthesize significant information on groundfish diets that was available prior to Amendment 19. Furthermore, much of the available information on groundfish diets was collected several decades ago during periods where prey were present in different relative abundances in the ecosystem than they are presently. For example, Pacific sardines appear to be more prevalent in the diets of certain groundfish in the 2000s than they were in the 1980s (Brodeur et al. 2009). This indicates that diet compositions may vary depending on seasonal and multi-decadal temporal and spatial scales. There is also wide variation in the quality of groundfish prey data (i.e., sample size, geographic scope, seasonal scope, interannual scope) as well as the methods for how prey data are collected and reported in the literature (i.e., taxonomic specificity, weight vs. number).

## 7.2 Our Current Understanding

In addition to compiling historical data, new data has been collected on groundfish diets since 2006 from NWFSC Groundfish Surveys, several stock assessments that have been completed since 2006, and a synthesis of diet information that was completed in 2009 (Dufault et al. 2009). The NMFS Synthesis (2013, p. 90-99) provided new diet information for 11 selected groundfish representing a wide diversity of species in this assemblage, largely in response to the gaps and new data identified by the EFHRC. Groundfish diets comprised a wide range of taxa from polychaete worms to finfish, and some groundfish have much more specialized diets than others. Rather than simply list all species identified as prey as was done in Amendment 19, the NMFS Synthesis provided quantitative estimates of percent diet composition of each prey species in the diets of the 11 selected groundfish species. The results indicated that there is sufficient new information not included in Amendment 19. However, the Phase I report and the NMFS Synthesis did not propose criteria for distinguishing "major prey" for groundfish

[8] 50 C.F.R. § 600.815(a) (7).
[9] NMFS Memorandum by P. Montanio: Guidance to Refine the Description and Identification of Essential Fish Habitat. October 30, 2006.

nor did they conduct any assessment of potential impacts to prey species by fishing or non-fishing activities.

One proposal received by the PFMC in response to the EFH RFP addressed prey species (Oceana/Ocean Conservancy/NRDC). This proposal includes recommendations for identifying major prey species for FMP groundfish at a more taxonomic specific level based on a new proposed Major Prey Index and using the newly available data from the Phase 1 Report and NMFS Synthesis. The Major Prey Index represents a novel tool that integrates multiple metrics of prey importance and data quality criteria. No proposal recommended changes to management of groundfish prey species currently under Council management. Furthermore, no assessment has been conducted to date of whether fishing or non-fishing activities are causing adverse impacts to Groundfish EFH through reduction in prey. Therefore, the EFHRC concludes that the Phase 1 Report, NMFS Synthesis document, and one proposal present new information on prey species that could form the basis for a more robust approach to identifying major prey species of groundfish in the Description of EFH.

In summary, the Phase 1 Report, data catalog, NMFS synthesis report, and Oceana/Ocean Conservancy/NRDC proposal offer additional information that is relevant, and is at a higher level of specificity than what is currently included in the Groundfish FMP. Furthermore, more specific identification of major prey species for Groundfish may also provide benefits to the Council for cross-cutting initiatives such as the Fishery Ecosystem Plan and its associated Forage Initiative.

## 7.3 Recommendations

- The EFHRC recommends that higher levels of specificity (ideally at the species level) would be more useful than broad prey categories for EFH management purposes. For example, species-specific major prey identification would enable NMFS and the Council to clearly identify which groundfish prey species are currently under Council management.
- The EFHRC recommends that the Council consider modifying the description of major prey species for groundfish. The Council should establish criteria for distinguishing major prey species (rather than a full exhaustive list of all prey items) for each groundfish species and life stage. The new Major Prey Index proposed by Oceana/Ocean Conservancy/NRDC has merit both in terms of methodology and substance. This index should be further explored as a potential tool for refining and updating the list of major prey species in the Groundfish FMP during Phase 3.
- The EFHRC recommends that once the Council has updated its list of major prey species in its description of EFH, that the Council conduct an assessment of 1) the extent to which fishing and/or non-fishing human impacts may be occurring on major prey species for groundfish, either through direct take or impacts to prey habitat; and 2) whether these impacts have significantly reduced the availability of such prey so as to reduce the quality of EFH (i.e., are there adverse impacts?).

# 8 Designation of Habitat Areas of Particular Concern

## 8.1 Summary from Amendment 19

According to the regulations that implement the EFH provisions of the MSA, FMPs should identify specific types or areas of habitat within EFH as habitat areas of particular concern (HAPCs) based on one or more of the following considerations [50 CFR 600.815(a)(8)]:

- The importance of the ecological function provided by the habitat.
- The extent to which the habitat is sensitive to human-induced environmental degradation.
- Whether, and to what extent, development activities are or will be stressing the habitat type.
- The rarity of the habitat type.

While the HAPC designation does not add any specific regulatory authority or process, it highlights certain habitat types and areas that are of high ecological importance. Councils may implement management measures to minimize the effects of fishing activities on these habitats; and Federal actions with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process and may be subject to more stringent EFH conservation recommendations.

The Council designated both habitat types and habitat areas (termed 'areas of interest') as groundfish HAPCs, which in some cases may overlap. For each HAPC, there was a clear link to the EFH regulatory considerations, which is described in Amendment 19 to the Pacific Coast Groundfish Fishery Management Plan and the associated Final Environmental Impact Statement (EIS) (NMFS 2005), and Record of Decision (NMFS 2006).

HAPCs based on Habitat Types

Four habitat types were designated as groundfish HAPCs in Amendment 19: estuaries; canopy kelp; seagrass; and rocky reefs. Amendment 19 describes the defining criteria of habitat-type HAPCs and mapped their locations using the best available data. While the estuary HAPC was accurately and precisely mapped, this was not so for the other habitat type HAPCs due to temporal and spatial variation (canopy kelp and seagrass) or incomplete mapping data (canopy kelp, seagrass, and rocky reefs). The map, therefore, is only a first approximation of the location of these other HAPCs, which must rely, instead, on the defining characteristics described in Amendment 19.

HAPCs based on Habitat Areas

A number of habitat areas, or "areas of interest" were designated as HAPCs in Amendment 19 due to their unique geological and ecological characteristics:

- Off of Washington: All waters and sea bottom in state waters shoreward from the three nautical mile boundary of the territorial sea shoreward to MHHW.
- Off of Oregon: Daisy Bank/Nelson Island, Thompson Seamount, and President Jackson Seamount.
- Off of California: all seamounts, including Gumdrop Seamount, Pioneer Seamount, Guide Seamount, Taney Seamount, Davidson Seamount, and San Juan Seamount; Mendocino Ridge;

Cordell Bank; Monterey Canyon; specific areas in the Federal waters of the Channel Island National Marine Sanctuary; specific areas of the Cowcod Conservation Area.

EFH 5-Year Review Process for New HAPC Designations

Currently, the process to designate new HAPCs is done through the establishment of a standing committee that serves the Council by considering EFH related proposals including those related to HAPCs. This committee is currently the EFHRC.

## 8.2 Our Current Understanding

Since the passage of Amendment 19, newly collected and interpreted data on seafloor habitats have increased our understanding of where habitat-type HAPCs are located, particularly the extent and location of rocky reefs. Section 3.2 of the Phase 1 report describes (in both text and maps) new information on the distribution of seafloor habitat types, including data on bathymetry, physical habitat interpretations, and biogenic components of habitat. These data indicate the location of currently known rocky reefs, including newly-mapped rocky reefs, which in some cases are delineated at higher resolutions using multibeam echosoundar data, as compared to the data presented in 2005.

The EFH Synthesis Report provides updated information on the proportions of habitat types indicating that coast-wide hard and mixed substrate appears to be relatively rare (7.2% and 3.3%, respectively) when compared coast-wide to soft substrate (89.5%). The rarity of habitat type is one of the four considerations for designating HAPCs [50 CFR 600.815(a)(8)].Additionally, there is new information since the 2006 designation of EFH conservation areas that also highlight the abundance and distribution of known biogenic habitats found on both hard and soft substrate as discussed in the Synthesis Report.

The Phase 1 report, Section 3.3, also includes summaries of recent information related to habitats for each life-history stage of the five species groups designated in the FMP for Pacific Coast groundfishes. The same habitats (estuaries, canopy kelp, seagrass, and rocky reefs), which are identified as habitat-type HAPCs, remain important for all life history stages of groundfish. This new life-history information does not provide evidence to suggest that the four categories of habitat-type HAPCs warrant any changes.

Three proposals recommend new HAPC designations, with a total of 5 proposed HAPCs. Four HAPCs are proposed off the coast of California: Point Sur Platform, La Cruz Canyon, Fanny Shoal to Rittenburg Bank, and Cochrane Bank. One HAPC is proposed off the coast of Washington: Olympic 2.

The five proposed HAPCs identify areas that include known hard substrate and soft substrate, observed adult and juvenile groundfish species and observed biogenic habitat. Several of the proposed HAPCs are shown to contain observed biogenic habitat in relatively high abundance according to the Synthesis

Report[10]. The following highlights from each of the proposed HAPCs are provided to show some of the key considerations relevant to designating a HAPC:

MBNMS 1 - Point Sur Platform: The proposed area includes hard and soft bottom habitat on the shelf and is identified by MBNMS as a Sanctuary Ecologically Significant Area, defined by the location of unique, rare, or important habitat. This area has been surveyed by ROV and camera sled and many types of rockfish have been observed.

MBNMS 2 - La Cruz Canyon: The area contains a geologic feature of mainly hard substrate (83.2%) in relatively shallow depths (95 – 354 m) on the outer shelf and shelf break. It is identified by MBNMS as Sanctuary Ecologically Significant Area as defined above.

GFNMS 1 - Fanny Shoal to Rittenburg Bank: This area has rocky habitat and range of biogenic habitat including one of the highest levels of observed abundance in the region. A minimum of 23 taxa of adult and juvenile groundfish species have also been observed in this area, with a significant positive correlation between observed rockfish and biogenic habitat.

GFNMS 2 – Cochrane Bank: More than half of the proposed area includes known hard substrate. A minimum of 23 taxa of adult and juvenile groundfish species have also been observed in this area. One large black coral colony, *Antipathes dendrochristos* (Opresko 2005), was found on Cochrane Bank, representing a substantial range extension for the species.

OCNMS 1 – Olympic 2[11]: The proposed area includes additional rocky reef physical habitats, biogenic structures, and shelf and canyon habitats. More than 11,000 fish of 55 different species were recorded during 35 ROV surveys of the proposed HAPC area.

Also, according to the Phase 1 Report, currently designated HAPCs have a greater proportion of areas exposed to 'high' non-fisheries threats (i.e. nearshore pollution) - both individual and cumulative - than were present in non-HAPC areas. This is largely due to HAPCs in shelf areas being exposed to land-based threats, and their selection in 2005 by the Council to address non-fishing impacts. All five proposed HAPCs are on the continental shelf, but at further distance from the mainland compared to currently designated HAPCs. Therefore, the proposed HAPCs have lower combined pressure intensity according to the Synthesis Report primarily because of distance from the mainland. Additionally, all five proposed HAPCs are within a National Marine Sanctuary, which can provide additional protections from non-fishing impacts, including protections from seafloor disturbances (other than fishing gear), ballast water exchange, effluent discharge, and offshore drilling for oil and gas.

[10] It should be noted that biogenic habitat knowledge is non-uniform: No systematic regional survey of coral and sponge distributions and abundance has been conducted. A majority of observations have been made over the past two decades, primarily during targeted studies on habitats suspected to support coral and sponge communities.

[11] There are 3 proposed design options for the proposed Olympic 2 HAPC. Option 1 would be the existing boundaries of Olympic 2 Conservation Area and Options 2 and 3 include additional rocky reef physical habitats, biogenic structures, and increased shelf and canyon habitats.

Four considerations are used for identifying specific types or areas of habitat within EFH as HAPCs according to the regulations that implement the EFH provisions of the MSA. Each HAPC proposal and its corresponding consideration(s), as put forward in each proposal, are presented in the Table below. The EFHRC has not considered the scientific rigor or created standards for these determinations, but rather the information presented is based on considerations raised in each of the proposals.

| **Proposal Name** | **Considerations for the Designation of HAPCs** *[50 CFR 600.815(a)(8)]* | | | |
|---|---|---|---|---|
| | The importance of the ecological function provided by the habitat. | The extent to which the habitat is sensitive to human-induced environmental degradation. | Whether, and to what extent, development activities are or will be stressing the habitat type. | The rarity of the habitat type. |
| MBNMS 1: Point Sur Platform | ✓ | | | ✓ |
| MBNMS 2: La Cruz Canyon | ✓ | | | ✓ |
| GFNMS 1: Fanny Shoal/Farallon Islands to Rittenburg Bank | ✓ | ✓ | | ✓ |
| GFNMS 2: Cochrane Bank | ✓ | ✓ | | ✓ |
| OCNMS 1: Olympic 2 | ✓ | ✓ | | ✓ |

## 8.3 Recommendations

1. The EFHRC recommends the development of an updated map showing the approximate location and extent of HAPC habitat types. Although the designation of habitat-type HAPCs must rely on the defining characteristics described in Amendment 19, an updated map would better represent the known location of habitat-type HAPCs at a new fixed point in time, since the previous map does not reflect the new information.
2. The EFHRC recommends that the Council consider designating new HAPCs based on information in the Phase 1 report, the Synthesis report, and the proposals.

# 9 Research and Information Needs

Thoughtful delineation of research and information needs has been a feature of the Council's groundfish EFH process beginning with Amendment 19 and continuing through this 5-year review. The following analyses have been produced:

- **2004 Amendment 19 Risk Assessment: Section 5.3 – Data Gaps Analysis** describes limitations of information on geological substrate, bathymetry, biogenic habitats, habitat use by groundfish, sensitivity and recovery of habitat types, fishing effort, non-fishing effects, cumulative impacts, and socio-economics. This analysis includes the significance of specific data gaps and needed research.

- **Pacific Coast Groundfish Fishery Management Plan: 2005 Appendix B.5 Research Needs and Data Gaps Analysis for Groundfish Essential Fish Habitat**, adapted from the above product.

- **PFMC's 2012 Pacific Groundfish EFH Phase 1 Report: Section 7 - Information and Research Needs**, which details limiting factors for this current review process and provides recommendations focused on improving the designation, monitoring, and effectiveness of groundfish EFH.

- **PFMC's 2013 Research and Data Needs: Section 3 – Marine Protected Areas and Essential Fish Habitat; Section 4 – Economics and Social Science Components and Appendix II**, include high priority items in the Addendum to the Pacific Coast Groundfish 5-year Review of EFH.

- **September 2012 Supplemental EFHRC Report**[12], in which the EFHRC prioritized information needs from the Phase 1 report.

- **April 2013 Supplemental EFHRC Report**[13], in which the EFHRC prioritized information needs in addition to the NMFS Synthesis document.

In addition, NMFS produced the 2010 Habitat Assessment and Improvement Plan (HAIP, NMFS 2010) to evaluate habitat-related research needs for each region of the U.S. The HAIP identifies the amount and type of information that should be available to NMFS and the Councils to address EFH and other habitat-related mandates, and includes a detailed assessment of the budget and personnel needed for each NMFS Science Center to adequately pursue these mandates.

## 9.1 EFHRC Statement

[12] http://www.pcouncil.org/wp-content/uploads/H6b_SUP_EFHRC2_SEP2012BB.pdf

[13] http://www.pcouncil.org/wp-content/uploads/D6c_SUP_EFHRC_APR2013BB.pdf

The EFHRC re-affirms the data and research needs that have been listed in Section 7 of the Council's Pacific Groundfish EFH Phase 1 Report and prioritized in the EFRC's September 2012 supplemental report; the EFHRC also concurs with Sections 3, 4, and Appendix 2 of the Council's 2013 Research and Data Needs document. We further support the resource needs for the NW and SW Fisheries Science Centers described in the HAIP and note that without funding to address those needs, Council decisions on groundfish EFH will continue to be significantly affected by data gaps. Most of the data gaps described in Amendment 19 remain as significant obstacles to this review.

Consistent with the Introduction section of this report, some analytical needs (as described in the products listed above) can be pursued using existing data and information as part of a comprehensive habitat assessment. For example, the Information and Research Needs section of the Phase 1 Report calls for an evaluation of "corals and sponges as essential habitat for groundfish . . . " . This task could be accomplished using existing literature and data, and should be completed as soon as possible in order for the Council to make informed decisions during Phase 3 of this 5-year review. Conducting new research to address data deficiencies also is necessary and likely will require new funding; supporting these studies should be viewed as a programmatic investment for future reviews.

Without support to conduct such analyses and research, the Council will not have adequate answers to critical questions such as:

- Have EFH fishery closures met the goals and objectives of Amendment 19?
- How much habitat needs to be protected to maintain a sustainable fishery?
- What changes have occurred to fish and invertebrate communities inside the closures?

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# Appendix A: BASS Description and Summary of Proposals

## 1. Summary of Proposals

The Council issued a request for proposals to modify provisions of Pacific Coast groundfish EFH, with proposals due July 31, 2013. Eight proposals were received, representing a wide substantive and geographic range. Two proposals were from National Marine Sanctuaries (NMS), four were from conservation organizations, one from a commercial fishing-related group, and one was co-sponsored by a NMS and the Washington State Department of Fish and Wildlife. All eight proposals and supporting documentation are available on the Council's ftp site: ftp.pcouncil.org//pub/GF_EFH_Review 2011-2012. The RFP and other primary documents related to the EFH review can be found at http://www.pcouncil.org/2013/05/25450/rfp-gf-efh-may2013/. Five are confined to limited geographic areas, and three are essentially coastwide. One proposal (EDF) was subsequently withdrawn from consideration. Following is a brief summary of each proposal.

The proposals primarily focused on protecting discrete areas from fishing and fishing gear impacts. In many cases, proposed closed (or restricted) areas were somewhat coincident with existing closed areas. In other cases, proposals include spatially distinct areas for consideration of various levels of restricted fishing activity. Some proposals include recommendations to open up parts of currently closed areas.

The EFHRC's evaluation included a determination regarding the EFH subject areas described in the regulations (listed in Section 1.4). Table 2 below shows which proposals contain elements of those EFH subject areas.

Table 2: EFH subject areas as represented in proposals.

| | **EFH Subject Area** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Proposal** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| A | √ | √ | √ | | √ | | √ | | |
| B | √ | √ | | | √ | | | √ | |
| C | √ | √ | | | √ | | | | |
| D | √ | √ | | | √ | | | √ | |
| E | √ | √ | | | | | | | |
| F | √ | √ | | | √ | | | √ | |
| G | √ | √ | | | √ | | | √ | √ |
| H | | √ | | | | | | | |

Proposal Letter code
A = Oceana/NRDC/OC
B = Marine Conservation Institute
C = Greenpeace
D = Olympic Coast National Marine Sanctuary
E = Fishermen's Marketing Association
F = Gulf of the Farallones National Marine Sanctuary
G = Monterey Bay National Marine Sanctuary
H = Environmental Defense Fund

EFH Subject Area
1 = Identification and Description
2 = MSA Fishing Activities
3 = Non-MSA Fishing Activities
4 = Non-Fishing Activities
5 = Conservation and Enhancement
6 = Cumulative Effects
7 = Prey Species
8 = Habitat Areas of Particular Concern
9 = Research Recommendations

## Proposal Summaries

Fishermen's Marketing Association (FMA)

The FMA proposal is to modify the existing bottom trawl closed area known as Eel River Canyon, such that the eastern boundary of the closure would align with the 75 fathom contour. This also aligns with the eastern boundary of the trawl RCA. The proponents state that the existing eastern boundary extends into sandy bottom habitat that is outside of the canyon area, and it divides a divides historic tow locations into two sections that are too small to trawl individually. The proposers contend that while the modification would benefit a few local fishermen, it would not have a great impact on the value of the entire fishery. The proposal was considered by the Council in 2008, under an interim proposal process, but the Council made the decision at that time to forego any EFH changes until the upcoming periodic review was completed.

Oceana/Natural Resources Defense Council/Ocean Conservancy (Oceana/NRDC/OC)

Oceana also submitted a proposal in 2008 under the interim proposal process, but on a much more limited scale than the current proposal. As with the Eel River Canyon proposal, the Council chose to forego making any changes to EFH until the periodic review was completed. The current Oceana/NRDC/OC proposal is to create or modify 66 bottom trawl closed areas, open nine areas to bottom trawling that are currently closed, improve enforcement of EFH Conservation Areas, implement new management measures related to midwater trawl gear in EFH Conservation Areas, improve the identification of major prey species for groundfish, and add all West Coast waters deeper than 3500 meters, as EFH.

Monterey Bay National Marine Sanctuary (MBNMS)

The MBNMS proposal is to create three and modify seven discrete areas that would be closed to bottom trawling (except demersal seine gear), and to open five areas that are currently closed to bottom trawling. The proposal also includes conceptual "Voluntary Management Areas" as a pilot project that would involve voluntary agreements to avoid bottom trawling in three areas and proposes added enforcement provisions related to location and deployment of trawl gear.

Gulf of the Farallones National Marine Sanctuary (GFNMS)

The GFNMS proposal is to modify one existing bottom trawl closed area and add two additional areas, based on presence of biogenic habitats including rocky reefs and canyons, which are currently included in groundfish EFH descriptions as habitat elements of HAPCs. The proposal offers options for one of the new closed areas to be closed to bottom trawl gear (except demersal seine), or to all bottom contact gear. The other two areas are proposed as closed to bottom trawl gear (except demersal seine).

Greenpeace

Greenpeace proposes identifying nine submarine canyon areas as EFH, applying protective measures to freeze the existing footprint of fishing activities, and beginning a process to phase out some fishing gear types such as drift gill nets and bottom trawls. In many cases, the proposed canyon areas co-occur with existing HAPCs or other management or Conservation Areas. The nine proposed areas are distributed between the Washington coast and (approximately) Morro Bay, California.

Environmental Defense Fund (EDF) (*Subsequently withdrawn from consideration)*

EDF proposes eliminating the small footrope requirement south of 40° 10' N. latitude, to provide greater protection to shelf soft bottom habitats. The requirement was designed to decrease effort over rocky reef habitats, but EDF notes that greater impact to soft bottom habitat has been a trade-off. The proposal suggests that rocky reef habitats and species will still be protected because of the risk of catching rebuilding species and exceeding individual quota pounds.

Olympic Coast National Marine Sanctuary (OCNMS) and Washington State Department of Fish and Wildlife (WDFW)

This proposal offers three options for modifying the existing Olympic 2 bottom trawl closed area. All three options include extending the current prohibition on bottom trawl gear to include all bottom contact gear. Option 1 maintains status quo spatial boundaries, while Options 2 and 3 propose expanding the spatial boundaries. The proposal would apply only to non-tribal fisheries.

Marine Conservation Institute (MCI)

The MCI uses predictive habitat modeling to identify areas likely to have highly suitable deep sea coral habitat and proposes 29 new areas for additional habitat protections, based on modeling results. Most areas proposed for closure to bottom contact gear are adjacent to existing closed areas, although several are spatially distinct from existing areas closed to various types of bottom fishing gear. Seven areas would be closed to all bottom contact gear 22 of the new areas are proposed to be closed to bottom trawl gear and the proposed closed areas are distributed along the entire West Coast.

## 2. EFHRC's Approach to Proposal Review and Evaluation

EFHRC members reviewed the eight proposals between early August and the two-day EFHRC meeting September 4-5, 2013. During that one-month review period, EFHRC members were asked to provide qualitative evaluations of each proposal, against a background of the review criteria in the RFP. The EFHRC also had access to the Bayesian Analysis for Spatial Siting (BASS) tool, described in Section 4.2 below.

Although the short time period coupled with the volume of information contained in many of the proposals precluded a full technical analysis, the EFHRC was able to evaluate the suite of proposals qualitatively. The EFHRC expressed two other points relative to proposal evaluation and the Council's consideration of potential changes to existing EFH. First, the EFHRC's charge did not include a thorough analysis of the effectiveness of existing EFH, and therefore, the Committee did not conduct such analysis. The NMFS Synthesis did evaluate habitat coverages of existing habitat protection measures, however, it did not assess effectiveness. A more thorough evaluation of existing closures could be helpful to the Council in determining whether EFH designations and associated fishing closures have protected habitat to the degree anticipated. Second, the EFHRC anticipates that a full analysis of potential changes to EFH (including areas closed to various types of fishing activities) embodied in the eight proposals would be conducted during an FMP amendment process and in conjunction with NEPA requirements for alternatives analysis before Council decisions are made regarding these proposals.

The EFHRC's primary tasks were to evaluate the information compiled during Phase 1 and Phase 2, and make recommendations to the Council as to whether new and newly-available information warrant further consideration of changes to existing groundfish EFH. To collect committee input on how each of the eight proposals addressed the questions in the RFP, the EFHRC used the Bayesian Analysis for Spatial Siting (BASS) Decision Support tool. Ten EFHRC members participated, evaluating 18 proposal "measures" included in the BASS system, at the Portland EFHRC meeting September 4-5, 2013.

## 3 Overview of Decision Support Tools as Applied by the EFHRC

Marine Spatial Planning (MSP) involves the spatial and temporal allocation of human activities to achieve ecological, economic, and social objectives that are usually specified through a political process (Douvere and Ehler, 2009). MSP often is hindered by insufficient or uncertain information and/or by competition between user groups. As a result, a wide variety of decision support systems (DSS) have been developed to promote efficient use of marine space and resources, while reducing use-use and use-ecosystem conflicts (Coleman et al., 2011).

Bayesian belief networks (BBNs) have become a popular means for ecological and stakeholder evaluation and their usage in a spatial context has been demonstrated in several fields to model ecological support functions and other interactions useful for decision support (Dlamini, 2010; Hicks and Pierce, 2009; Lockett, 2012; Stelzenmuller et al., 2010). The Bayesian Analysis for

Spatial Siting (BASS) tool uses BBNs to describe inferred causal relationships between environmental variables and spatial site suitabilities.

The Bayesian Analysis for Spatial Siting (BASS) tool integrates uncertainties and stakeholder values with scientific measures. Additionally, scientific measures and stakeholder values can be used alone in various BASS scenarios. Although the analytical capabilities of BASS originally were designed for an evaluation of renewable energy devices, the stakeholder functions of BASS are generic and can be used in any subjective decision-making process. It was in this mode that BASS was used, essentially operating as a "voting machine" to tabulate and compile the responses from the committee members for 18 criteria for each proposal.

In addition to the primary objective of directly selecting or filtering decision alternatives, stakeholder data collected using BASS can also provide powerful diagnostic utility to the decision making process. This is a particularly valuable tool to help the facilitator understand the nature of the data (member evaluations) including: whether the evaluation process was conducted with consensus on the meaning of the criteria, and whether the process was conducted fairly. A few useful diagnostic questions addressing consensus include:

- Where are there disagreements or confusion within the committee?
- Are there specific proposals that cause disagreement?
- Are there members with outlying evaluations on a given proposal(s)?

Identifying proposals that cause disagreement in member evaluations reveals where further consideration of criteria may be needed. Identifying members with outlying evaluations provides an opportunity to expose and address specific member concerns. Knowing where consensus is high on the other hand allows a facilitator avoid topics that have already been settled.

# 4 How BASS was used by the EFHRC

The EFHRC utilized BASS in reviewing proposals for its capacity to facilitate opinion-based decision making in data-limited scenarios. The BASS tool was used in stakeholder mode by the EFHRC to evaluate general satisfaction or agreement with the public proposals to modify groundfish EFH. The EFHRC used BASS to inform their discussion of the merits of each proposal and to clarify evaluation criteria. The EFHRC intended to use results from the BASS analytical tool to inform the committee's decisions regarding the proposals and to make recommendations to the Council. Personnel from Oregon State University (Chris Romsos, Chris Goldfinger and Morgan Erhardt), the developers of BASS, supervised the data collection and assisted committee members with data entry and other questions.

Qualitative decision measures were developed and used to evaluate the EFH proposals. "How To" documents were distributed to the committee members on the use of BASS, along with login information. EFHRC members had time before the meeting to familiarize themselves with BASS and the basic login and evaluation process. The BAS system is an online system that members could log into at any time to work with and score the proposals, and save their work. Evaluations officially began at the September meeting. Each EFHRC committee member scored decision criteria according to their satisfaction that a proposal met the criteria and their confidence or certainty in the satisfaction score. The probability that a proposal satisfies a particular measure was computed within BASS. Examination of the degree of satisfaction with each measure was useful in describing strengths and weaknesses of the proposals. Thus, the mean probability of committee satisfaction for each proposal is presented against each decision measure (Section 3: Table 1 & Figure 1).

Using an online web application, EFHRC members entered their level of satisfaction and uncertainty for each of 18 evaluation measures (which were derived directly from the EFH Phase II RFP)[14]:

**1. Proposal Completeness** – Is the proposal complete? Please indicate your satisfaction regarding proposal completeness (move the dot up or down). Indicating very high or 100% satisfaction will indicate a complete proposal. If you are uncertain of your estimation, here or in any subsequent evaluation, adjust your certainty (the right/left placement of the dot) accordingly.

**2. Proposal Consistency** –Is the proposal consistent with the goals and objectives of the FMP and the Council's responsibility to identify and protect EFH and minimize the adverse effects to EFH from Council-managed fishing activities? Please indicate your satisfaction that the proposal is consistent with the goals and objectives of the FMP and the Council's responsibility to identify and protect EFH and minimize the adverse effects to EFH from the Council-managed fishing activities. 100% satisfaction indicates that that the proposal is completely consistent.

**3. Spatial Accuracy** – Are the coordinates consistent with the proposed actions and do they map out correctly? Please indicate if the spatial components of the proposed action are satisfactory. Coordinates and boundaries that are consistent with a proposed action should be scored as highly satisfactory.

**4. Data Sufficiency** – Are the data and analyses sufficient to evaluate the proposal effects and objectives, and if not, why? Please indicate if the proposal presents data and analyses sufficient to evaluate the proposed effects and objectives? Proposals that present sufficient information and analysis should be scored as highly satisfactory.

[14] RFP criteria not used in the BASS assessment include those where (1) there was no discriminating metric; (2) there was no consensus on description of the metric; and, (3) it could not be incorporated into BASS.

**5. Data and Info. Supports Proposal** - How well does the available information, including the nature of the data, support the proposal? Please indicate your satisfaction that the available data is useful in supporting the proposed action. Proposals where the data and information are sufficient and appropriately used should be scored as highly satisfactory.

**6. Habitat Important to GF FMP Stocks** – What is the importance of affected habitat types to any groundfish FMP stocks for their spawning, breeding, feeding, or growth to maturity? Please indicate satisfaction for affected habitat types that are demonstrated to be important as defined. Vary your satisfaction and certainty according to your assessment/understanding and according to the support provided through the proposal.

**7. Habitat Vulnerable** - To what extent is the habitat vulnerable to the effects of fishing and other activities? For consistent evaluation across stakeholders, vulnerability should be assessed as follows:

High Satisfaction = High Vulnerability

Low Satisfaction = Low Vulnerability

In this way satisfactory evaluations are given for proposals that identify vulnerable habitats.

**8. Habitat Unique/Rare** - Are there unique rare or threatened habitats in areas addressed by this proposal? Proposals that address unique, rare, or threatened habitats should be evaluated as satisfactory.

**9. Change in Fishing Location and Effort** – What are the changes in location and intensity of fishing effort that may adversely affect EFH? Do the proposed changes in location and intensity of fishing effort adversely affect EFH? Proposals that don't adversely affect EFH should be rated as satisfactory.

**10. Collaboration** – What has been the degree of collaboration with affected fishermen, conservation interests, communities, and other stakeholders, to identify socioeconomic costs and benefits? High collaboration = High Satisfaction.

**11. Best Available Models** – If models are used in the proposal, are they consistent with the best available information? High satisfaction indicates that the proposal uses models that are consistent with the best available information. Proposals that do not use models should be ranked 50% satisfaction 0% certain (leave the dot at its origin).

**12. Stakeholder Impact Potential** – How will fishing communities and other stakeholders be positively affected by the proposal? High positive impact potential = High Satisfaction. Low positive impact potential = Low Satisfaction.

**13. Impact on Tribal Usual and Accustomed** – Will Tribal Usual and Accustomed areas be positively affected by the proposal? High positive impact potential = High Satisfaction. Low positive impact potential = Low Satisfaction.

**14. Impact to Overfished Stocks** – How will overfished Stocks be affected by the proposal? Positive Impact = High Satisfaction, negative Impact = Low Satisfaction

**15. State, Tribal, Federal Coordination** –Has there been coordination with appropriate state, Tribal, and Federal enforcement, management, and science staff? Proposals demonstrating coordination = High Satisfaction

**16. Improves Knowledge/GAPS for EFH** – Does the proposal address data gaps identified in the original risk analysis such that there is an increased understanding of EFH for one or more species? (e.g. does new data document the importance of a habitat type to groundfish, or has data quality improved enough to change understanding of habitat distribution?) Proposals that address data gaps identified in the original risk analysis and/or increase the understanding of EFH for one or more species = High Satisfaction.

**17. Improves Knowledge of Habitat Use** –Does the proposal address data quality regarding habitat use? (E.g. improves from level 1 (presence/absence) to level 2 (density) or higher?) Proposals that improve knowledge of habitat use = High Satisfaction

**18. Identifies Existing Deficiencies** – Does the proposal demonstrate that some elements of groundfish EFH may no longer be precautionary and comprehensive? (e.g. distribution/density no longer matches closed areas, new information shows that some habitats are not being adequately protected, or new information on recovery shows that a habitat type is more or less sensitive than previously known.) Proposals that demonstrate protection deficiencies or inadequate protections = High Satisfaction

During the meeting EFHRC members were guided in the interpretation of each measure. There was considerable discussion regarding how each measure should be evaluated with the goal of developing a uniform understanding of each measure across committee members. Nevertheless, survey design is an imperfect process at best and there is undoubtedly some uncertainty remaining among the members on the precise meaning of each question. This is an aspect that is not specific to the use of a decision support system, and is inherent in any survey or decision making process. The EFHRC membership generally agreed that the use of the BASS system helped to focus and improve understanding of the criteria and the implications of their decisions.

# 5 Section 3: Results

The results of the EFHRC process as collected by the BASS system were summarized by Decision Measure & Proposal and presented graphically during the meeting. Only RAW satisfaction scores (no uncertainty) were used during the meeting to give the members a quick look at the results because we didn't have access to the adjusted (including uncertainty) numbers (software

limitation). The raw data were used during the meeting to assist with writing summary recommendations. Post meeting plots and tables (Table 1, Figures 1&2) present adjusted Probability of Satisfaction scores utilizing the uncertainty values recorded in BASS. Summary plots were used in committee to guide the discussion while developing recommendations.

***Results by Measure:*** Table 1 and Figure 1 are helpful for getting a sense of how the committee viewed individual proposals and based on the 18 specific criteria requested from the RFP. While proposals often cluster with similar scores for particular measures there are numerous examples of proposals scoring above (standing out) or below (falling short) the 0.5 Probability of Satisfaction threshold. Furthermore, it is straightforward to identify global trends such as criteria that were not well satisfied by any proposal. Figure 1 shows the cumulative results of all 18 measures by proposal and reveals that some criteria such as "Spatial Accuracy (# 3), and "Importance to FMP stocks" (#6) were consistently satisfied. Some measures such as "Impact of Tribal Usual and Accustomed Areas" (#13) & "Knowledge of Habitat Use" (#17) are examples of criteria that were not well satisfied in any proposal in the view of the EFHRC members. Other measures were highly variable, with high consistency for measures 9, 14, 17 with varying levels of satisfaction, and high variability is noted for most of the remaining measures.

Table 1. BASS (Bayesian Analysis for Spatial Siting) adjusted results from the September 4-5 EFHRC meeting. Scores reflect the mean probability of satisfaction in each evaluation measure across the 10 EFHRC members.

| | Mean Probability of Satisfaction (adjusted by evaluator uncertainty) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Proposal Evaluation Measure | EDF | FMA | GFNMS | GP | MBNMS | MCI | OCEANA | OCNMS |
| 01 Proposal Completeness | 0.5795 | 0.7585 | 0.8395 | 0.577 | 0.854 | 0.7345 | 0.857 | 0.849 |
| 02 Proposal Consistency | 0.582 | 0.6435 | 0.7905 | 0.4715 | 0.7505 | 0.599 | 0.789 | 0.7525 |
| 03 Proposal Spatial Accuracy | 0.6715 | 0.8005 | 0.7885 | 0.606 | 0.816 | 0.7145 | 0.807 | 0.7385 |
| 04 Proposal Data Sufficiency | 0.299 | 0.602 | 0.7475 | 0.344 | 0.74 | 0.41 | 0.7205 | 0.568 |
| 05 Data and Info. Supports Proposal | 0.292 | 0.624 | 0.735 | 0.342 | 0.7425 | 0.512 | 0.6445 | 0.566 |
| 06 Habitat Important To GF FMP Stocks | 0.621 | 0.682 | 0.752 | 0.704 | 0.751 | 0.612 | 0.633 | 0.674 |
| 07 Habitat Vulnerable | 0.55 | 0.41 | 0.662 | 0.556 | 0.678 | 0.547 | 0.628 | 0.636 |
| 08 Habitat Unique/Rare | 0.44 | 0.304 | 0.63 | 0.634 | 0.715 | 0.543 | 0.5455 | 0.6025 |
| 09 Change in Fishing Location and Effort | 0.556 | 0.656 | 0.54 | 0.564 | 0.654 | 0.525 | 0.552 | 0.506 |
| 10 Collaboration | 0.401 | 0.522 | 0.6 | 0.27 | 0.79 | 0.3335 | 0.6375 | 0.5085 |
| 11 Best Available Models | 0.468 | 0.5 | 0.56 | 0.524 | 0.614 | 0.419 | 0.5965 | 0.542 |
| 12 Stakeholder Impact Potential | 0.484 | 0.662 | 0.572 | 0.2965 | 0.694 | 0.361 | 0.457 | 0.405 |
| 13 Impact on Tribal Usual and Accustomed | 0.476 | 0.5 | 0.5 | 0.332 | 0.5 | 0.338 | 0.485 | 0.436 |
| 14 Impact on Overfished Stocks | 0.51 | 0.514 | 0.586 | 0.733 | 0.632 | 0.54 | 0.5885 | 0.56 |
| 15 State, Tribal, Federal Coordination | 0.331 | 0.5265 | 0.63 | 0.288 | 0.742 | 0.302 | 0.6175 | 0.4905 |
| 16 Improves Knowledge/Gaps for EFH | 0.301 | 0.315 | 0.454 | 0.329 | 0.6925 | 0.376 | 0.4725 | 0.435 |
| 17 Knowledge of Habitat Use | 0.344 | 0.354 | 0.48 | 0.353 | 0.522 | 0.4 | 0.48 | 0.456 |
| 18 Identifies Existing Deficiencies | 0.678 | 0.632 | 0.768 | 0.452 | 0.679 | 0.532 | 0.7145 | 0.7185 |

Proposal abbreviations used in Table 1 and all other appendix figures:

EDF = Environmental Defense Fund

FMA = Fisherman's Marketing Association

GFNMS = Gulf of the Farallones National Marine Sanctuary

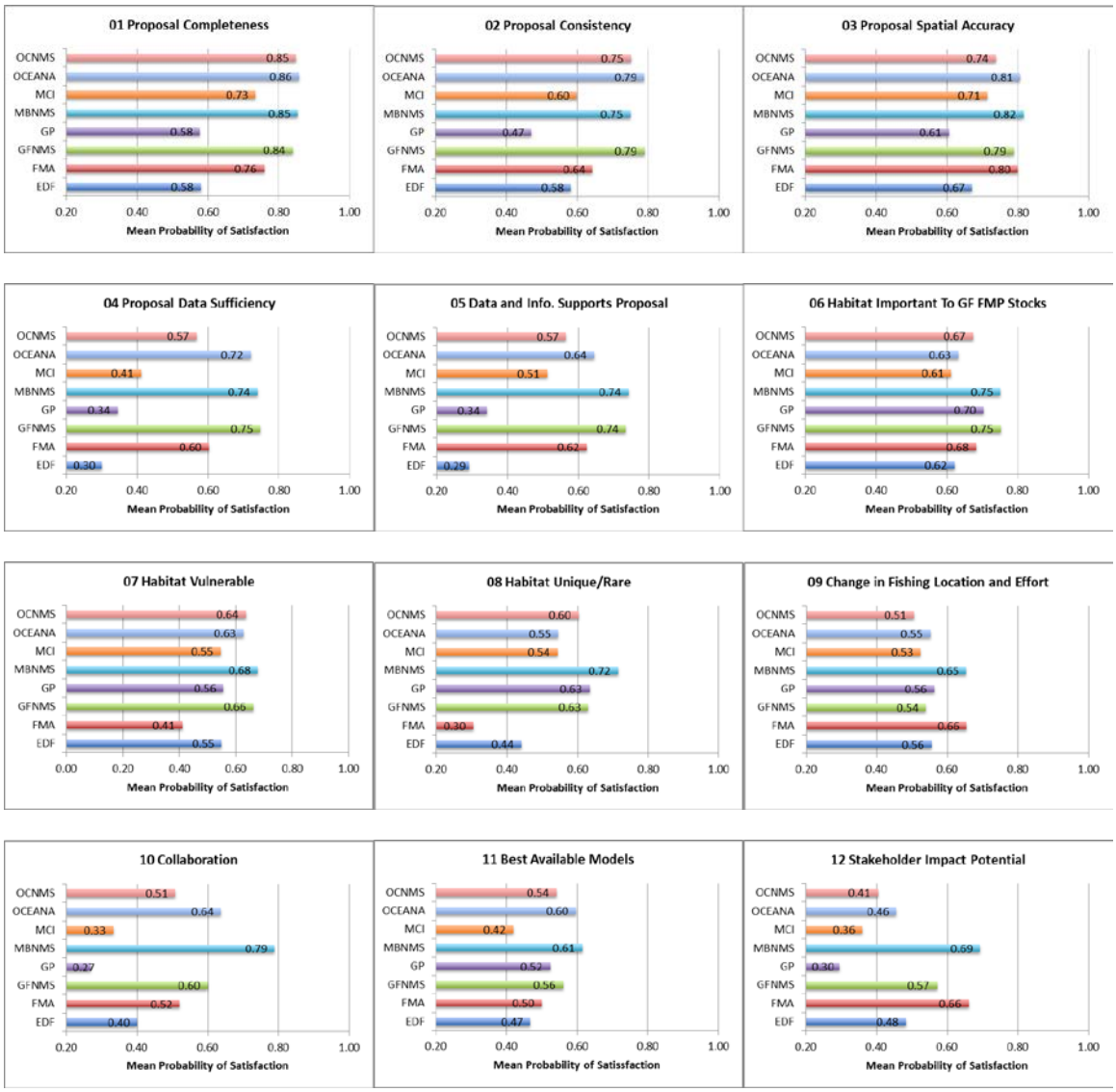
GP = Greenpeace

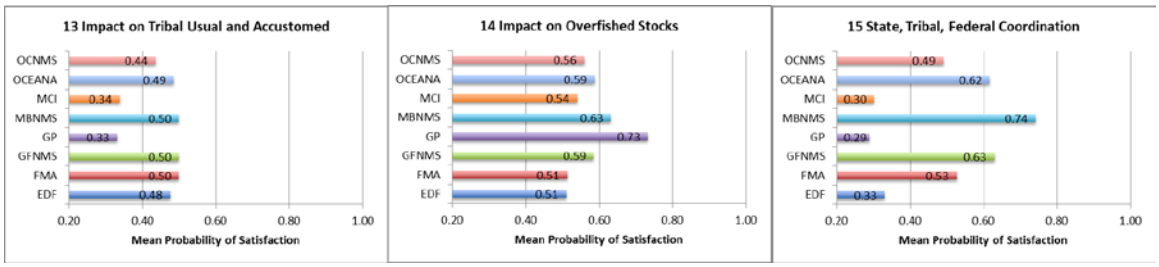
MBNMS = Monterey Bay National Marine Sanctuary

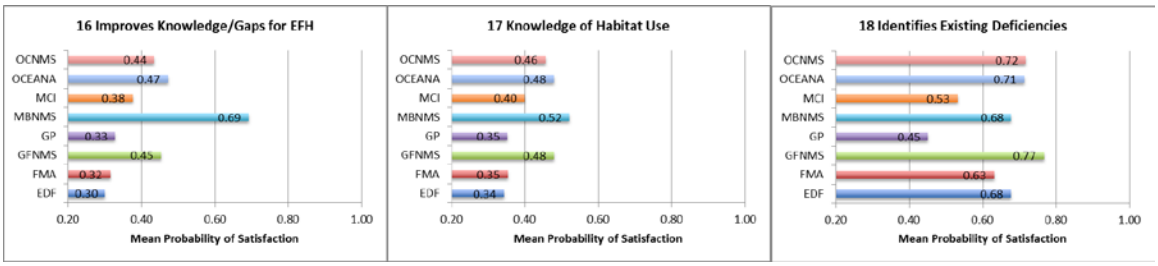
OCEANA – no abbreviation used

OCNMS = Olympic Coast National Marine Sanctuary

Figure1. The following bar charts present mean Probability of Satisfaction scores for each evaluation measure (chart) summarized by proposal (bar) and across all committee members (10 member evaluations per bar).




13 Impact on Tribal Usual and Accustomed
OCNMS 0.44
OCEANA 0.49
MCI 0.34
MBNMS 0.50
GP 0.33
GFNMS 0.50
FMA 0.50
EDF 0.48
0.20 0.40 0.60 0.80 1.00
Mean Probability of Satisfaction
14 Impact on Overfished Stocks
OCNMS 0.56
OCEANA 0.59
MCI 0.54
MBNMS 0.63
GP 0.73
GFNMS 0.59
FMA 0.51
EDF 0.51
0.20 0.40 0.60 0.80 1.00
Mean Probability of Satisfaction
15 State, Tribal, Federal Coordination
OCNMS 0.49
OCEANA 0.62
MCI 0.30
MBNMS 0.74
GP 0.29
GFNMS 0.63
FMA 0.53
EDF 0.33
0.20 0.40 0.60 0.80 1.00
Mean Probability of Satisfaction




## *Summary Recommendations by Measure:*

**Measure 1: Proposal Completeness, EFHRC Mean Satisfaction Score**

All proposals were considered complete however, the MCI and GP proposals would benefit from additional work. The EFHRC noted that the MCI proposal presents a model to be considered, rather than explicit management measures. The Greenpeace proposal lacks details and supporting information.

**Measure 2: Proposal Consistency, EFHRC Mean Satisfaction Score**

All proposals were considered consistent with EFH provisions with the exception of certain aspects of the Greenpeace (GP) proposal. In this proposal the EFHRC felt that the identification of canyons along the entire west coast was very generalized and that feature combined with the discussion on pelagic habitat without further analysis does not provide connection to EFH management areas and regulations. In addition Greenpeace proposes moving forward on the concept of removal or phasing out of all gear types in these canyon areas.

**Measure 3: Proposal Spatial Accuracy, EFHRC Mean Satisfaction Score**

The proposals generally appeared to be accurate. The EFHRC did not identify any inaccuracies, but a detailed analysis of the coordinates was not performed.

**Measure 4: Proposal Data Sufficiency, EFHRC Mean Satisfaction Score**

The MCI, GP, EDF proposals did not provide data analysis that could be reviewed. The other proposals provided sufficient data to review.

**Measure 5: Data and information Supports the Proposal, EFHRC Mean Satisfaction Score**

There were concerns with the predictive accuracy (e.g., the taxonomic resolution utilized) of the model that was the basis of the MCI proposal, because the proposal did not include the data supporting the model results. Regarding the EDF proposal, there was some uncertainty regarding whether a footrope change would reduce impacts to soft substrate and whether there would be continued incentive to stay off rocky habitat. The Greenpeace presented rationale for their proposal but did not provide data from the synthesis report.

**Measure 6: Habitat is Important to Groundfish FMP Stocks, EFHRC Mean Satisfaction Score**

All proposals addressed habitat important to GF FMP stocks.

**Measure 7: Habitat is Vulnerable, EFHRC Mean Satisfaction Score**

All proposals provided for vulnerable habitats except FMA asserted there are not vulnerable habitats in areas proposed to reopen.

**Measure 8: Habitat is Unique or Rare, EFHRC Mean Satisfaction Score**

All proposals except FMA and EDF provided for unique and rare habitats. Regarding EDF's proposal, there was a lack of certainty of the outcome. The FMA proposal is also uncertain as it did not have an objective that addressed unique and rare habitats.

**Measure 9: Change in Fishing Location and Effort, EFHRC Mean Satisfaction Score**

For all of the proposals except FMA there is a lot of uncertainty in the EFHRC as to how they will affect fishing location and effort outside the areas proposed for closure. Further analysis will be required to understand these effects.

**Measure 10: Collaboration, EFHRC Mean Satisfaction Score**

The MBNMS proposal provided a high level of collaboration across a broad stakeholder spectrum, by reference and by incorporating community input in the proposal. Several others demonstrated significant collaboration, but are still continuing dialogue with their respective communities (Oceana, OCNMS, GFNMS). The remainder (MCI, GP) did not present evidence of an outreach effort. FMA is a stakeholder group itself, and it wasn't clear whether this measure applied adequately to the FMA proposal.

**Measure 11: Best Available Models, EFHRC Mean Satisfaction Score**

The MCI proposal presents a model that could be used in determining likely high value biogenic habitats in unsurveyed areas, but the EFHRC was not able to conduct a thorough review of the model, and therefore had significant concerns about its applicability to the EFH process.

**Measure 12: Stakeholder Impact Potential, EFHRC Mean Satisfaction Score**

It was difficult to analyze this feature in the proposals, as impacts likely vary for different stakeholder groups and the EFHRC did not conduct an analysis of the overlap of proposed areas with current fishing grounds. A full analysis of each proposal overlaid with fishing effort information in the EFH data portal should be conducted before any conclusions are made regarding stakeholder impacts, displaced revenue, etc. The MBNMS proposal addressed stakeholder impact potential to a significant degree as evidenced by the consensus support of stakeholders. The EFHRC agreed that the Greenpeace proposal would have a significant impact on a wider suite of fishing stakeholders than other proposals, and MCI

proposes to close some areas that are highly trawled, thus also having an impact on the fishing community.

**Measure 13: Impact to Tribal Usual and Accustomed Areas (U&A), EFHRC Mean Satisfaction Score**

Half the proposals only address areas that are outside the tribal U & A areas: MBNMS, GFNMS, EDF, and FMA. The other four (Greenpeace, MCI, OCNMS, and Oceana) include modifications to EFH Conservation Areas within tribal U & As, and will require collaboration and consultation with the treaty tribes, should they go forward.

**Measure 14: Impact on overfished stocks, EFHRC Mean Satisfaction Score**

All proposals except the FMA and EDF may have a positive impact to overfished groundfish FMP stocks.

**Measure 15: State, Tribal, and Federal Coordination, EFHRC Mean Satisfaction Score**

MBNMS, Oceana, and GFNMS all demonstrated coordination with the appropriate resource managers, while MCI, Greenpeace, and EDF did not. The NMS representative felt that the OCNMS demonstrated coordination, while the Tribal representative disagreed.

**Measure 16: Improves Knowledge/Gaps for EFH, EFHRC Mean Satisfaction Score**

Most of the proposals did not call out a research component specifically, except MBNMS. The EFHRC recognized this does not mean that research is not ongoing in some circumstances. There is a research component that is part of the Phase I and NMFS Synthesis Reports, and this was used by many of the proposers.

**Measure 17: Knowledge of Habitat Use, EFHRC Mean Satisfaction Score**

It was not clear to the committee how any of the proposals would improve the information needed to improve knowledge of habitat use.

**Measure 18: Proposal identifies existing deficiencies, EFHRC Mean Satisfaction Score**

The EFHRC discussed the fact that most of the proposals identified deficiencies.

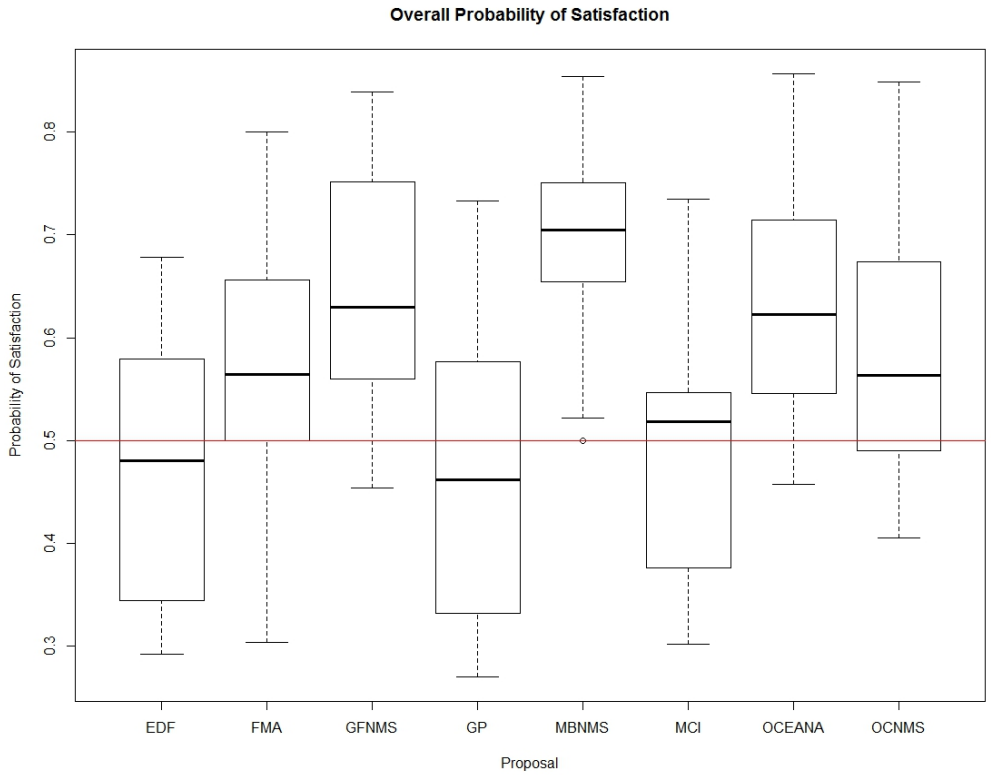
***Cumulative Results by Proposal***: Figure 2's box-plot provides a cumulative satisfaction, or overall committee and all measure, view of proposal performance. This assumes that all measures were equally important, an aspect of the process not directly addressed by the committee. We consider the 0.5 satisfaction threshold as a transition between satisfactory and unsatisfactory criteria performance. From Figure 2 we can split the proposal filed into 2 groups using the 0.5 threshold and median overall evaluation.

- satisfactory evaluations (FMA, GFNMS, MBNMS, MCI, OCEANA, OCNMS)
- unsatisfactory evaluation (EDF and GP)

Three proposals overall satisfaction rose above 60%: GFNMS, MBNMS, and Oceana. One proposal, MBNMS rose above 70% satisfaction. Six proposals were greater than 0.5 (50%) in overall satisfaction (FMA, GFNMS, MBNMS, MCI, OCEANA, OCNMS), and two proposals received less than 0.5 (50%) satisfaction (EDF and GP). No proposals fell below 0.4 (40%) in overall satisfaction.

The EFHRC discussed at some length whether or not to establish a threshold for the proposals, and therefore to approve those above and reject those below a threshold. The data are presented here for reference only, and no further analysis along these lines is included here.

Figure 2. Box-plot demonstrating the overall, all committee members and all decision measures, probability of satisfaction for each proposal. Each box and whisker represents the mean of evaluations by the full committee (n = 10) for each evaluation measure (n = 18). The dark central bar represents the median value, while the box represents the first and third quartiles. Whiskers extend 1.5 times the Inner Quartile Range.



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# Appendix B: Minority Statement on Magnuson Act Fishing Activities that May Adversely Affect EFH (Alternative to Section 3 on MSA Fishing Activities)

### 3.4.1 A Summary of Amendment 19

In 1996, based on a wide scientific recognition that protecting fish habitat is critical to maintaining productive and sustainable fisheries, Congress added the Essential Fish Habitat provisions to the Magnuson-Stevens Act, including a mandate to "minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat" (16 U.S.C. 1853(a)(7)). In response, the PFMC and NMFS issued an Environmental Assessment (NMFS 1998) concluding that no changes to management were warranted as there was no evidence indicating that fishing impacts had impaired the function of habitats in supporting groundfish. After a successful legal challenge by conservation groups (AOC v. Daley 2000), the court dismissed NMFS' analysis, rationale, and conclusion as inadequate under the National Environmental Policy Act (NEPA), along with similar NEPA analyses conducted by four other Regional Fishery Management Councils. The court required a full Environmental Impact Statement (EIS) process in each region.

Shortly thereafter, the National Academy of Sciences' National Research Council (NRC) released a report on the impacts of trawling and dredging on seafloor habitats (NRC 2002). In that report, the NRC concluded based on the best available scientific information that bottom trawling causes the following adverse impacts:

- changes in physical habitat of ecosystems;
- changes in biological structure of ecosystems;
- reductions in benthic habitat complexity;
- changes in availability of organic matter for microbial food webs;
- changes in species composition; and
- reductions in biodiversity.

The NRC also concluded that the impacts are most severe in habitats with low disturbance rates or long-lived biogenic structures, such as corals and sponges. The report recommended a suite of management changes, including area closures, conversion to fixed gears, and reduction of bottom trawl effort (NRC 2002).

Concurrently with the PFMC, though on a faster pace, the NMFS Alaska Region released a draft EIS for the North Pacific Fishery Management Council in 2004, which eventually helped to established the precedent used by the PFMC in interpreting the EFH mandate in the Amendment 19 process. NMFS stated in the draft Alaska EFH EIS that no adverse impacts from fishing were occurring based on the criteria of groundfish abundance (in relation to Minimum Stock Size Threshold) and the absence of a clear signal of stock productivity impairment resulting from habitat impacts, and therefore determined that no action was warranted (NMFS 2004, Appendix B). However, in response to controversy over the basis for this conclusion, NMFS requested review of its approach by the Center for Independent Experts

(CIE) (Drinkwater 2004), which convened a panel of six leading experts to conduct a peer review of NMFS' methodology and conclusions. The CIE concluded that NMFS' approach:

> "was not considered to be appropriate for several reasons, including that habitat effects are only one of many factors that influence the stock abundance, the criterion provides no spatial information, and the expected lag between habitat destruction and detection of its effect on the stock productivity is expected to be long, such that the habitat may be destroyed before mitigation could be implemented." (Drinkwater 2004, P.2)

Furthermore, the CIE review indicated that a precautionary approach is not optional with habitat, but rather should be a required interpretation of the EFH mandate in the absence of complete information on habitat use by groundfish:

> "a precautionary approach needs to be applied because of the large uncertainties in our knowledge of the links between habitat and the life stages of the various fish species." (Drinkwater 2004, P.2)

Of particular relevance to this section were the scientific findings of the CIE related to deep sea corals and sponges:

> "MSST is inappropriate with regard to the impact of fishing on sensitive habitats, such as corals and sponges, where any habitat impact is unlikely to be temporary and reductions > 50% cannot be regarded as minimal." (Drinkwater 2004, P. 17)

> "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, P.18)

> "Recommendation: Apply the precautionary approach to the evaluation of the effects of fishing on habitat and their subsequent influence on the sustainability of commercial fish stocks especially where the model suggests the habitat is heavily reduced and/or the recovery times are long, as well as where little is known about the role of habitat in the life history stages." (Drinkwater 2004, P.18)

> "In regards to local habitats the destruction of corals and sponges with their long recovery times are of particular concern. In keeping with the precautionary approach, these should receive special consideration." (Drinkwater 2004, P. 21)

Lastly, the CIE review addressed the problematic "burden of proof" inherent in the argument that a productivity link between habitat and groundfish must be established before action is warranted:

> "A precautionary approach needs to be applied to the evaluation of fishing effects on EFH. This is especially important given that many of the stock collapses or severe declines around the world could have been avoided or lessened by following a

> precautionary approach. It is also important given that many of species in Alaskan waters have unknown life history characteristics. In spite of this lack of knowledge these species were not listed as requiring any sort of special concern. The bar seems to be set rather high for 'proving' a link between EFH and fish production and the burden of proof is clearly shifted to those who believe EFH is important." (Drinkwater 2004, p.21)

The conclusions and recommendations of the CIE report confirmed the need to take action in the absence of definitive functional linkages between habitat components and groundfish production. Questions of how much habitat is necessary to protect in order to sustain the productivity of groundfish were at the time of Amendment 19, and are currently, unanswerable given the state of the science. Instead, the approach became to minimize the footprint of mobile bottom tending gear fisheries over time to discrete areas in a way that maximizes habitat conservation and minimizes impacts to the fishery.

This is consistent with the precautionary approach established in the NMFS Final Rule regarding levels of information for identifying EFH. Federal regulations on EFH state that a hierarchical approach should be used to organize the information necessary to identify and describe EFH (50 C.F.R. § 600.815(a)(1)(iii)(A)). Four levels are defined. Levels 1 and 2 indicate that there is information documenting co-occurrence or association, however, not enough information to draw conclusions about the relative importance of particular habitat types, whereas Levels 3 and 4 indicate that the level of information is sufficient to evaluate whether fitness advantages conferred by a particular habitat type (i.e., functional associations). Importantly, these distinctions relate to the amount of information, not the results or findings of the information. The implication of the information levels is the burden of proof necessary to conclude that a certain habitat type is a component of EFH for a given FMP species. For example, if information is only available at Level 1, then documented occurrence of an FMP species with a habitat type is sufficient to conclude that such habitat constitutes EFH. For Level 4, evidence of a clear functional relationship is necessary to for concluding a habitat types is EFH. Therefore, the degree or strength of evidence necessary to declare a habitat as EFH is contingent on the level of information. In other words, all components of habitat are to be considered part of EFH for groundfish until proven otherwise. Therefore, the need to establish a functional relationship between groundfish and corals and sponges only exists if information is available to make such a determination.

The EFH Final Rule (Section 600.815(a)(1)) 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 same 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. The nationwide EFH final rule made clear:

> "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. 2354 (Jan. 17, 2002).

Observations of fish outside any given habitat type do not provide evidence that such habitat types are not EFH. First, habitat use does not need to be obligate to affect the population of fish. For example, facultative and fortuitous 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. In this case, for example, removal of some of the complex habitat (i.e., corals) decreases the availability of suitable habitats, even though other suitable habitats still remain. Reducing the availability of suitable habitat reduces the carrying capacity of the species that uses the habitat, even if other suitable habitat remains, hence reducing productivity (Rubec et al. 1999). Therefore, even if corals and sponges are not the only type of complex habitat available to fish, their damage or removal may reduce the productivity of fish. Furthermore, 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 or at different times of day (e.g., diel shifts in habitat use). 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.

Amendment 19 and the associated FEIS contained an extensive literature review of the habitat use by FMP groundfish. The general conclusion of that review is that while detailed quantitative assessments of habitat use and linkages to groundfish productivity were lacking, there are clearly documented associations and co-occurrences between several species of FMP groundfish and structure-forming invertebrates, including corals and sponges.

On this basis, Amendment 19 took a precautionary approach based largely on Level 1 information showing co-occurrence in both the designation of EFH (where corals and sponges are included as components) and in the management of MSA fishing activities, as the presence of corals and sponges was among the primary criteria for area closures to bottom trawl fishing gear. Furthermore, NOAA asserted: "NOAA has determined that certain fishing practices, especially those using mobile bottom-tending gear (including beam and otter trawls, dredges, and other mobile fishing gear that is dragged along the ocean floor) may adversely affect deep-sea corals and sponges and the communities that depend upon them" (70 Federal Register 39700, July 11, 2005). The co-occurrence of groundfish with these biogenic habitats was sufficient to trigger the MSA requirement to minimize adverse impacts. The PFMC chose to focus new protective measures on the gear type with the highest relative impacts on habitat (i.e., bottom trawling) and on the habitat types that were either most sensitive to trawling with long recovery times (i.e., biogenic habitats, hard substrate, seamounts) or were not yet subject to trawling (i.e., freeze the footprint). NMFS (2006) affirmed that such actions were "necessary and appropriate to take precautionary action to protect EFH from the possible adverse impacts of fishing."

In summary, the approach taken by NMFS and the PFMC in Amendment 19 was not optional, but required on a coastwide basis based on the best available science and legal mandate.

### 3.4.2 Our Current Understanding

*Advances in NOAA Policy*

Since the adoption of Amendment 19, new amendments were made to the Magnuson-Stevens Act in 2006, and new NOAA policies and additional scientific information have both reaffirmed and bolstered the validity of the PFMC's approach. The value of protecting deep sea coral and sponge ecosystems was recognized to extend beyond their value as EFH for managed fish, and Congress added new provisions to give Regional Councils new authority to protect deep sea corals and sponges from fishing impacts; Congress also established a new Deep Sea Coral Research and Technology Program within NOAA (MSRA Section 408).

Subsequently, NOAA published its NOAA Strategic Plan for Deep-Sea Coral and Sponge Ecosystems (NOAA 2010), including the following management objectives related to fisheries:

1. Protect areas containing known deep-sea coral or sponge communities from impacts of bottom-tending fishing gear.
2. Protect areas that may support deep-sea coral and sponge communities where mobile bottom-tending fishing gear has not been used recently [e.g., in the past 5 to 20 years or other appropriate period], as a precautionary measure [i.e. freeze the footprint].
3. Develop regional approaches to further reduce interactions between fishing gear and deep-sea corals and sponges.
4. Enhance conservation of deep-sea coral and sponge ecosystems in National Marine Sanctuaries and Marine National Monuments.

The strategic plan identified the primary legal bases for implementing these policies as being the MSA requirements to minimize bycatch (Sec. 301(a)(9)) and minimize adverse impacts on EFH (Sec. 303(a)(7)), as well as MSA authority to establish protective measures (Sec. 303(b)(2)(B) and 303(b)(12)) and National Marine Sanctuaries Act authority to implement management measures within Sanctuaries.

The strategic plan indicates that NMFS will be identifying areas of high coral and sponge distribution and will request the Councils and Tribes evaluate new bottom trawl closures in these areas to minimize bycatch and physical damage from fishing gear, with anticipated products to include **"**Enhanced protection from fishing gear impacts of areas known to contain high concentrations of deep-sea corals or sponges" (NOAA 2010, PP.26-27).

*The EFHRC Committee Process*

In 2008, the Council considered two interim proposals for modifying regulations to EFH outside the EFH 5-year review process, but postponed action on those proposals. In doing so, the Council declared that the upcoming 5-year review would be the appropriate time to consider proposals for EFH modifications on a coastwide basis.

In Phases 1 and 2 of the current EFH 5-Year Review process, the EFHRC, NMFS, and external contractors put a tremendous amount of effort into updating the information base on which the Council can make decisions regarding modifications to the management of fishing impacts on EFH. New information includes:

- New data showing previously unknown locations of habitat types meeting criteria for protections (corals, sponges, sea pens, hard and mixed substrate) in areas open to trawling throughout the US west coast (Phase 1 Report, Section 3);
- New data brought forward on locations of coral and sponge bycatch, which is a direct indicator of adverse impacts to these habitat types (Phase 1 Report, Section 3);
- Literature reviews confirming previous understanding of fishing impacts (Phase 1 Report, Section 4);
- New data on fishing locations and effort (Phase 1 Report, Section 4);
- Assessment of habitat type coverage by permanent trawl closures (NMFS Synthesis, Section 2); and
- New maps of fishing impacts based on the Amendment 19 index (NMFS Synthesis, Section 4).

The amount of new information on coral and sponge distribution across the US west coast (largely compiled by NOAA's Deep Sea Coral Research and Technology Program) cannot be understated; the number of distinct records of U.S. West Coast coral observations has increased 42-fold and sponge observations 10-fold since Amendment 19 was adopted.

| Year | Coral Records | Sponge Records |
|---|---|---|
| 2005 (Amend 19; as compiled by Shester and Warrenchuk 2007)) | 2,396 | 1,294 |
| 2014 (EFH Phase 1 Data) | 102,289 | 12,988 |

The EFHRC concluded by consensus that the NMFS Synthesis report and Phase 1 reports, "…provide a sufficient basis for anyone wishing to submit a proposal for changes to groundfish essential fish habitat." (Supplemental EFHRC Report, April 2013, Agenda Item D.6.c). In addition, the EFHRC developed a series of consensus conclusions about the available information in the Phase 1 Report and NMFS Synthesis, including the identification of significant new areas outside EFH Conservation areas throughout the U.S. West Coast EEZ containing habitat types that the Council prioritized for protection in Amendment 19, including corals and sponges and hard substrates (Supplemental EFHRC Report, April 2013, Agenda Item D.6.c). This statement also concluded that the "[EFH conservation areas] resulted in minimal disruption of bottom trawl fishery dynamics."

The EFH Review Committee previously identified a top priority task for completion as a part of Phase 2, concurrent with the proposal process, to "Re-assess the role of corals and sponges as habitat for groundfish based on an updated literature review" (Supplemental EFHRC Report, April 2013, Agenda Item D.6.c). Therefore, concurrent with the Phase 2 process, conservation organizations took the initiative to contact external experts and engaged them to conduct a review of newly available literature on this topic. This literature review was presented to the full Committee for consideration as part of the Phase 2 report. The Chair and Council staff declined to consider this literature review in its report, and we are submitting the review as public comment and as part of the record of the Council's consideration of this agenda item (March 2014 Agenda Item D.2.d, Public Comment). Based on this review, studies with Level 1 information show further associations of numerous FMP groundfish species with corals and sponges, and at least some Level 2 studies have documented higher abundances of certain FMP groundfish in areas with higher densities of corals and sponges.

Building on previous work during the interim proposal process, the EFHRC developed and the Council adopted a Request for Proposals (RFP) for modifications to EFH, with minimal content requirements to allow for full participation, and the Council established clear guidelines under which the EFHRC would conduct a high-level evaluation of proposals. The suite of proposals generated through the RFP process indicates a comprehensive suite of opportunities to increase protections for sensitive habitats in areas with relatively low recent bottom trawl effort. The proposals used a wide range of criteria for protection, including corals, sponges, hard and mixed substrate, canyons, seamounts, freezing the footprint, and habitat representation. The proposals also identify specific areas that could be reopened while increasing overall protections on a regional and coastwide basis. It appears from the proposals that significant additional potential may exist to prevent adverse impacts to habitat in a manner consistent with the Council's approach in Amendment 19. Since the proposals themselves are considered new information in the context of the 5-year review, the Council's need for action may and should be informed by the needs, objectives, and opportunities outlined in the proposals.

In summary, new information provided in the Phase 1 and 2 Reports, NMFS Synthesis, and the suite of proposals together provide a strong basis for revising the Amendment 19 fishing measures at a coastwide scope during this 5-year review. The new data reveals significant continued bottom trawl effort overlapping with sensitive habitats, as well as ongoing bycatch of corals and sponges, and

suggests that bottom trawling is continuing to cause adverse impacts to EFH throughout the U.S. West Coast. While perfect information is not available for managing EFH, the potential for long-term and irreversible adverse impacts indicates that precautionary action should be taken to reduce the impact of bottom trawling on benthic habitats in the Pacific region.

### 3.4.3 Recommendations

Minority recommendations with respect to Magnuson-Stevens Act fishing activities and EFH are subdivided into the following categories.

*Recommendations for the Scope of Phase 3 regarding MSA Fishing Impacts*

1. Consider the full suite of proposals and the full geographic scope of the West Coast EEZ during Phase 3 unless and until quantitative NEPA analysis indicates that certain aspects of proposals are not warranted or inconsistent with the ongoing requirements to minimize bycatch and impacts to EFH to the extent practicable or with the Council's newly established discretionary authorities.
2. Conduct an analysis of fishing impacts using a Long-Term Effect Index, as suggested in recommendation 4 of the majority's Section 3, EFHRC Phase 2 Report.
3. Reaffirm the Council's precautionary approach to protecting sensitive habitat types that was established in the EFH Final Rule and Amendment 19.
4. Consider establishing new and additional EFH Conservation Areas prohibiting bottom trawl gear to protect hard, mixed, and soft substrates, as well as deep sea corals, sponges, sea pens, and other biogenic habitats in Phase 3, on the same legal and scientific grounds as were present in Amendment 19.
5. Include within the scope of Phase 3 the consideration of new MSA discretionary authorities to protect deep sea corals and sponges, and the ongoing MSA requirement to reduce bycatch of corals and sponges to the extent practicable.
6. Acknowledge in the scope of Phase 3 that the need to protect corals and sponges as EFH has been further established by new scientific studies of habitat associations with groundfish at information Level 1 and 2 (as defined in the EFH Final Rule) as well as by new NOAA policies to protect deep sea corals and sponges.
7. Enhance communication and consultation with Tribal governments regarding any proposed changes to EFH.

*Recommendations for Establishing the Purpose and Need of Phase 3*

New information brought forward in Phases 1 and 2 of the EFH review indicates previously unidentified geographic areas throughout the U.S. West Coast EEZ that contain sensitive habitat types meeting PFMC

criteria for protection as EFH Conservation Areas. The following recommendations are offered for Council consideration regarding the purpose and need for action in Phase 3.

1. Ensure that fishing impacts to EFH continue to be minimized to the extent practicable, based on the ongoing mandate in the MSA.
2. Minimize bycatch of corals, sponges, and other structure-forming invertebrates in the groundfish fishery to the extent practicable.
3. Refine and modify the network of EFH Conservation Areas in light of information and analyses that have become available subsequent to the adoption of Amendment 19, as contained in the Phase 1 and 2 products of this EFH 5-year review.
4. Refine EFH Conservation Area boundaries to increase both fishing opportunities and habitat protections based on newly available data on habitat types and fishing effort at finer spatial scales than were available in the Amendment 19 process.
5. Take advantage of new opportunities for more cost-effective conservation of EFH based on collaborative stakeholder dialogue and consensus.
6. Make adjustments to allow for increased fishing opportunities in areas where impacts are likely to be less severe, provided that overall local and regional habitat protections are maintained and/or strengthened.
7. Ensure adequate protections for sensitive habitats currently within the Rockfish Conservation Areas, to ensure that adverse impacts of fishing on EFH continue to be minimized and prevented as these areas are considered for reopening.
8. Continue to manage EFH in an adaptive and iterative way as envisioned by Amendment 19 and the nationwide EFH regulations.

*Recommended Guidance for NMFS Science Center Assessment of Amendment 19*

Much of the majority's EFHRC Phase 2 report discusses concerns with the lack of an assessment of Amendment 19. The Council in fact has requested such an assessment, and at the March 2014 meeting the Council is scheduled to be provide guidance to the NMFS Science Centers on the desired contents of this evaluation. We suggest the following questions and focus areas as a starting point to help guide the NMFS assessment of Amendment 19 toward useful products that will inform the Council's decision making in Phase 3.

1. What are the long-term effects of current fishing patterns on sensitive habitats as identified by the Council (e.g., corals, sponges, sea pens, hard & mixed substrates)?
2. To what extent has Amendment 19 minimized the bycatch of corals, sponges, and sea pens? Identify discrete geographic locations where this bycatch is occurring at the highest rate.
3. Were there any discernable economic impacts on the groundfish fishery, local or coastwide, attributable to the implementation of EFH Conservation Areas? Specifically, were there increased costs or decreased revenues, or changes in landings?
4. Develop and display results of a long-term effect index displaying the impacts of each fishing gear type on various habitat types, including but not limited to hard corals, sponges, and hard substrate.

5. How accurate is the trawl footprint closure? To what extent are there remaining areas not subject to bottom trawling since Amendment 19 that fall outside EFH conservation areas? Identify the locations of such areas.
6. How has our knowledge of the protection levels of sensitive habitat types (corals, sponges, sea pens, hard substrate, seamounts, submarine canyons) changed since Amendment 19 was adopted?
7. In the area shallower than 700 fathoms, are there zones and/or depth ranges with disproportionately low levels of protection relative to others?
8. To what extent are there areas that may contain corals or sponges that have not been trawled since implementation of Amendment 19, which are currently open to trawling?
9. Which EFH Conservation Areas resulted in the greatest relative displacement of bottom trawl effort after Amendment 19, and to what extent have groundfish catch rates in the vicinity of those areas changed since 2006?

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GROUNDFISH ADVISORY SUBPANEL REPORT ON
ESSENTIAL FISH HABITAT (EFH) EVALUATION CRITERIA AND PHASE 2 REPORT

The Groundfish Advisory Subpanel (GAP) received a presentation by Dr. Michelle McClure from the NW/SW Fisheries Science Center (NW/SWFSC) summarizing National Marine Fisheries Service's (NMFS) report to the Council titled "NMFS Science Center Report in Response to Council Request: Has Amendment 19 Worked?", a brief presentation by Mr. Brad Pettinger summarizing the final Phase 2 Report of the Essential Fish Habitat Review Committee (EFHRC), as well as a short explanation by Mr. Kerry Griffin regarding the EFH agenda item and the task at hand before the Council.

The GAP's discussion on the EFH issue focused on three main topics: 1) process, 2) consideration of the recommendations from the EFHRC Phase 2 Report and NMFS Science Center's report, and 3) development of an evaluation strategy of the original Amendment 19 EFH measures.

**Process**

The issue of process and the path forward were the main concerns of the GAP. The GAP wishes to reiterate to the Council that the main objective of any EFH review is to analyze the effectiveness of current EFH designations and conservation areas relative to meeting their objectives. As the Scientific and Statistical Committee commented to the Council in November 2013, "Without such an evaluation, it may be difficult to gauge whether proposed changes to EFH are likely improvements." The GAP's understanding is that the NMFS Northwest Fisheries Science Center (NWFSC) is developing an analysis that evaluates the effectiveness of the Amendment 19 EFH measures. The GAP thinks that completion of this analysis and review by the Council and its advisors should be first and foremost before consideration and prioritizing of proposals for changes to EFH measures. In brief, complete the science first, then consider whether changes are necessary.

**Review of EFHRC Report and NMFS Science Center Report**

The GAP appreciates the work done by the NW/SWFSC scientists and the EFHRC in developing these two reports. The Supplemental NW/SWFSC report that presents the five Amendment 19 objectives (page 3) is useful and could serve as the basis for developing measures to analyze and test whether or not these objectives have been met. This report provides guidance on how to develop a comparative analysis by examining the effects of the Rockfish Conservation Area (RCA), including trends in species catch per unit of effort (CPUE) and richness (diversity) by examining data from the NMFS groundfish trawl survey. However, the GAP urges caution in interpretation of data depicting relative abundance of any stock within the RCA compared to it abundance outside of the RCA. The RCAs were selected because those areas were the preferred habitat for certain species and therefore higher abundance within the RCA should be expected, rather than an indication that the protection of the RCA resulted in higher abundance. Further, the GAP observes that the CPUE data presented in the report indicates that the abundance trend within the RCAs is comparable to the trend outside of the RCAs. This suggests that the

imposition of RCAs has not impacted relative abundance any greater than the abundance outside the RCAs.

Regarding the EFHRC Phase 2 Report, the GAP supports one of the primary statements in this report. Namely that the NW/SWFSC scientists develop potential scientific approaches to address the question of whether the current EFH provisions are working as expected.

The GAP was confused by the intermixing of minority statements throughout the report, but appreciates that the report, and related public comments from EFHRC members, represent a range of disparate opinions not easily resolved. For example, one minority statement urges inclusion of Deep Water Coral protection measures in EFH protections. The GAP wishes to stress that corals are not Fishery Management Plan (FMP) species. Moreover, unless these corals are shown to provide fish habitat essential to the sustainability of FMP species and there is evidence that damage by fishing gear to that habitat is more than minimal and more than temporary, inclusion under an EFH action seems inappropriate and a dangerous precedent.

**Evaluation of Amendment 19 EFH Measures**

The GAP wishes to point out that any evaluation of the current EFH measures should focus on the main objective of maintaining healthy FMP fish populations, and not simply to protect habitat for habitat's sake. In addition, the GAP believes that there are measures or tools other than just area closures that provide fish habitat protection, such as: 1) gear changes and restrictions on gear use that minimize impact, 2) voluntary avoidance by the fleet of non-regulatory closure areas, 3) other non-EFH closure measures such as the RCAs, and 4) the effects of the trawl catch share program. One example of the benefit to fish habitat by the individual trawl quota/Coop management program is the significant reduction in the number of vessels and amount of trawl tows, and more efficient and effective targeting of gear on desired catch.

The GAP believes the use of the Groundfish trawl survey data to evaluate the effectiveness of the Amendment 19 closure measures should be pursued as this data spans years prior to and after establishment of the EFH closures. Data on species diversity, density and CPUE can be examined.

The GAP urges the NW/SWFSC scientists to present to the Council a timeline of how to develop and complete such an analysis, and suggests the Council appoint an EFH technical committee. The charge of this technical committee should be to develop the criteria to evaluate the effectiveness of Amendment 19 EFH measures, provide status of its efforts to the Council and conduct such an analysis.

Lastly, The GAP believes that any evaluation of new EFH measures include the following criteria:

1) Linkage to FMP species. EFH guidelines require that actions taken must be linked to protection of FMP species. The evaluation should analyze whether protection measures have increased FMP species abundance, diversity, and condition inside and outside and near the EFH closure areas.

2) Gear impact: the evaluation should provide information to determine if fishing gear is negatively impacting FMP species habitat in ways that are "more than minimal and not temporary in nature" as required by the EFH Final Rule.
3) Stakeholder involvement: the GAP heard via public testimony that members of the fishing and conservation communities are interested in meeting to discuss potential EFH measures. The GAP recommends the Council encourage various stakeholder groups to collaborate towards finding common ground.

PFMC
03/08/14

# GROUNDFISH MANAGEMENT TEAM REPORT ON ESSENTIAL FISH HABITAT (EFH) EVALUATION CRITERIA AND PHASE 2 REPORT

The Groundfish Management Team (GMT) reviewed the available material in the Briefing Book and appreciated receiving a presentation from the Essential Fish Habitat Review Committee Chair, Brad Pettinger, and Dr. Michelle McClure from the Northwest Fisheries Science Center. We focus our comments here on measures to minimize the adverse effects of Magnuson-Stevens Act fishing activities.

Some on the GMT agree with the Phase 2 Report that much of the confusion in the review process to date is the lack of a problem statement which would provide some criteria for evaluating the action needed under Phase 3. Habitat science is fairly uncertain and there are few, if any, quantitative measures of impacts to habitat that translate into groundfish production. As such, with current information, it is virtually impossible to answer how much habitat protection is enough to provide for the needs of fish stocks. Likewise, it will be unlikely that the Council will get a definitive answer on what proposal or parts of proposals will best meet their policy goals from a National Environmental Policy Analysis (NEPA) analysis. It would be most useful for Phase 3, particularly NEPA scoping and alternative development, to have clear guidance from the Council on what they see as the purpose and need for action. For example, the Council might consider what we know about habitats (i.e., from the Phase 1 Report and the Synthesis Report) that we didn't know in 2005 and how that changes their view of whether the habitat protections in place are meeting the stated policy goals. While that is not a decision scheduled for this meeting, it is something that the Council should start planning for.

The Council should also consider the scope of action in terms of workload and competing priorities. If the Council amends the Fishery Management Plan, a Plan Amendment Team to develop alternatives for analysis would have to come from existing staff and resources. Fully analyzing all of the impacts from all of the proposals received will likely take considerable time and effort. Alternatively, the Council could focus more on their policy goals than the proposals that have been received and analyses that would measure how well those goals are being met or could be met with any of the proposals.

Further, some on the GMT think that the rationalization of the trawl fishery (through the individual fishing quota program) in 2011 likely changed the fishing impacts to habitat. We do not yet know the extent of those changes (the existing analyses are on fishing effort through 2010) or how that might affect decision-making on minimizing the adverse effects of fishing on EFH. We do not know whether this is doable with existing logbook data from the last three years prior to scoping.

In summary, the Council needs to find a way of grading themselves on how well they think they are achieving their goals under Amendment 19, given that existing data will not provide a definitive answer. This will ultimately come down to a policy decision. The GMT recommends the Council consider how broad they want the scope of action to be given the considerations we raise, as well as articulating the purpose and need for that action.

PFMC 03/08/14

# HABITAT COMMITTEE REPORT ON ESSENTIAL FISH HABITAT (EFH) EVALUATION CRITERIA AND PHASE 2 REPORT

The Habitat Committee (HC) received a presentation by Michelle McClure, National Marine Fisheries Service (NMFS) on the NMFS Science Center Report (Agenda Item D.2.c, Supplemental NW/SWFSC Report).

The HC appreciates the efforts the science centers expended in short order to produce this document. Dr. McClure pointed out that this effort is complex and resource intensive. The HC looks forwards to the science center pursuing this inquiry and in the future being able to provide the assessment of groundfish EFH measures the Council requested.

## Phase 2 Report comments

The HC commends the Essential Fish Habitat Review Committee (EFHRC) on completing the Phase 2 Report, and acknowledges the challenges the committee faced with opposing viewpoints and differences in interpretation of governing mandates. The HC appreciates the EFHRC for its extensive and impressive work gathering and summarizing new information.

The HC offers the following response to the EFHRC Phase 2 Report.

*Section 1 (Introduction and Data Limitations)*

Response to Recommendation #1 (Habitat Assessment):

The HC agrees with the recommendation to conduct a comprehensive habitat assessment that incorporates habitat science into the assessment and management of fish stocks, as well as providing sound protection measures for groundfish habitat. As noted by NMFS, a full assessment is not feasible at this time, but there are short-term elements that can be applied during Phase 3 (as noted above), which the HC supports. Planning for the incorporation of a full assessment into the next five-year review following this review period makes sense.

Response to Recommendation #2 (Independent, peer-review process of select products):

The HC spent some time considering what is meant by the peer-review of select Phase I and Phase 2 products noted in the EFH review report. The most common interpretation of "peer review" is independent review of reports for publication (e.g., scientific journals, NOAA tech memos). Some review of the Phase I products has occurred through this process as the NMFS synthesis has been revised as a tech memo. However, the standard for the Council is scientific review by the Scientific and Statistical Committee (SSC). Additional NMFS products may need scientific review to assist management decisions.

Ideally, the SSC would review both the data products and the scientific support for changes in EFH during Phase 3, prior to National Environmental Policy Act (NEPA) review. However, such analyses should be determined so as to not delay Phase 3. If the Council approves this type of

scientific review, it is worth considering whether the SSC has the current expertise to review habitat data products.

This scientific review, along with other guiding factors (e.g., precautionary principle, economic and social impacts, distribution of impacts across the region) will inform the selection of alternatives moving forward.

*Section 2 (EFH Description and Identification)*

The HC agrees with the recommendations of the EFHRC majority in Section 2.3 regarding EFH description and identification. We do not support the minority recommendation regarding the expansion of EFH beyond 3500m, because the Magnuson-Stevens Act (MSA) does not provide for the designation of EFH for ecosystem component species. The HC does, however, strongly support additional habitat protection measures by applying the MSA's deep-sea coral discretionary authority. This is further discussed below.

*Section 3 (MSA Fishing Activities that May Impact EFH)*

Response to Recommendation #1 (Precautionary Approach)

Several paragraphs in Section 3 acknowledge the vulnerability of deep-sea corals to fishing gear impacts and note that deep-sea coral taxa are slow-growing and could take hundreds of years to recover from fishing impacts.

The EFH Phase 1 Report summarized bycatch for coral, sponge and sea pen taxa in the West Coast Groundfish Observer Program before and after the Amendment 19 EFH closures of 2006. The changes in bycatch rates and frequencies (both increases and decreases) varied among taxa and were not easily explained. However, what is evident is that 45 percent of the total number of tows executed contained bycatch of corals and sponges, regardless of time period (EFHRC Phase 1 Report, Chapter 3, Table 4).

The HC agrees with the findings of the EFHRC and urges the Council to continue to implement precautionary measures to protect biogenic habitats in the absence of scientific certainty. Although we cannot quantify the contribution of biogenic habitat to the productivity of groundfish species, several studies have demonstrated varying degrees of associations of several groundfish species with deep-sea coral species, including deep-sea coral as shelter for some rockfish species. Given the vulnerability of these habitats and the continuous occurrence of biogenic bycatch in the trawl fishery, precautionary measures are necessary to protect these vulnerable habitats.

Response to Recommendation #2 (Discretionary Authority)

In its 2006 final rule, NMFS acknowledged that even minimal fishing effort could have high levels of impact on sensitive deep-sea habitats supporting vulnerable species, such as deep-sea corals, and deemed it appropriate to apply precautionary management measures to protect deep-sea habitats from fishing impacts. With the revision of the MSA, the Council can now use discretionary authority, (MSA Section 303(b), 2007) to designate deep-sea coral zones and regulate fishing activities deemed harmful to deep-sea corals.

The HC strongly supports the recommendation to use the MSA discretionary authority of Section 303(b)(2)(B) (in addition to EFH provisions), particularly if it can be accomplished expeditiously

within the Phase 3 window. Our concern is that delaying use of discretionary authority or the mandatory authorities under the EFH provisions until some later date will leave these vulnerable habitats unprotected from further injury.

Response to Recommendation #3 (geographic scope of review and evidence of imperiled habitat)

The HC disagrees with the recommendation to narrow the geographic scope of Phase 3. Substantial information has been collected and synthesized at the scale of the California Current ecosystem, and many proposals have been developed based on the information developed at this scale. Furthermore, the purpose of this review process is to consider new information that could inform changes across the Council's region. The Council Operating Procedure and Request for Proposals (RFP) did not indicate the Council would favor local initiatives over regional proposals. The HC believes it is appropriate and necessary to conduct Phase 3 at a regional scale.

The RFP also did not require that proposals be *supported* by potentially affected stakeholder groups. The RFP did, however, encourage proponents to collaborate with socioeconomic experts, as well as affected fishermen and communities, in order to identify socioeconomic costs and benefits. The HC recommends that the Council not exclude any proposals at this time, as Phase 3 will be conducted using NEPA guidelines, which include additional opportunities for local stakeholder groups to provide input during the public scoping and comment phases of the NEPA approach.

*Section 4 (Non-MSA Fishing Activities that May Impact EFH)*

The HC agrees with the recommendations in Section 4 regarding the application of Amendment 19 to non-MSA fisheries and outreach.

The HC understands that the geographic footprint of the shrimp trawl fishery has shifted in recent years and can give the impression that historical fishing grounds are no longer important or necessary to the fishery. To accurately determine the geographic coverage and relative impacts to the trawl fishery from proposed EFH designations, it will be necessary to accurately delineate the spatial footprint of the shrimp fishery for a number of years.

Furthermore, future EFH Conservation Areas would likely result in a spatial shift and concentration of fishing effort in some areas for non-MSA fisheries. It will be necessary, then, as part of Phase 3, to consider the consequences of each proposed EFH area on shifting or concentrating fishing effort into potentially sensitive habitats.

*Section 5 (Non-Fishing Activities that May Impact EFH)*

The HC agrees with all the recommendations to update the non-fishing activities and incorporate the non-fishing pressures analysis in Appendix D, as described. As noted, Appendix D can be updated outside the current fishery management plan process, but Appendix D could be used in the NEPA analysis if completed during Phase 3.

The HC notes that three important non-fishing stressors were not included in the list of non-fishing pressures or in the analysis of combined pressure intensity in the NMFS Synthesis Report (Figure 4.b.1). These stressors are ocean acidification, ocean warming and hypoxia. Ocean acidification in particular is an immediate high-level threat to calcifying structure-forming

invertebrate species such as deep-sea corals. The HC recommends these stressors be incorporated into any subsequent analyses in Phase 3.

*Section 6 (Cumulative Impacts Assessment)*

The HC agrees with the recommendation that the Council consider assessing the cumulative impacts of fishing and non-fishing activities. The HC recommends using the information in the Phase 1 and Synthesis Reports, as well as additional cumulative analysis tools that are currently available, such as Marxan.

*Section 7 (Prey Species)*

The HC recommends adopting the recommendations regarding updating and reclassifying prey species information during Phase 3, scientific review of major prey index methodologies, and an assessment of impacts to prey from fishing and non-fishing activities.

*Section 8 (Designation of Habitat Areas of Particular Concern [HAPCs])*

Response to Recommendation #1 to update the map for HAPC "Habitat Type":

The HC agrees with the recommendation to update the HAPC map with new information for delineating currently designated HAPC "habitat types" (i.e., canopy kelp, seagrass, rocky reef, estuaries) where possible.

Response to Recommendation #2 to designate new HAPC "Areas of Interest":

The three west coast sanctuary proposals include recommendations to designate new HAPC "Areas of Interest" for the protection of productive rocky reef, shelf, canyon, and biogenic habitats within sanctuary boundaries. Numerous scientific explorations in the sanctuaries have contributed to the body of evidence to support this designation of HAPC. Areas of comparable geologic features and species observations (relative to sample size) exist off all three states in areas not associated with the sanctuaries.

These features were identified in the NMFS Synthesis report and other proposals, although not specifically recommended as HAPCs. It is unclear if the EFHRC recommendation to "consider designating new HAPCs" is limited to just the HAPCs proposed by the sanctuaries, or if the recommendation applies more broadly to incorporate similar areas in the region during Phase 3. The HC supports the latter.

While the HAPC designation does not add any specific regulatory authority or process, it highlights certain habitat types and areas that are of high ecological importance.

*Section 9 (Research and Information Needs)*

Despite the significant amount of new information generated in the Phase I report and the Synthesis report, the HC understands the ongoing limitations on the available information needed to answer the key questions suggested by the EFHRC:

- Have EFH fishery closures met the goals and objectives of Amendment 19?
- How much habitat needs to be protected to maintain a sustainable fishery?
- What changes have occurred to fish and invertebrate communities inside the closures?

The HC suggests that the Council would also need to understand the qualities, characteristics, distribution and abundance of the habitat that best supports the fishery, particularly given the multitude and intensity of stressors on the marine environment.

Answering these questions requires a habitat assessment as proposed in the report. The HC recommends that a habitat assessment addressing these key questions be incorporated into the next EFH review cycle. A comprehensive habitat assessment (such as that proposed in NMFS' Habitat Assessment Improvement Plan) would provide, among other things, indicators of the value and condition of marine habitats, and an assessment of inter-species and species-habitat associations for all life stages and functional needs. This would provide the Council with a robust tool to make more informed decisions regarding groundfish habitat protection. The Council could promote further work on these specific questions by helping to distribute the Habitat Assessment Improvement Plan to academic institutions.

The Council's Phase 3 review process may benefit from some high level analysis of the proposals to aid scoping of potential amendments. The NMFS Science Center team could be tasked with analyzing the following items, which appear to use existing data that has been reviewed through the synthesis report or that could be technically reviewed in a timely manner:

a. Bring all proposals into GIS for further review

    i. Map untrawlable habitats.

    ii. Produce a map displaying all proposed spatial closures/reopenings to facilitate identification of spatial overlap across proposals and development of action alternatives. The trawl Rockfish Conservation Area (RCA) could also be shown (sq. km, differentiated by areas of RCA that are year-round and those that are transient).

b. Approximate amount of displaced or restored trawl effort that would result from each proposed spatial closure and reopening.

c. Analyze whether coral sponge records meet data quality standards to map at relevant spatial resolutions.

e. Using relevant groundfish trawl records, analyze presence/absence and abundance of groundfish in proposed essential fish habitat (EFH) conservation areas.

**Closing Comments**

The Habitat Committee recommends that if there is to be a Phase 3 Review Committee, that it be an independent body with expertise in the fields of fishery biology, benthic ecology, habitat science, fisheries social and economics sciences, and ecological modeling.

PFMC
03/08/14

Agenda Item D.2.c
Supplemental NMS Report
March 2014

**OFFICE OF NATIONAL MARINE SANCTUARIES,**
**WEST COAST REGION REPORT**

**Essential fish habitat (EFH) for Pacific Coast Groundfish 5-year review**

NOAA's Office of National Marine Sanctuaries (ONMS), West Coast Region appreciates the Pacific Fishery Management Council's (Council) efforts at fostering a collaborative relationship with national marine sanctuaries regarding marine habitats. We have appreciated participating on the Essential Fish Habitat Review Committee (EFHRC) and the Habitat Committee (EFH). The west coast region's national marine sanctuaries have been engaged in the 5-year review of EFH for Pacific Coast Groundfish because of the close alignment between the Council's protection of groundfish EFH from adverse impacts from fishing with the ONMS's goals of protecting benthic habitat and associated ecological communities.

On July 31, 2013, in response to a Council-issued request for proposals Monterey Bay National Marine Sanctuary submitted a proposal, and Gulf of the Farallones and Olympic Coast national marine sanctuaries submitted options to modify EFH for Pacific Coast Groundfish. These submittals are based on information from the Phase 1 Report (September 2012), the EFH Synthesis Report (April 2013) and new information on the geology, (hard and soft substrate), biogenic habitats, groundfish, and existing fishing effort within these national marine sanctuaries. While the submittals are designed to achieve the EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), they are also consistent with strategies outlined in the sanctuary management plans that address ecosystem-based management, resource protection and fishing activities within the sanctuaries. In addition, each offering reflects on-going discussions and feedback from local stakeholders, particularly the fishing community and Coastal Treaty Tribes to facilitate information to the Council and minimize economic impact to the fishery in a practicable manner.

**Submitted by Monterey Bay National Marine Sanctuary (MBNMS)**

MBNMS's proposal is the result of a collaborative process and agreement with Monterey Bay trawl fishermen, the Alliance of Communities for Sustainable Fisheries, Oceana, Natural Resources Defense Council, Ocean Conservancy, Environmental Defense Fund, and the California Risk Pool, including The Nature Conservancy, Fort Bragg Groundfish Association, Half Moon Bay Groundfish Marketing Association, and Central California Seafood Marketing Association. The collaborative proposal requests additional protections to hard and soft substrate on the shelf, upper slope and select canyons with associated biogenic habitat (corals and sponges) where groundfish FMP species have been verified, coupled with modifications to existing EFH Conservation Areas to re-open select areas allowing fishermen access to valuable and historic bottom trawl fishing grounds. The proposal also suggests designating EFH HAPC

'Areas of Interest' at Pt. Sur Platform and La Cruz Canyon, for these geologic features represent unique, rare, or important hard bottom habitat with many observed rockfish. The proposal also offers concepts on voluntary management areas and enforcement measures, and develops a collaborative research/monitoring program.

**Submitted by Gulf of the Farallones National Marine Sanctuary (GFNMS)**

The submittal by GFNMS is designed to principally protect unique geologic features of rocky and mixed substrate on the continental shelf and upper slope with associated biogenic habitat (corals and sponges) where groundfish FMP species have been verified. GFNMS proposes options for up to three new EFH Conservation Areas to minimize the adverse effects of fishing on groundfish EFH, while also minimizing socioeconomic impacts to the fishing community to the extent practicable by designing areas based on feedback from 6 meetings with fishermen during the 90-day RFP timeframe held at 4 ports spanning almost 300 miles of coastline. The options are also based on new information obtained through data collected during 2011 and 2012 that characterized and mapped physical substrate, biogenic habitat, fish and other invertebrates. One of the three areas proposed is a previously unmapped rocky bank near the edge of the continental shelf that was not identified and therefore could not be considered during the original EFH designations. In addition, GFNMS proposes for Council consideration the designation of two new EFH HAPC "Areas of Interest" at Rittenberg Bank and Cochrane Bank because these areas contain unique biological and geological characteristics.

**Submitted by Olympic Coast National Marine Sanctuary (OCNMS)**

OCNMS and Washington Department of Fish and Wildlife (WDFW) jointly submitted a set of options to modify the Olympic 2 EFH Conservation Area. Based on conversations with various tribal representatives OCNMS and WDFW are proposing an alternative process to address broader ecosystem protection in the Olympic Coast National Marine Sanctuary. While OCNMS and WDFW continue to support the consideration of measures to protect hard substrate and biogenic habitats, such as those identified in the proposed modifications to the Olympic 2 EFH Conservation Area, they acknowledge the importance of being responsive to the concerns expressed by the Coastal Treaty Tribes and see value in taking a broader approach in collaboration with the tribes. Please see WDFW/OCNMS Supplemental Report for more details (Agenda Item D.2.c.).

**Phase 3 and assistance from west coast national marine sanctuaries**

The national marine sanctuaries on the west coast understand that as the Council has initiated Phase 3 of the EFH review process, the sanctuary submittals will now likely be considered and evaluated on the scale of the entire west coast. We recognize that because of this shift in spatial scope and through the public process changes may be developed and suggested to the sanctuary offerings, which we would encourage. We are committed to continuing discussions with potentially affected fishermen and other interested stakeholders, and offer the Council our assistance in facilitating these discussions and in making technical changes to the proposal/options (i.e. GIS support).

# NMFS SCIENCE CENTER REPORT IN RESPONSE TO COUNCIL REQUEST: "HAS AMENDMENT 19 WORKED?"

## 1. Objectives of this Report:

This document is intended to address the PFMC's request to provide a potential approach to evaluating the question of whether current essential fish habitat (EFH) designations are working as expected, including criteria for objective evaluation of the question.

Essential fish habitat boundaries for groundfish and a number of habitat areas of particular concern (HAPCs) were established in Amendment 19. The entire shelf and slope area was designated as EFH, but this designation alone does not provide any fishing restrictions. Also through Amendment 19, a number of areas were permanently closed to certain types of bottom contact gear to protect groundfish EFH – the Amendment 19 EFH Conservation Areas. Amendment 19 also included several fishing gear restrictions that are not area specific and recommendations for addressing non-fishing impacts. Together, these measures were designed to fulfill the requirements for EFH established by the Magnuson-Stevens Act. Note that a number of management activities, including the establishment of the spatial and temporal closures termed the Rockfish Conservation Area in 2002, were put in place prior to Amendment 19. We focus most of our discussion in this report on issues related to Amendment 19.

In Section 2 of this report, we provide a brief summary of the science available to address the five objectives articulated for Amendment 19 in the Record of Decision (NMFS 2006). We reference relevant figures, tables, or discussions for each objective in the Essential Fish Habitat Review Committee Phase 1 Report (EFH-P1, PFMC 2012); the NMFS Groundfish Essential Fish Habitat Synthesis Report (EFH-S, NMFS 2013a); the NMFS Groundfish Essential Fish Habitat Synthesis Report Appendix (EFH-SA, NMFS 2013b); and the Essential Fish Habitat Review Committee Phase 2 Report (EFH-P2, PFMC 2014). The research and information items described in Section 2 are not an exhaustive list or intended to replace or de-prioritize similar activities in the Council's record. Appendix B.5 to the Groundfish FMP, section 9 of EFH-P2, and the Council's 2013 Research and Data Needs document are therefore incorporated by reference.

In Section 3, we provide a long-term scientific perspective on methods to improve our understanding of the effects of management actions, such as restoration or protection of habitat, on fish populations. The NMFS Habitat Assessment Improvement Plan (HAIP; NMFS 2010) established a framework for conducting habitat assessments, and evaluated national science needs on a region-by-region basis to achieve greater levels of habitat assessment excellence. The HAIP drew from the example of the Pacific Fishery Management Council's 2005 Environmental Impact Statement on EFH designation and minimization of adverse impacts to the West Coast groundfishes that formed the basis for Amendment 19 (Copps et al. 2007). That assessment represented a compilation of information on the status of habitats important to groundfishes and the impact of fishing on those habitats.

The HAIP outlines the gaps in groundfish habitat science on the West Coast, identifies steps to improve habitat assessments, and includes estimated magnitude and extent of resources needed by both the Northwest and Southwest Fisheries Science Centers to adequately conduct assessments. As defined in the HAIP, habitat assessment is both the process and products associated with consolidating, analyzing, and reporting the best available information on habitat characteristics relative to the population dynamics of fishery species and other living marine resources (Figure 1). Indicators of the value and condition of marine habitats can be developed through a habitat assessment by investigating the relationships between habitat characteristics, the productivity of fish species, and the type and magnitude of various impacts. The ultimate goal of a habitat assessment is to support management decisions by providing information on how habitats contribute to species' productivity.

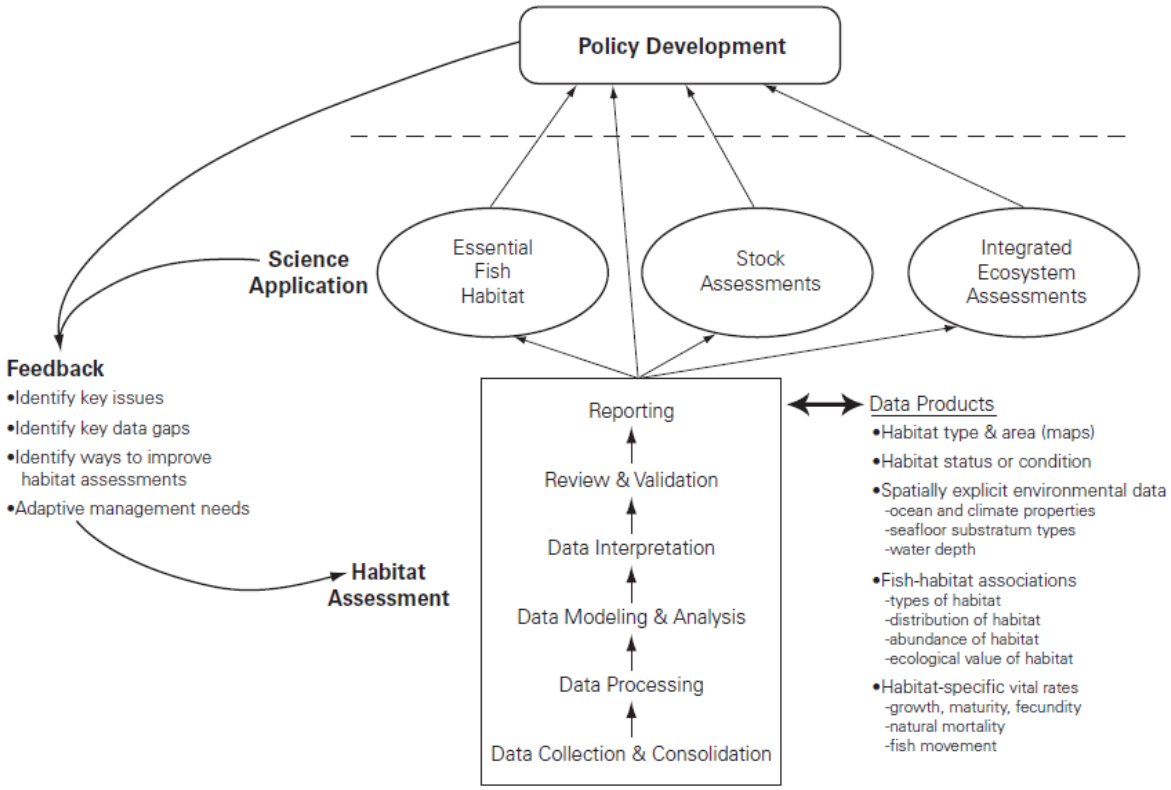


**Figure 1. Flow diagram of the mechanics (development, application, and improvement through feedback) of a habitat assessment. Dotted line illustrates the distinct separation of science and policy development during the assessment process (from NMFS Habitat Assessment Improvement Plan [NMFS 2010]).**

In Section 3, we draw attention to the framework highlighted in the NMFS HAIP, and then outline two paths for habitat research: 1) research avenues that can be pursued with available data and analysis techniques and that supplement discussions of future research, and 2) potential methods for integrating spatial management methods with new research to efficiently advance our understanding of habitat effects on fish populations. Neither of these sub-sections is meant to be an exhaustive discussion of potential research; rather, we point out avenues of research not specifically noted in the EFH-P1, EFH-S, EFH-SA, or EFH-P2.

## 2. Framework to Address the Council's Request

From the Record of Decision for Amendment 19 (NMFS 2006) fishery management measures (e.g., area closures, gear modifications) were designed to:

a) protect a diverse array of habitat types across latitude ranges and within the two known biogeographic zones that occur in the project area;
b) protect the full range of benthic habitat to account for each managed species;
c) prioritize pristine or sensitive habitats and the gear types most likely to have the highest impact;
d) distribute socioeconomic costs that would result from implementation of the alternative; and,
e) implement area closures for different gear types within different habitat types to foster comparative scientific research.

We address objectives *a* to *e* in turn:

### a) Protect a diverse array of habitat types across latitude ranges and within the two known biogeographic zones that occur in the project area

At present, a variety of fishing gear restrictions and modifications protects a diversity of habitat types. The EFH Synthesis provides a series of visual and tabular summaries of the location and proportion of area associated with each restriction (see EFH-S pg. 15-38, EFH-SA pg. 16-38). These tables and figures summarize fishing restrictions by depth, biogeographic region, and bottom substrate type. Available information on biogenic habitat is not of sufficient extent and quality to describe fishing restrictions with respect to biogenic habitats.

From the information summarized in the Groundfish EFH Synthesis report we know[1]:

- Knowledge of physical habitat is non-uniform. Seabed habitat mapping has been conducted only over continental shelf and slope and inland seas, and coverage of those areas is very patchy across the West Coast. The abyssal plain and continental rise remain largely un-described for seabed type and extent.
- Knowledge of biogenic habitat is non-uniform. No systematic regional surveys of coral and sponge distribution and abundance have been conducted. A large majority of observations were made over the past two decades, during targeted studies on habitats associated with groundfish species or on habitats suspected to support coral and sponge communities.
- Hard seabed habitat is less abundant, or rare, in comparison to soft seabed, and the relative proportions of each type within depth strata are fairly consistent across biogeographic sub-regions (Figure 2).
- Approximately 10% of all habitats on the upper slope and shelf of the West Coast is included in ecologically important habitat closed areas (EFH conservation areas), and the bottom trawl closure seaward of 700 fm accounts for the majority of the conservation areas. Soft substrate on the slope and upper shelf proportionately less protected than hard substrate on the slope (Figure 3).
- On the continental shelf and upper slope, most areas where corals and sponges were present are outside EFH conservation closures. On the lower slope, the presence of corals

[1] Peer review of these and other conclusions in this document has not occurred and they are therefore subject to change.

and sponges largely occurred in areas protected from bottom trawling, although significant areas were also protected from all bottom-contact gear.

- Effort from federally observed groundfish fisheries is highest in the Northern region, and is heavily concentrated on the upper slope and shelf over soft habitats along the entire coast.
- Patterns of fishing effort have remained moderately stable over the previous decade, but have likely varied over longer periods; there has been some displacement of trawling activity seaward from conservation areas.
- EFH conservation areas protect some groundfish species from fishing more than others.

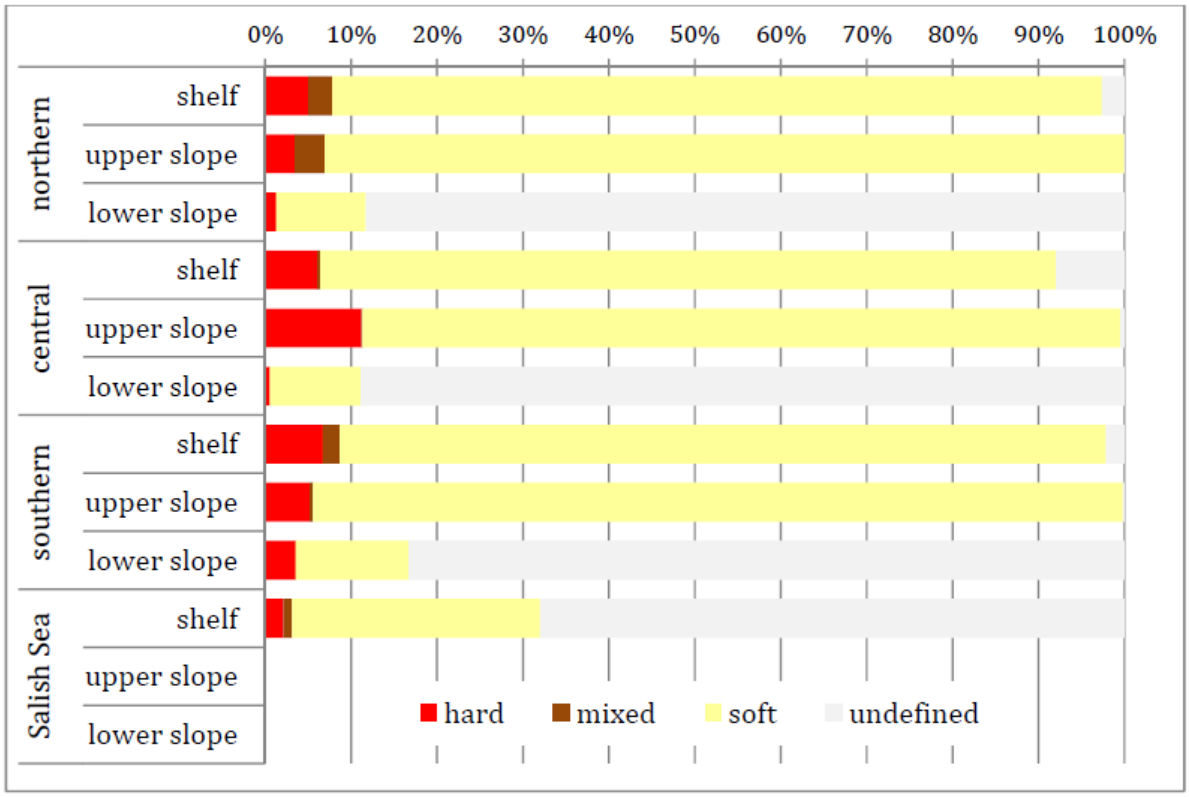


**Figure 2. Relative distribution of seabed habitat types by depth zones in four biogeographic subregions (from NMFS Groundfish EFH Synthesis Report [NMFS 2013a]).**

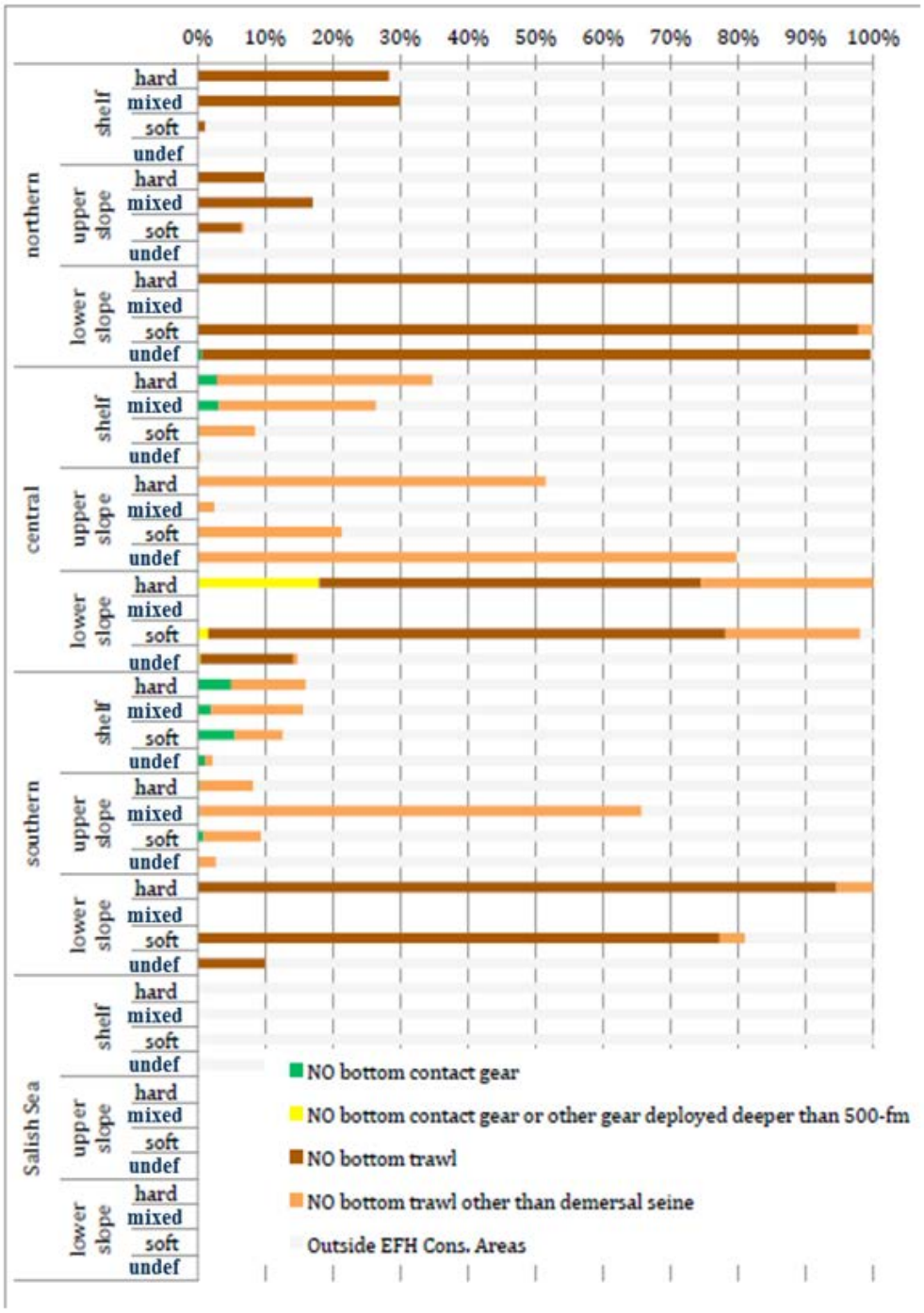


**Figure 3. Percentages of seabed habitat areas by depth zone and biogeographic sub-regions where EFH-specific gear prohibitions apply (from NMFS Groundfish EFH Synthesis Report [NMFS 2013a]). No EFH Conservation Areas are located in the "Salish Sea" and no "mixed" substrate types are known to occur with the lower slope of any biogeographic sub-region.**

Additional information or analyses that are needed to improve our understanding of this objective include:

- Improve mapping and description of benthic habitats at spatial scales relevant to groundfish species on Continental Shelf and Slope of West Coast
- Evaluate protected vs. non-protected areas, for example:
    - Total area of habitat types protected (i.e. not just Amendment 19)
    - Species-specific protections

Metrics that could be developed into criteria to evaluate Amendment 19 relative to this goal, include but are not limited to:

Relative and absolute proportions or area of habitat types with and without protections

**b) Protect the full range of benthic habitat to account for each managed species;**

Along the U.S. West Coast, habitat types have received differential protection from fishing effort. The proportion of habitat with a high probability of occurrence of representative groundfish species and also included within an EFH conservation area varies widely among species. These conclusions were derived from the analysis in the Groundfish EFH Synthesis (see discussion in EFH-S [Section 2, pg. 22-38], EFH-P2 [Section 3, pg. 13-17]). Those species that occur in rocky or deeper areas (e.g., yelloweye rockfish, sablefish, and longspine thornyhead) have a relatively higher proportion of their habitat included within the EFH conservation areas than fish that are generally found in shallower or softer habitats (petrale sole, greenstriped rockfish, darkblotched rockfish). In addition, fishing pressure was high in high-probability habitat for adults of some groundfish species but not in other areas.

Species vary in the coincidence of habitat suitability and fishing pressure from the groundfish fishery. For example, sablefish has the highest proportion of areas that are heavily targeted by the fishery and also have a high probability of occurrence. Petrale sole has high probability of occurrence and high fishing pressure near the mouth of the Columbia River (Washington/Oregon border) and near San Francisco, California, but areas of lower fishery pressure (from federally observed fisheries) nearshore. The estimated threat to yelloweye rockfish is generally low since yelloweye have a high probability of occurrence only in areas with a low exposure to bottom trawl fishing.

Given the insufficient amount of information on survival, fecundity, growth, or other life history parameters across habitat types at each life stage, an approach that works to protect a variety of habitats (i.e., Objective a) is consistent with precautionary fisheries management.

Additional information and analyses that could improve our understanding of this objective include:

- Improve surveys in untrawlable habitats
- Improve our understanding of the use of biogenic habitats by groundfish species
- Describe the distribution and abundance of larval and juvenile groundfish species across habitat types; identify core spawning and nursery grounds
- Evaluate habitat-specific variation in life-history parameters for individual species
- Improve life-cycle models that include habitat or spatial components

- Re-run Habitat Suitability Probability models in association with EFH closures to evaluate effectiveness at a species/life history stage level
- Evaluate habitat affinity with species size
- Incorporate additional sources of information (e.g. NWFSC Hook and Line Survey) into species-habitat association analyses
- Evaluate the effects of climate change on groundfish habitat use

Metrics that could be developed into criteria to evaluate Amendment 19 relative to this goal, include but are not limited to:

- Relative and absolute proportions or area of habitat types with and without protections, coupled with species-specific habitat associations
- Population status metrics, including abundance, productivity, spatial structure and diversity

**c) Prioritize pristine or sensitive habitats and the gear types most likely to have the highest impact;**

Many fishes associate with various types of structure, such as rocks, depressions in soft sediment, kelp, thermal gradients, man-made debris, and structure forming invertebrates (biogenic invertebrates). Bottom tending fishing gears have the potential to reduce habitat complexity by smoothing of sedimentary bedforms and reduction of bottom roughness, and removal of taxa that produce structure. Certain types of biogentic habitats are known to be particularly sensitive to the disturbances inflicted by fishing gear (see discussion in EFH-P1 [Section 4, pg. 55]). Both EFH-S (Section 2.2, pg. 27) and EFH-P2 (Section 3) discuss the potential importance of invertebrates such as corals and sponges in enhancing complexity of seafloor habitats and the sensitivity of these organisms to impacts from fishing gear. Our understanding of the location of these biogenic habitats has improved over the past decade, but remains far from perfect.

Deep sea corals and sponges (DSC) along with other structure forming invertebrates mostly occur on rocky substrata (e.g., boulders, pinnacles, rock outcrops), although sea pens in particular are found in mud and sand sediments. Many FMP groundfish species, especially the rockfishes, co-occur with DSC in the same rocky areas. DSC taxa are slow growing and vulnerable to disturbance by bottom-tending fishing gears that target North Pacific groundfish species. As a result of added protections from Amendment 19 (as described in a), such habitat is being protected via the exclusion of fisheries from hard substrate locations.

Additional information and analyses that could improve our ability to address this objective include:

- Improved habitat mapping (see Objective a)
- Greater understanding of the distribution and abundance of biogenic habitats on a lower taxonomic level than presently available
- Observational and experimental studies to evaluate the impact and recovery from different gear types on all habitat types

Metrics that could be developed into criteria to evaluate Amendment 19 relative to this goal, include but are not limited to:

- Relative and absolute proportions or area of habitat types with and without from different gear types
- Distribution of fishing and non-fishing impacts across habitat types (e.g. intensity or number)

**d) Distribute socioeconomic costs that would result from implementation of the alternative;**

To date, no work has been done that evaluates the Amendment 19 socio-economic costs and benefits, or their distribution across regions or participants. Previous analysis has noted that the distribution of fishing effort has changed since the establishment of the RCA to areas that are deeper and somewhat more offshore. No similar shift in fishing effort was observed with respect to the closures established by Amendment 19 (see EFH-S [Section 5.2, pg. 91-92).

Additional information and analyses that could improve our ability to address this objective include:

- Evaluation of changes in landings and ex-vessel revenue across communities or port groups of interest. The analysis could look at the effect by:
    - Species of interest
    - Fishing gear
    - Vessel classifications or characteristics
    - Other factors of interest
- Evaluation of regional economic impacts resulting from changes in landings by port group:
    - Economic output
    - Employment
- Evaluation of potential changing in the net returns to fishing and processing due to:
    - Changing is areas fished
    - Changes in catch rates
    - Changes is landed species mix
- Evaluation of the economic effects of other spatial management efforts.

These evaluations could be developed into criteria.

**e) Implement area closures for different gear types within different habitat types to foster comparative scientific research**

EFH closures were not explicitly designed as a comparative experiment to measure effectiveness of the closures. However, a recent study by Keller et al. (in press) examined the distribution of demersal fishes along the U.S. West Coast in relation to the Rockfish Conservation Area (RCA), and suggested that such area closures can be an effective management tool for conserving many of the groundfish species. Keller et al. used trawl survey data from 2003 to 2011 to evaluate the influence of RCAs on catch per unit effort (CPUE), species richness, and size distribution of demersal fishes. During the study period, both catch and species richness were greater in the closed portion of the RCA and a higher proportion of larger fish occurred within the RCA boundaries. Despite a declining trend in demersal fish biomass in general along the West Coast (Keller et al.2012), CPUE within the closed region of the trawl RCA also decreased but remained high relative to other areas for multiple species. Although the RCA closure is not part of the network of EFH conservation areas, these results from Keller et al. (in press) can inform

our understanding of the effects of spatial closures on demersal fishes. In particular, comparative analyses of catch and diversity of groundfish species could be conducted between EFH Conservation Areas and areas with no prohibitions in order to evaluate performance of Amendment 19 closures.

Additional information and analyses that could improve our ability to address this objective include:

- Compare catch, species richness, and size distribution for demersal fishes inside and outside of the boundaries of the EFH Conservation Areas and other protected areas
- Maintain closures for periods of time long enough to support research on the impacts of the closure on both the habitat and on species' distribution, abundance, and growth
- Establish closures in a full range of habitats and across relevant gear types in the context of a planned experiment

## 3 Evaluating the Effectiveness of EFH Conservation Areas

A habitat assessment is a fundamental and key element in evaluating the effectiveness of spatial management measures, such as the implementation of the Amendment 19 EFH Conservation Areas. Habitat assessments are designed to address the PFMC's request to provide a potential approach to evaluating the question of whether current EFH designations are working as expected. In developing both the 2005/06 and current 5-year reviews of groundfish EFH, NMFS mirrored the science guidance and pathways outlined in the NMFS HAIP Plan, emphasizing data consolidation and synthesis to inform a habitat assessment and policy development. This framework is highlighted in Figure 4, taken from the NMFS HAIP.

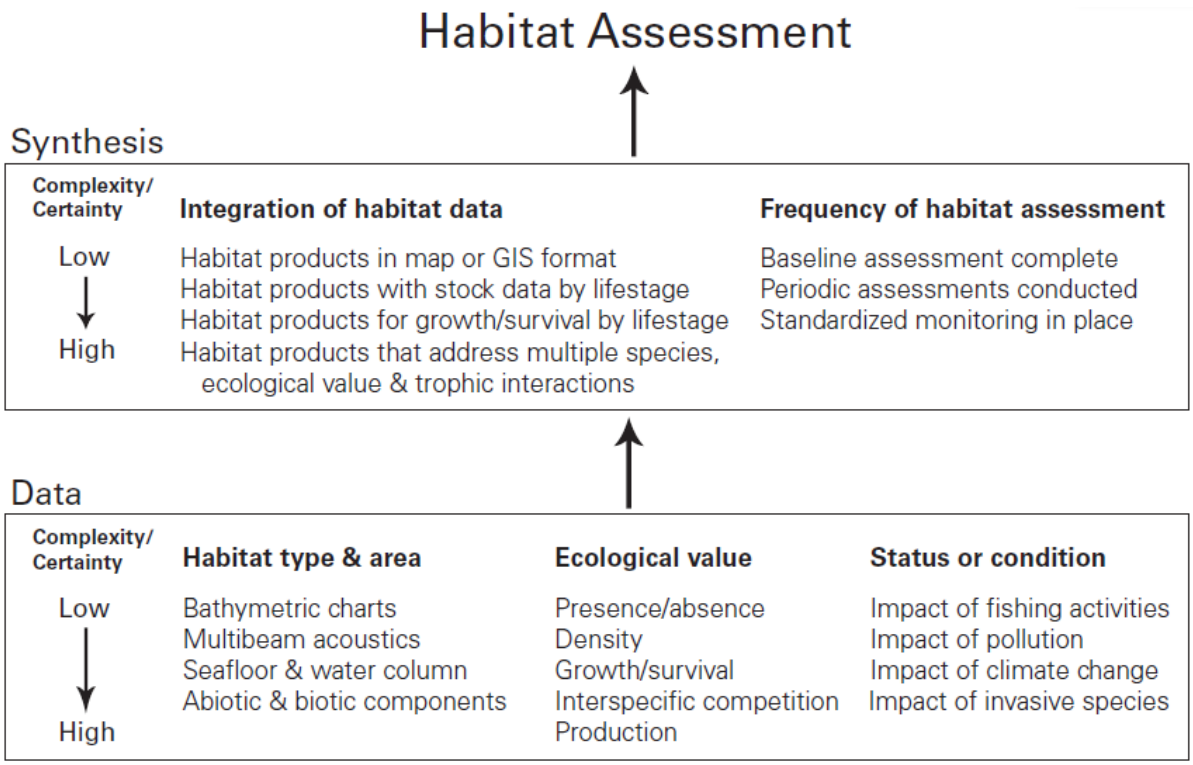


**Figure 4. Flow of information in the development of a habitat assessment from the data gathering phase through the synthesis phase leading to policy development (from NMFS Habitat Assessment Improvement Plan [NMFS 2010]).**

We can approach the problem of evaluating the effectiveness of spatial management measures as a series of four steps:

1. Collate knowledge of the state of each of the biological and physical habitat attributes across the entire coast.
    a. Occurrence and/or abundance of each habitat attribute
        i. These will typically take on the form of a chart or table, or, in the case of more dynamic attributes, a series of charts or tables.

2. Connect the measured state of each attribute to its effect on each species and life-history stage. The effect of physical and biological habitat could be identified in a range of species life history parameters including:
    a. Growth
    b. Mortality
    c. Recruitment
    d. Species Interactions

    Individually, these effects of habitat provide "level 3" information and in combination they are a measure of the productivity of the species or "level 4" information. Because Step 2 can be difficult in any environment, NOAA and other researchers have developed associations between the distribution of a species and the habitats in which it is most commonly found.

3. Combine the effects of each habitat attribute to arrive at a cumulative measure of the quality of each potential location for the entire coast (again for each species and life-history stage). Importantly, given the information gaps presented in the previous section, this has to be done in the presence of uncertainty about the actual habitat along the coast.

4. Combine information across all species and life-history stage metrics to determine which areas should be protected to maximize the quality of habitat for all species and life-stages simultaneously for given a set of biological and socio-economic constraints

**Estimated Resources Needed by both NW and SW Fisheries Science Centers to Advance Groundfish Habitat Assessments for the US West Coast – Turning to the NMFS Habitat Assessment Improvement Plan**

In 2009, the NMFS HAIP team asked NMFS habitat and ecosystem scientists, population/stock assessment scientists, and resource managers to identify the most important factors hampering their ability to provide accurate, precise, valid, and defensible habitat assessments (including data collection, analyses, and reporting) that would assist in improving accuracy and precision of stock assessments and EFH/HAPC designations (NMFS 2010). The quality of habitat assessments was considered using a series of tiers in a manner similar to the NMFS Stock Assessment Improvement Plan (SAIP) (NMFS, 2001). The three tiers of the HAIP included the essential elements of a comprehensive habitat assessment and monitoring program: habitat-specific biological information, geospatial information on habitat characteristics, and development and application of indices to monitor habitat condition related to fish production. The tiers indicate increasing levels of resolution in assessment data and an increased understanding of the functioning of fish habitats.

Across NMFS, the major obstacles to producing and using credible habitat assessments were:

- Lack of fishery-independent, habitat-specific abundances and biological parameters;
- Insufficient staff to collect, process, analyze, and model habitat data; and
- Insufficient research on environmental and multispecies effects.

Program managers at the NW and SW Science Centers estimated that the equivalent of 96 additional full-time staff devoted to habitat research and assessments are required to achieve tier 2 assessments (that is, to produce habitat maps over the geographic range of all stocks and life stages and to determine their habitat-specific abundances) for all species under PFMC jurisdiction (see Appendix 7 of NMFS HAIP); groundfish account for about 75% of the total number species. Meeting the objectives of Tier 3 assessments would require 78 additional staff.

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Science, Service, Stewardship

Agenda Item D.2.c
Supplemental NMFS Science Center PowerPoint
March 2014

# NMFS Science Center Report: Evaluating Amendment 19

March 6, 2014

NOAA FISHERIES SERVICE

NWFSC NORTHWEST FISHERIES SCIENCE CENTER

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# Overview

- Some basic background – evaluating habitat
- A closer look at the objectives of Amendment 19
- Some things that we know contribute to conservation success in spatial management
- Does NMFS really need that many more people?

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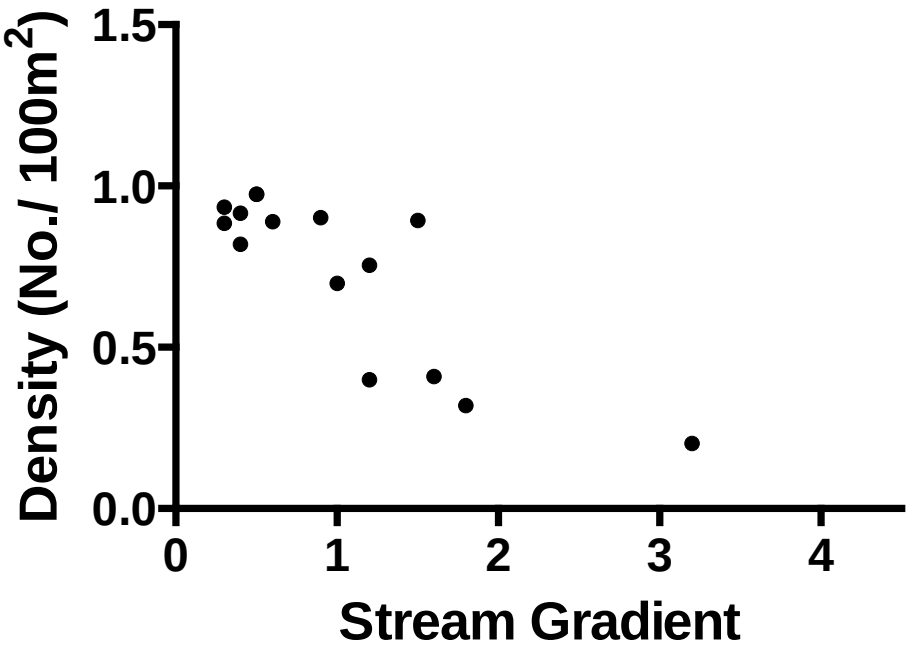
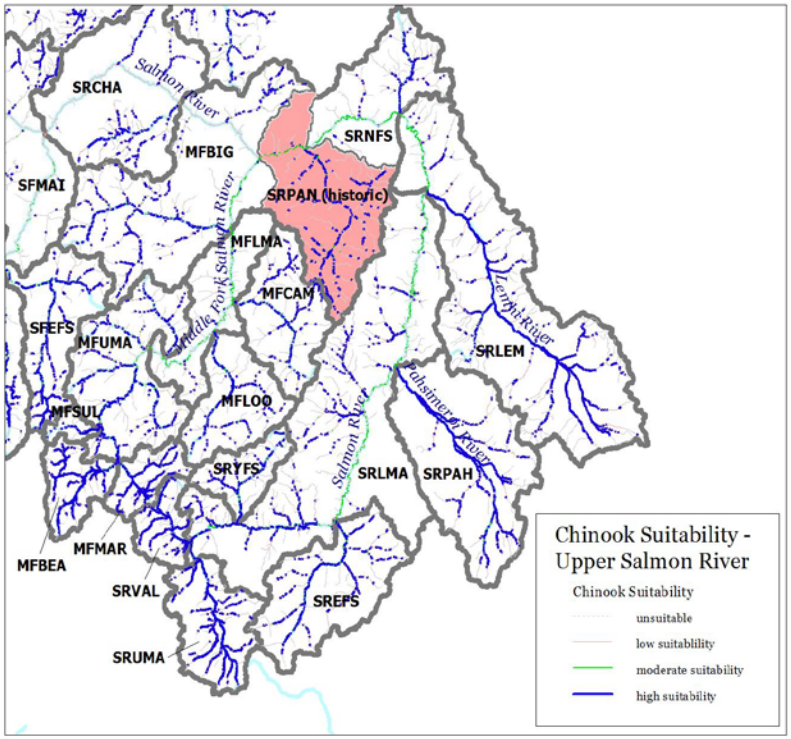
# Habitat – Population Relationships

## Chinook (Stream Type)

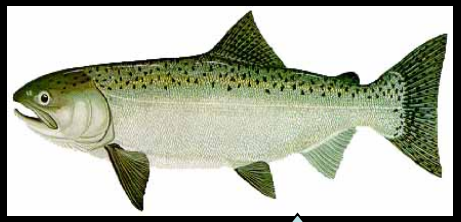


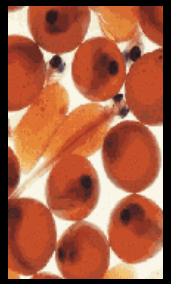



4,000-5,000 eggs

Habitat Quality

2 spawners





??? 1-year-olds
to Lower Granite Dam

?? Migrants return to
spawning grounds

??? Migrants Below
Bonneville Dam

In-river survival

Habitat Quality

??? Adults return to
mouth of Columbia

??? Youngsters To 3rd
Birthday (Estuary &
Ocean)

Habitat Quality

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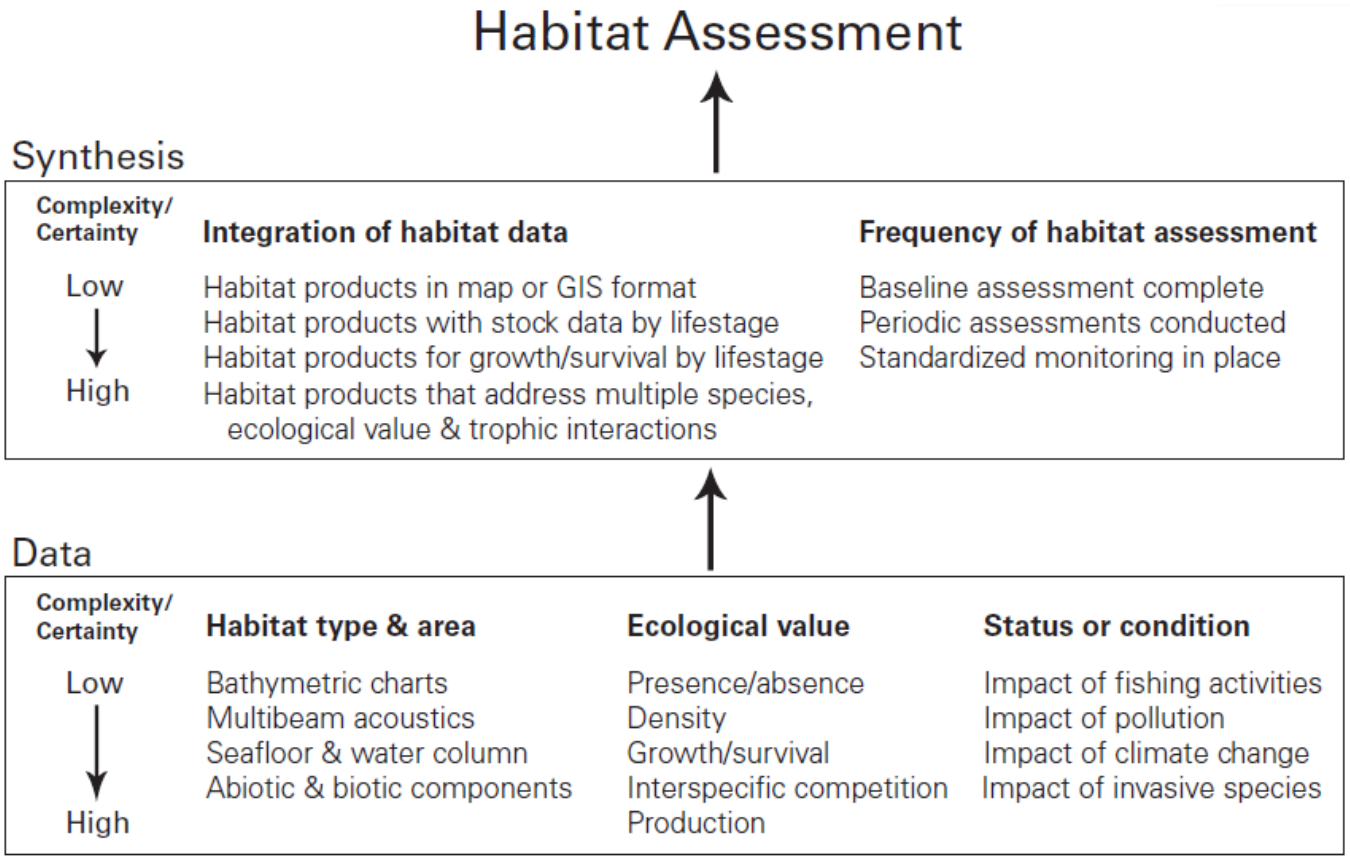
# Habitat assessments




Flow of information in the development of a habitat assessment from the data gathering phase through the synthesis phase leading to policy development.

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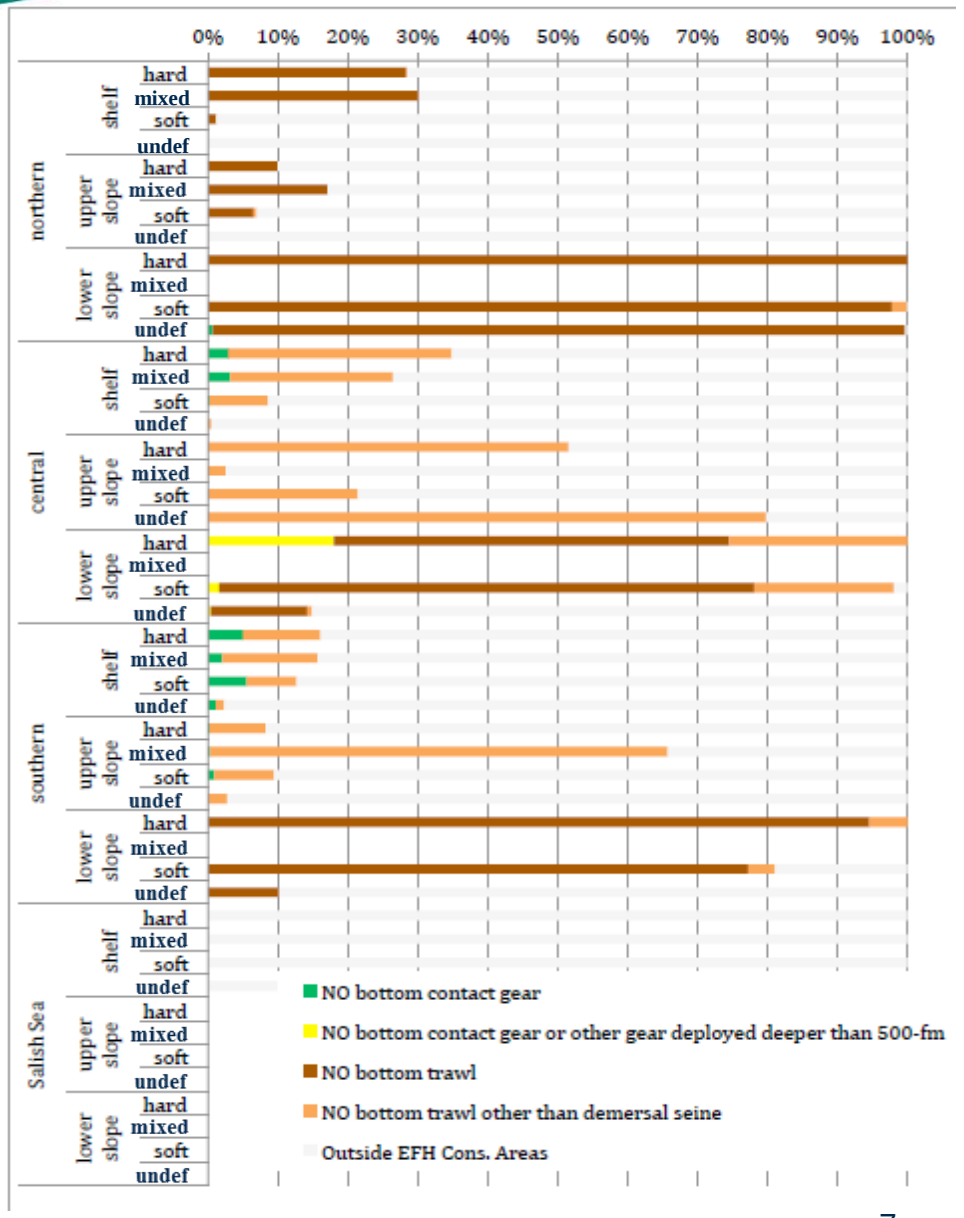
# Goals of Amendment 19

1. Protect a diverse array of habitat types across latitude ranges and within the two known biogeographic zones that occur in the project area;
2. Protect the full range of benthic habitat to account for each managed species;
3. Prioritize pristine or sensitive habitats and the gear types most likely to have the highest impact;
4. Distribute socioeconomic costs that would result from implementation of the alternative; and,
5. Implement area closures for different gear types within different habitat types to foster comparative scientific research.

# Protect a Diverse Array of Habitats

## Where Do EFH-Specific Gear Prohibitions Apply?

- Lower slope has greater fishing protections
- ~10% of shelf and upper slope habitats have protection
- Greater percentage of hard habitat protected in shelf and upper slope regions



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# What's Needed?

- Improve mapping and description of benthic habitats
- Evaluate protected vs. non-protected areas, for example:
  - —Total area of habitat types protected (i.e. not just Amendment 19)
  - —Species-specific protections
  - —Scale
- Potential metrics
  - Relative proportions of habitat types protected
  - Absolute area of habitat types protected

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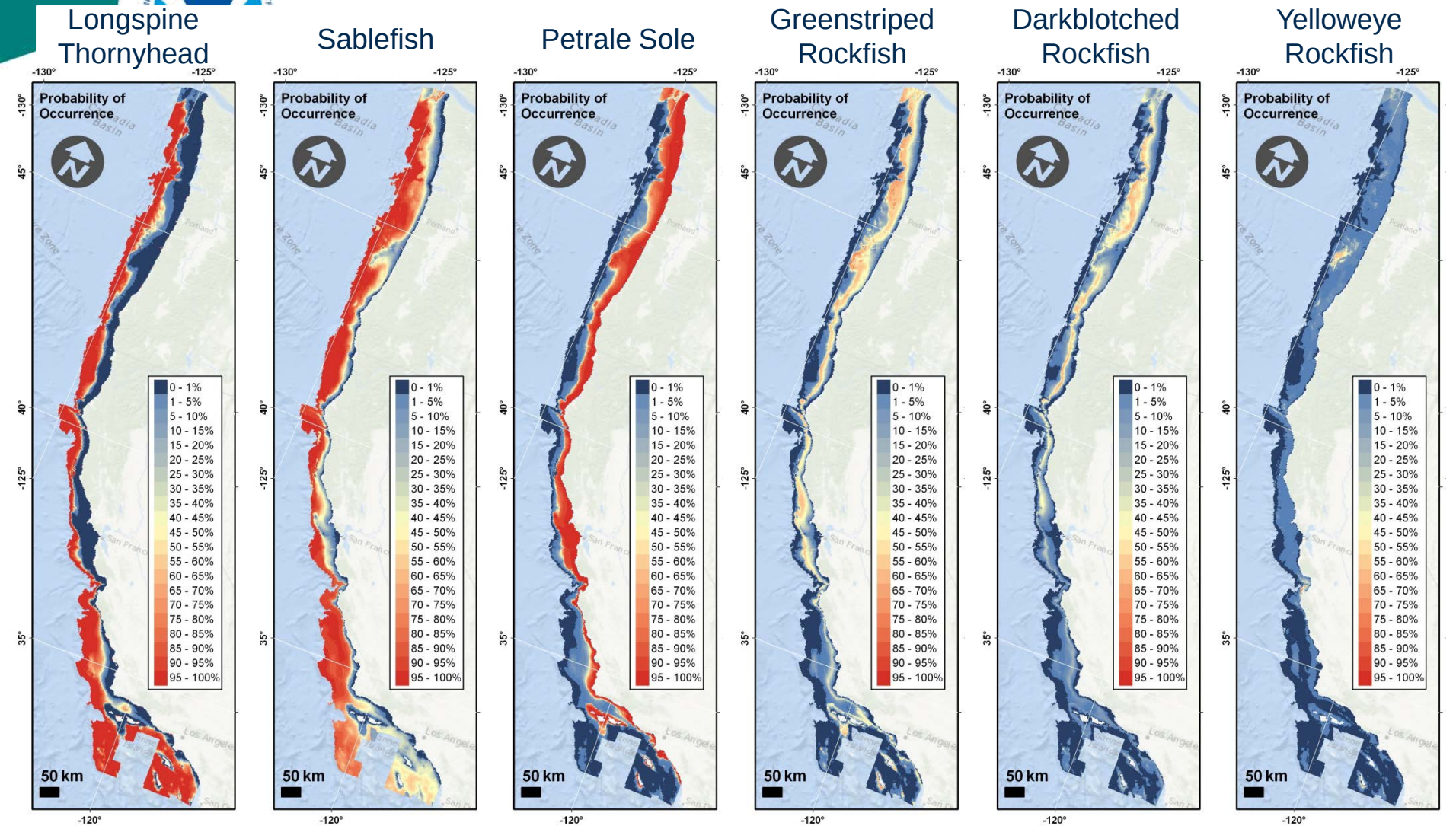
# Protecting a Full Range of Habitat for Managed Species



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# What's Needed?

- Life stage and habitat-specific densities, vital rates
- Surveys in untrawlable habitats
- Understanding of biogenic habitat use

- Potential Metrics
  - Species-specific habitat proportions with protections
  - Population status measures, including abundance, productivity, spatial structure and diversity

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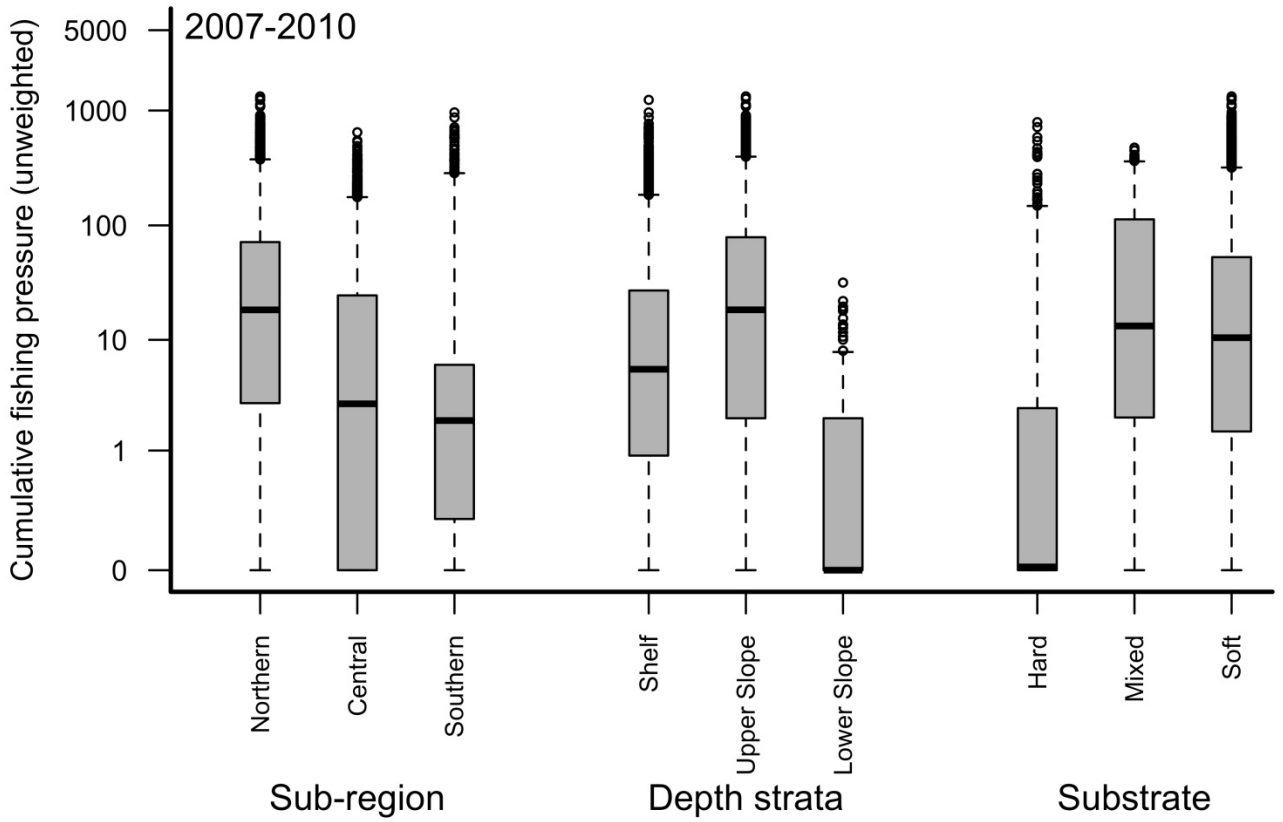
# Prioritize Pristine or Sensitive Habitats



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- Bottom Trawl Change

  Some displacement seaward, associated with RCAs

  Little to no change with Amendment 19 Conservation Areas, but changes with footrope regulations

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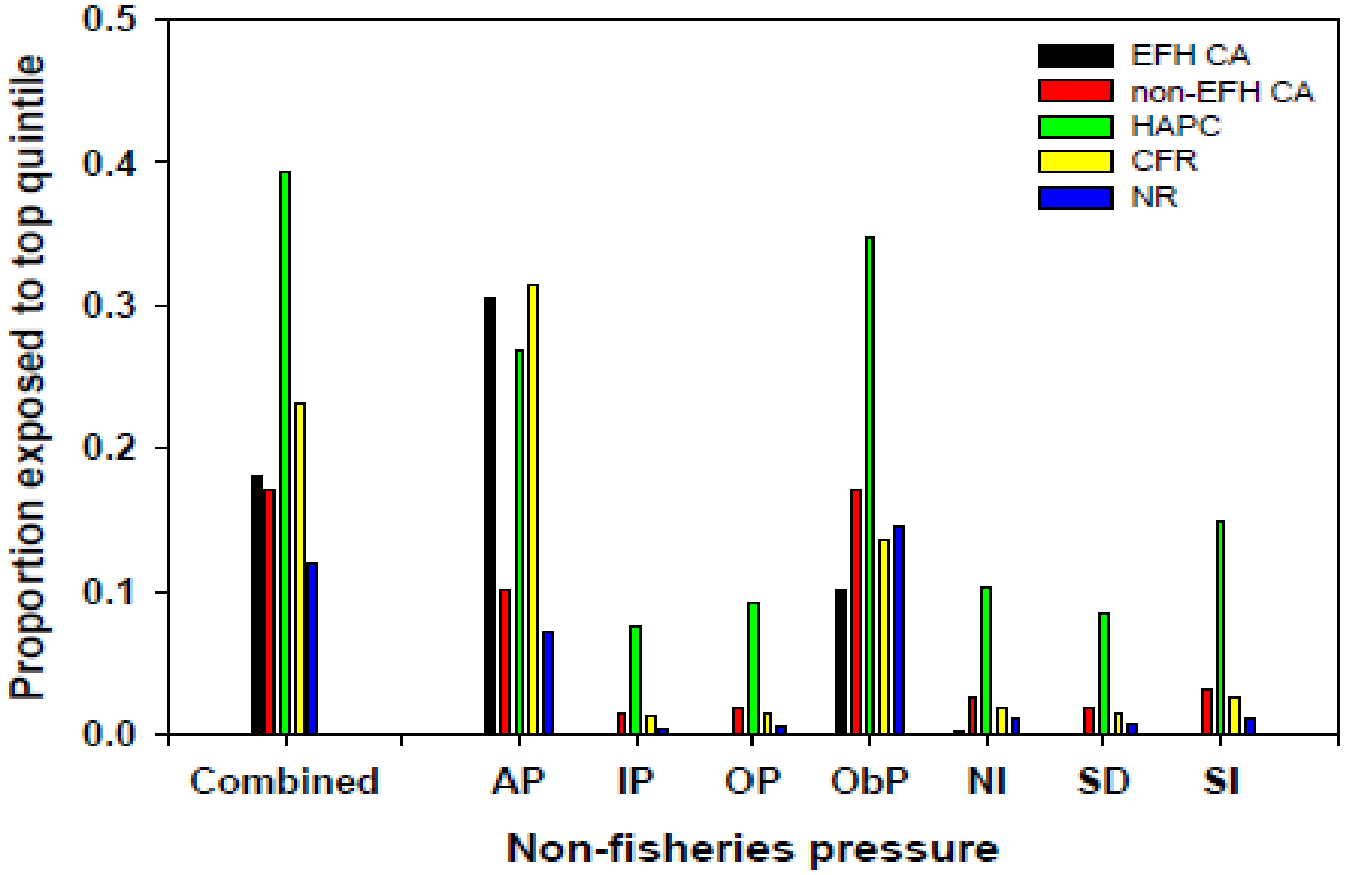
# Coastwide Habitat Exposure – Non-Fishing Threats



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# What's Needed?

- Experiments/observations evaluating the impact and recovery from different gear types on all habitat types
- **Impacts of other threats and pressures on populations**
- Potential Metrics
  - Habitat proportions with and without impact from different gear types
  - Distribution of fishing and non-fishing impacts across habitat types
  - Intensity of impacts across habitat types

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# Distribute Socio-economic costs

- Currently, changes in fishing effort are only potential proxy.
- Potential metrics
  - Landings or ex-vessel revenue
    - By port, species, gear, or vessel type
    - Or, evaluating areas fished, catch rates, landed species
  - Regional economic output or employment

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# Use closures as experiments

- Little work conducted in the EFH Conservation areas
  - Variety of causes
- Some analysis for RCAs
- NMFS Science Centers very willing to engage on this front (and always have been!)

Science, Service, Stewardship

# Distribution of demersal fishes along the U.S. west coast (Canada to Mexico) in relation to spatial fishing closures (2003 – 2011)

- Goal: Evaluate the RCA as a management tool by comparing catch, species richness and size distribution within and outside the areas closed to commercial bottom fishing

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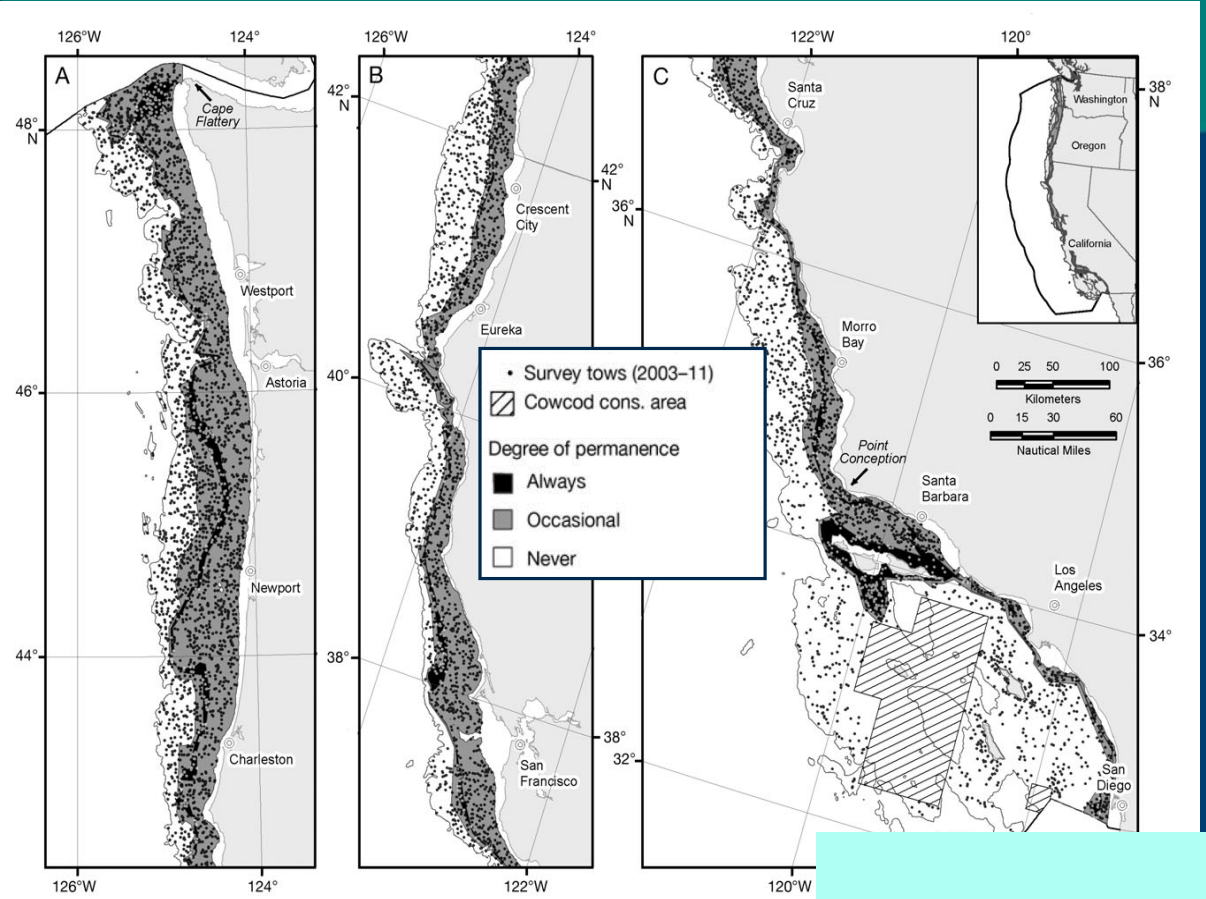
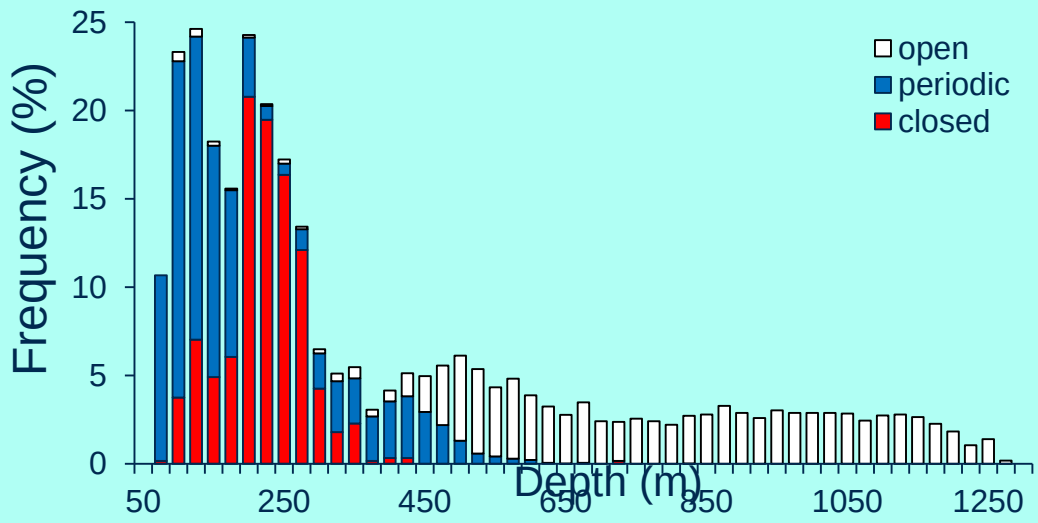
*Keller et al., in press, *Marine Ecology Progress Series*


A
B
C
Cape Flattery
Westport
Astoria
Newport
Charleston
Crescent City
Eureka
San Francisco
Santa Cruz
Morro Bay
Point Conception
Santa Barbara
Los Angeles
San Diego
Washington
Oregon
California
Survey tows (2003–11)
Cowcod cons. area
Degree of permanence
Always
Occasional
Never
0 25 50 100
Kilometers
0 15 30 60
Nautical Miles


2003 - 2011
Frequency (%)
Depth (m)
open
periodic
closed
0
5
10
15
20
25
50
250
450
650
850
1050
1250

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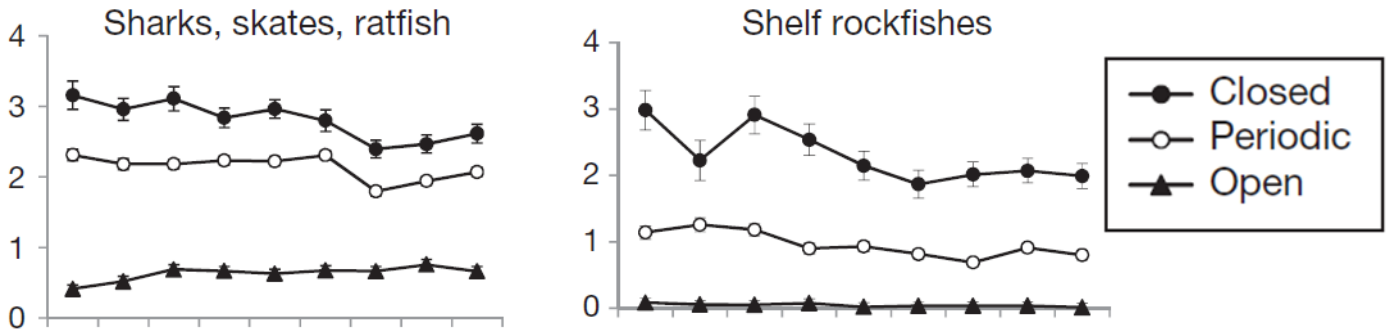


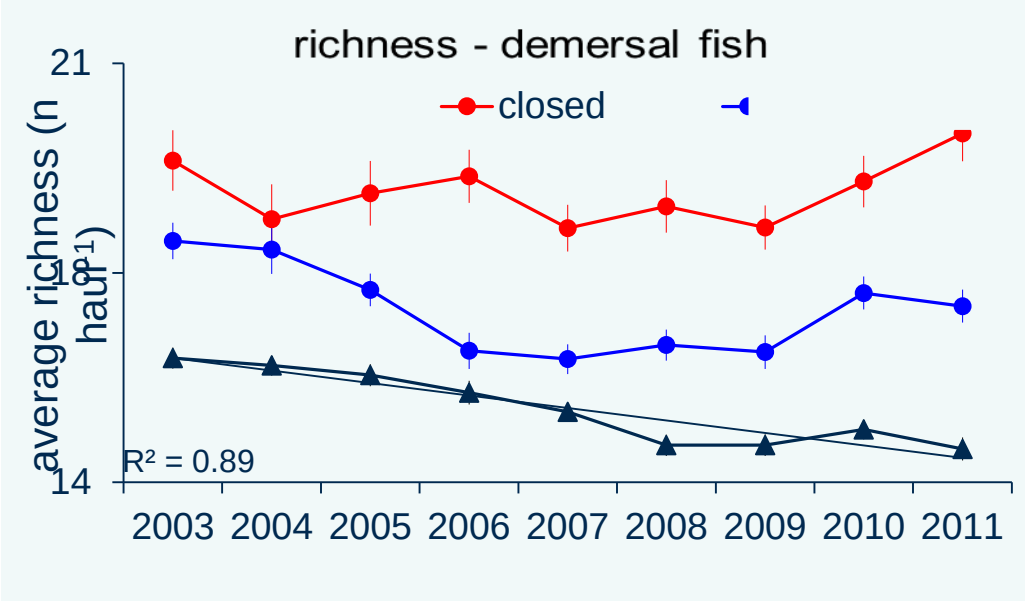

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# Summary

- No increases in CPUE occurred over the time examined within the RCA.
- Both catch and species richness were greater in the closed portion of the RCA.
- A higher proportion of larger fish occurred within the RCA boundaries.

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# 5 Attributes Important for Conservation Benefits for Reef MPAs

- No take
- Well-enforced
- Old (>10 years)
- Large (>100 $km^2$)
- Isolated by deep water or sand

- *Edgar et al. 2013 Nature* **506**, 216–220. Global conservation outcomes depend on marine protected areas with five key features

NOAA FISHERIES SERVICE

# How Do we Use All This? Or Does NMFS Really Need All Those People?

- Long-term
  - Habitat assessments
  - Better data
  - Management actions as experiments (learn from doing and measuring)
- Short-term
  - Alternate data summaries
  - Tailor data summaries to desired criteria
  - Evaluate with/without proposed areas
    - Habitat type, pressures, species associations

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# QUESTIONS?

# SCIENTIFIC AND STATISTICAL COMMITTEE ON ESSENTIAL FISH HABITAT (EFH) EVALUATION CRITERIA AND PHASE 2 REPORT

Brad Pettinger, Chair of the Essential Fish Habitat Review Committee (EFHRC), provided a summary of the finalized Phase Report of the Groundfish Essential Fish Habitat Review process. The level of disagreement reflected in the report is unusually high, as indicated by minority statements inserted into the document in various places and in public comment. The Scientific and Statistical Committee (SSC) previously noted that the EFHRC, unlike most other Council advisory bodies, had the dual role of providing both technical expertise and stakeholder representation, and included members who reviewed their own proposals. Therefore, difficulties in reaching consensus should probably have been anticipated. The focus at this stage in the EFH review process should be on how to move forward with Phase 3 of the EFH review. An important step is for the Council to develop a problem statement and to establish a set of objectives that any proposed alterations to EFH should achieve. The Council should also give consideration to how to achieve a clear separation of policy and science in the EFH review process, for example by giving stakeholder groups a role in the development of policy alternatives and assigning a technical group to be responsible for evaluating alternatives.

The SSC also received a presentation from Dr. Michelle McClure on the NMFS report that discussed ways to evaluate whether the EFH closures in Amendment 19 are working. The document was distributed to the SSC on the day of the review, so there was time for only limited review by the SSC.

The report discussed five overall objectives that were articulated in the Record of Decision for Amendment 19. These objectives included:

1. Protect a diverse array of habitat types across latitude and biogeographic zones.
2. Protect a full range of benthic habitat.
3. Prioritize pristine or sensitive habitats for protection.
4. Distribute socioeconomic costs equitably.
5. Implement area closures to facilitate research.

The NMFS report proposes methods to evaluate the extent to which the existing EFH closures achieve objectives 1-4, but there is no metric for determining how much protection is enough. A different pattern of spatial closures could be evaluated using the same methods, thus providing a way to evaluate alternatives — if these objectives are still considered appropriate by the Council.

The purpose of EFH closures is to benefit groundfish populations, but the extent to which those benefits occur is not a question that current scientific capacity is able to answer reliably. Absent the ability to determine whether EFH closures are or are not effective, EFH initiatives should acknowledge the high level of uncertainty regarding their effectiveness and recognize the potential for damage to EFH to occur before impacts on groundfish populations are detected.

The SSC recommends that greater consideration be given to scientific research objectives when designing EFH closures, as this may allow the uncertainty in whether EFH closures are effective to be reduced in the future.

PFMC
03/08/14

Quinault Indian Nation
POST OFFICE BOX 189 • TAHOLAH, WASHINGTON 98587 • TELEPHONE (360) 276-8211

Ms. Dorothy M. Lowman
Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384

March 1, 2014

Dear Chair Lowman:

In 2007 the four Coastal Treaty Tribes – Makah, Quileute, and Hoh Tribes, and the Quinault Indian Nation formed the Olympic Coast Intergovernmental Policy Council (IPC) with the State of Washington and the Olympic Coast National Marine Sanctuary (OCNMS). This forum was established to facilitate effective communication among the state, federal, and tribal governments and to provide management advice to the OCNMS. The IPC recognizes among its purposes identifying common goals and prioritizing research to inform management.

As part of those purposes and in light of ongoing concerns with how essential fish habitat (EFH) protections might impact their "usual and accustomed" (U&A) areas, the four Coastal Treaty Tribes along with our Washington State and NOAA partners recently committed to undertake a more rigorous look at habitats within our shared jurisdictions. This process, agreed to by all parties at a February 4 meeting of the IPC will seek to delineate known habitats as well as their value to the ecosystem (e.g. ecological, cultural, economic, etc.). Such an undertaking will require the scientific expertise of the state, NOAA, and each of our tribes. This could then serve as the scientific basis for management initiatives ranging from EFH designations and protections to ecosystem-based management and marine spatial planning activities.

We applaud OCNMS and WDFW for withdrawing their EFH proposal pending more scientific deliberation on existing habitats and their contribution to our shared ecosystems. We all share the goals of ensuring healthy ecosystems as well as the resources and communities that depend on them for generations to come. The Coastal Tribes think it is imperative to do so in a deliberate and scientifically sound way. It will take considerable work to better understand and document the various habitat types, and the Tribes stand committed to doing this work that is necessary for protecting the health of our ocean.

Sincerely,

Ed Johnstone

Ed Johnstone, Quinault Fisheries Policy

Cc: John Stein, NWFSC
Will Stelle, NMFS Western Region
Donald McIsaac, PFMC

QUILEUTE TRIBAL COUNCIL
POST OFFICE BOX 279
LA PUSH, WASHINGTON 98350-0279
TELEPHONE (360) 374-6163
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March 6, 2014

Don McIsaac, Executive Director
Pacific Fisheries Management Council
7700 Ambassador Place, Suite 101
Portland, Oregon 98220-1384

**Re: Agenda item D.2 EFH Evaluation and Criteria Phase 2 Report**

Dear Don:

The Quileute Tribe has a treaty-reserved right to the fishery resources in our usual and accustomed fishing grounds and stations (U&A). Inclusive in this treaty-reserved right is the authority as co-manager with the state of Washington and the federal government. At this time, we congratulate PFMC's Essential Fish Habitat Review Committee (EFHRC) for the completion of the Phase 2 EFH Report, thereby opening up the discussion on the Council floor to Phase 3. The purpose of this letter is to highlight some of the concerns that the Quileute Tribe has with the EFH review process in general and to communicate a new strategy under development for the development of EFH Conservation Areas located in waters off the Washington coast.

As PFMC is aware, in response to the Request for Proposals brought forth through the current EFH review, several proposals were submitted for areas off of the Washington Coast. While several of these proposals have the potential to have consequences in the Washington Coastal Treaty Tribes' U&As, and more specifically the Quileute Tribe's U&A, lacking a more detailed analysis, the specific effects to our community remain unknown. As the Council considers the recommendations of its committees in this EFH review process, we request that the Council continue to work towards developing a set of measureable criteria for the following:

- Conduct analysis of the shift in fishing effort when an EFH is established, inclusive of past strategies (Amendment 19) and future proposed strategies;
- Continue forward in Phase 3 to develop data and analysis tool(s) necessary to understand the significance of habitat and ecosystem valuation (ecological, economic, cultural, social) by sub-region; and
- Move forward in efforts to increase catch accountability through venues such as electronic monitoring.

As the Quileute Tribe has expressed in the past (see PFMC Testimony of November 2013), we remain cautious regarding the application of EFH closures, absent analysis of how EFH Conservation Area strategies will impact treaty marine resource management. In general, management decisions in our region continue to be hampered by a poor data scenario and the general lack of funds to improve that situation. While many focus discussions of EFH at the biological level (bottom substrate, nutrient availability, currents etc.), EFH Conservation Areas must also be inclusive of factors beyond the physical and biological such as socioeconomic implications.

Recently the Quileute Tribe along with the Hoh Tribe, Makah Tribe and Quinault Indian Nation or CTT were in discussions with the Olympic Coast National Marine Sanctuary (OCNMS) and the Washington Department of Fish and Wildlife (WDFW), regarding their proposal for "Olympic 2 EFH Conservation Area". In our discussions with OCNMS and WDFW , the Quileute Tribe along with the other coastal treaty tribes identified the need to develop a mutually agreed upon strategy to meet the continuing challenge of minimal data and funding. Based on the commitment from the CTT to work directly with OCNMS and WDFW to undertake a more rigorous look at EFHs within our shared jurisdictions; OCNMS/WDFW plan to withdraw their EFH proposal for Olympic 2. Moving forward, it is envisioned that the purpose of this partnership is to conduct a more scientific deliberation on the habitats and ecosystem functions along our coast. We believe this is an important first step to compiling data sets to inform our management decisions regarding the creation, placement, modification, and ultimately (potentially), dissolution of EFH designations. By creating this partnership and consolidating our collective resources, it is our hope that funding opportunities may also become more readily available then they would have through separate initiatives.

Please contact Mel Moon, Director of Quileute Department of Natural Resources at mel.moon@quileutenation.org or 360-374-3133 to discuss this matter further.

Sincerely,

Charles Woodruff

Charles Woodruff, Chairman
Quileute Tribal Council

**MAKAH TRIBE**

P.O. BOX 115 • NEAH BAY, WA 98357 • 360-645-2201

March 8, 2014

Ms. Dorothy M. Lowman
Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

Dear Chair Lowman

The Olympic Coast Intergovernmental Policy Council (IPC) is made up of the State of Washington as well as the four Coastal Treaty Tribes – Makah, Quileute, and Hoh Tribes, and the Quinault Indian Nation. It was established to provide a forum for effective communication among the state, federal, and tribal governments and to provide management advice to the Olympic Coast National Marine Sanctuary.

The Makah Tribal Council (MTC) continues to maintain its commitment to the IPC process in order to work towards the development of habitat protection and improve our understanding of Essential Fish Habitat (EFH) and in support of proper management measures. We believe that the IPC process could become essential in resource management through the development of sound science.

With that said, the Makah tribe along with our Washington State and NOAA partners recently made a commitment to undertake a more rigorous look at habitats within our shared jurisdictions. As co-managers we will seek to delineate known habitats as well as their value to the ecosystem (e.g. ecological, cultural, economic, etc.). Such an undertaking will require the scientific expertise of the state, NOAA, and the Coastal Treaty Tribes. This could then serve as the scientific basis for management initiatives ranging from EFH designations and protections to ecosystem-based management and marine spatial planning activities.

We are glad to see that OCNMS and WDFW are withdrawing their EFH proposal pending more scientific deliberation on existing habitats and their contribution to our ecosystem. We all share the goals of ensuring healthy ecosystems as well as the resources and communities that depend on them for generations to come. The Makah Tribe thinks it is imperative to do so in a deliberate and scientifically sound way. It will take considerable work to better understand and document the various habitat types, and the Makah Tribe stands committed to doing this work that is necessary for protecting the health of our ocean as indicated in the attached, Makah Tribal Council-Subject Matter: Management Plan with Olympic Coast National Marine Sanctuary-Resolution No. 08-14 .

Sincerely,

Timothy J. Greene, Chairman
Makah Tribal Council

MAKAH TRIBAL COUNCIL
P.O. BOX 115 • NEAH BAY, WA 98357 • 360-645-2201

Resolution No: 03-14

Date Enacted: 02-03-2014

Subject Matter: Management Plan with Olympic Coast National Marine Sanctuary

**RESOLUTION NO: 03-14 OF THE MAKAH TRIBAL COUNCIL**

**WHEREAS**, the Makah Tribal Council is the governing body of the Makah Indian Tribe of the Makah Indian Reservation, Washington by the authority of the Constitution of the Makah Indian Tribe approved on May 16, 1936; and

**WHEREAS**, the Makah Tribal Council has the managerial responsibilities of tribal affairs as defined in the Makah Constitution and Makah Policy and Procedures it is the duty and responsibility of the Makah Tribal Council to provide for the wellbeing of the Makah Tribal community, as well as attend to the wellbeing of our resources which sustain and provide crucial support to the Makah Indian Reservation and the community; and

**WHEREAS,** the Makah Tribal Council acknowledges the importance of protecting our 1855 treaty of Neah Bay as a sovereign nation the Makah Tribal Council has the right to conduct government to government consultation for the processes of protecting our treaty rights, in co-management and decision making within the sanctuary with Federal and State governments; and

**WHEREAS,** the Makah Tribal Council, in keeping with Ocean Policy initiatives will place science before advocacy in all aspects of the Olympic Coast National Marine Sanctuary management plan, activities, and priorities by engaging in a technical workgroup; and

**THEREFORE, BE IT RESOLVED** a Makah Tribal Council adopts the following priorities with the Intergovernmental Policy Council; identified by the four coastal tribes in June 2013;

To develop and participate in technical workgroup to develop frameworks for habitat protection and develop the criteria to identify habitats of special importance with government to government consultation to improve our understanding of Essential Fish Habitat and management measures.

To develop and maintain critical habitat mapping and classification and data with state coastal and marine spatial planning and enlist the available data sources from governments and agencies that are engaged in the marine spatial planning process,

To develop and improve Ocean Literacy, marine resource management and community education and outreach by gaining opportunities and funding sources which are provided by the participation and coordination with state and federal agencies technical workgroups.

**FURTHERMORE, BE IT RESOLVED** that the Makah Tribal Council will represent the Tribe in the process of government to government consultation to improve our knowledge and capacity in the understanding and development of essential fish habitat and protect Makah treaty rights in all interactions and policies of the National Marine Sanctuary Program and Olympic Coast National Marnie Sanctuary; and

**BE IT RESOLVED** that the Makah Tribal Council will support developing a criteria for identifying important marine habitats and marine spatial mapping and continue seeking the development for research, understanding, and the regulatory management of the abundance of fish and marine mammals and their habitats and our marine environment.

**NOW THEREFORE, BE IT RESOLVED** The Makah Tribal Council is committed to ecosystem based management and will improve our understanding of ecology in Olympic Coast National Marine Sanctuary and Makah ocean waters and shall communicate our leadership with the Makah community regarding all issues and concerns related to protecting, and sustaining resilience for their wellbeing as tribal members

By the authority vested in the Makah Tribal Council, this resolution is made this 3rd day of February, 2014.

**MAKAH TRIBAL COUNCIL**

Timothy J. Greene, Sr., Chairman

**CERTIFICATION**

The forgoing resolution was adopted a regular meeting was held on (date) 2.3.2014, at which a quorum was present, and the resolution was adopted by a vote of 4 FOR and 0 AGAINST, the Chairman or the Vice-Chairman in his absence being authorized to sign the resolution.

JoDean Haupt-Richards, Tribal Secretary

# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE AND OLYMPIC COAST NATIONAL MARINE SANCTUARY REPORT ON ESSENTIAL FISH HABITAT

At the November 2013 Pacific Fishery Management Council meeting, in reference to the joint groundfish essential fish habitat (EFH) proposal by the Washington Department of Fish and Wildlife (WDFW) and Olympic Coast National Marine Sanctuary (OCNMS), we had indicated a need for further discussions with the Coastal Treaty Tribes in general, and the Makah and Quileute Tribes specifically, about our proposed modifications to the Olympic 2 EFH Conservation Area. While we have had a couple of meetings with the Makah Tribe about the proposal, as the Tribe whose usual and accustomed fishing grounds (U and As) have the greatest amount of overlap with the affected area, it was clear that the other Coastal Treaty Tribes had concerns about the proposal even if their respective U and As would not be directly affected by the proposal.

In addition to the concerns we heard expressed by various Tribal representatives, we also had a brief discussion at an Intergovernmental Policy Council (IPC) meeting in February. The IPC is an advisory body on activities within OCNMS and is comprised of policy level representatives from the Coastal Treaty Tribes, OCNMS, and the State of Washington. At that meeting, the IPC discussed the need for additional research on bottom habitats within OCNMS , improved communication and coordination on issues such as groundfish EFH and coral and sponge protection, and the potential for bringing together a group of tribal, NOAA, and state scientists in a collaborative effort to better understand bottom habitats and address habitat protection needs.

For the purposes of broader ecosystem protection and the application of precautionary management principles, OCNMS and WDFW continue to support the consideration of measures to protect hard substrate and biogenic habitats, such as those identified in our proposed modifications to the Olympic 2 EFH area. We also want to be responsive to the concerns we have heard expressed by the Coastal Treaty Tribes, and foster our co-management relationships with them. To that end, OCNMS and WDFW believe that the best, most effective, approach for habitat protection in this area would be a collaborative effort with the Coastal Treaty Tribes.

OCNMS and WDFW would propose to review the available bottom habitat data within the context of the scientific group described above and have discussions with the IPC (and perhaps with the Tribes separately, as appropriate) to develop and consider any potential areas for specific habitat or broader ecosystem protection. We would propose to begin this collaborative process this spring with the intent of bringing a recommendation back to the Council, which may be the same proposed Olympic 2 modifications or something different, either as part of the next groundfish EFH review or potentially as an Ecosystem Initiative.

If the Coastal Treaty Tribes are agreeable to the approach we have outlined and will commit to working with us on this effort, then we would request that the Council not take further action on our Olympic 2 proposal at this time.

# Overview of Recent Scientific Studies on Biogenic Habitat Use by FMP Groundfishes in the Eastern North Pacific
**February 12, 2014**

*Submitted by NRDC and Oceana as public comment to the Pacific Fishery Management Council. The primary research underlying this literature review was conducted by Joseph J. Bizzarro, of the University of Washington. External review and additional contributions were provided by Tom Hourigan, Ph.D., Chief Scientist, NOAA Deep Sea Coral Research & Technology Program.*

## Scope of This Document

This document provides an overview of recent scientific studies on habitat associations between structure-forming invertebrates and groundfishes managed under the Pacific Fishery Management Council's Groundfish Fishery Management Plan (FMP). The geographic scope of studies included in this document ranges from the southern border of California through the U.S. waters of the Bering Sea (i.e., the eastern North Pacific). While many of the studies report work in Canada and Alaska, both the fish and invertebrate species also occur within the Pacific Council region or have closely related congeners. This document is provided in response to the Essential Fish Habitat Review Committee (EFHRC) statement of a "top priority" need, during Phase 2 of the Groundfish Essential Fish Habitat 5-year Review, to "Re-assess the role of corals and sponges as habitat for groundfish based on an updated literature review." Pacific Fishery Management Council Briefing Book, April 2013, Supplemental EFHRC Report at 2. Specifically, this literature review addresses the level of available information on biogenic habitat and the relative habitat value of several structure-forming invertebrates, including cold-water corals (stony corals, Scleractinia; black corals, Antipatharia; sea fans, Gorgonacea; true soft corals, Alcyonacea; sea pens and sea whips, Pennatulacea; and stylasterid corals, Stylasteridae; Hourigan et al. 2007); sponges (Porifera), and other structure-forming invertebrates such as worm tubes, barnacle tests, and crinoids. Information in this review was compiled from the scientific literature, as surveyed in a thorough search of digital databases, previously assembled bibliographies, and published works. The literature reviewed ranged from observational notes to directed studies and reviews. Conference abstracts were omitted and an emphasis was placed on peer-reviewed literature; however, grey literature (non-peer reviewed reports), technical memorandum and graduate theses were incorporated when applicable.

## Introduction

Many groundfishes are associated with structured environments (Love and York 1996, Yoklavich and O'Connell 2008). This structure may be abiotic (e.g., rock outcrops, boulders, sand waves), biogenic (e.g., corals, sponges, kelp), or a combination of both. Although a complete definition of biogenic habitats includes kelp forests and seagrass beds, this review is limited to those biogenic habitats created by invertebrates. Invertebrates that form structured habitats in marine environments are commonly termed "structure-forming invertebrates.

Federal regulations state that a hierarchical approach should be used to organize the information necessary to identify and describe Essential Fish Habitat (EFH). Four levels of information are defined:

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

*See* 50 C.F.R. § 600.815(a)(1)(iii)(A). The distinctions above relate to the type of information available, not the results or findings of the information.

For structure-forming invertebrates along the U.S. West Coast, the great majority of available information falls into Level 1, indicating simple presence-absence associations between groundfish and corals or sponges, and criteria for determining associations vary by study. By the criteria associated with this level, regional distributions of FMP groundfishes (or life stages) "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." 50 C.F.R. § 600.815(a)(1)(iii)(A)(1). Far fewer studies are available in the eastern North Pacific to determine habitat-specific densities of FMP groundfishes (or life stages) relative to biogenic habitats, which is the overall criterion for Level 2; however, Level 2 studies have become somewhat more common in recent years. Within the eastern North Pacific, no studies currently provide Level 3 information ("Growth, reproduction, or survival rates within habitats are available") or Level 4 information ("Production rates by habitat are available") with respect to structure-forming invertebrates and their relationship to FMP groundfish. For each taxon covered in this study, the level of available data will be indicated.

## Cold-Water Corals

The great majority of information available on cold-water corals as biogenic habitat in the eastern North Pacific examines associations between sympatric cold-water corals and groundfishes (Level 1). Several quantitative studies are available, however, and many directed studies have been published since the last EFH review. Numerous publications from Alaskan waters have described associations between groundfishes and cold-water corals. Heifetz (2002) used trawl data collected from National Marine Fisheries Service (NMFS) surveys to associate rockfish, and especially shortspine thornyheads, with sea fans (e.g., *Primnoa* spp.) and flatfish and cods with soft corals in Alaskan waters. Krieger and Wing (2003) specifically investigated *Primnoa* species associations and found that large (40-70 cm total length), but not small (< 40 cm total length), rockfish were highly associated with these sea fans in the Gulf of Alaska. Qualitative video analysis from manned submersible dives indicated high co-occurrence of sharpchin rockfish (100%), juvenile rockfish (96%), rougheye rockfish (74%) and shortraker rockfish (70%) with cold-water corals in the Aleutian Archipelago (Heifetz et al. 2007). In the same region, corals and coral gardens were highly correlated with FMP groundfish and juvenile rockfish occurrence (Stone 2006). Densities of large flatfishes (>15 cm total length) were 2.6 times greater in sea whip habitat than sediment without sea pens in the Gulf of Alaska, but the habitats were not statistically compared (Stone et al. 2005).

In a directed study of longnose skate nursery habitat off Southern California, Love et al. (2008) found that most egg cases were laid on bare rock, but that those placed on biogenic structure (including 4 cold-water corals) were much less likely to suffer predation. While a low percentage of the total number of invertebrates were in close proximity to fishes, Yoklavich (2011) observed thornyhead, aurora, and bank rockfishes, Dover sole, Pacific hagfish, eelpouts and catshark egg cases within one body length of 148 coral and sponges documented during daytime remotely operated vehicle (ROV) dives on Piggy Bank Seamount off Southern California. Off Monterey Bay and Carmel Bay, Shester et al. (2011) observed 20 FMP groundfish species (blue rockfish, cabezon, canary rockfish, China rockfish, copper rockfish, flag rockfish, gopher rockfish, greenspotted rockfish, greenstriped rockfish, halfbanded rockfish, kelp greenling, lingcod, olive/yellowtail rockfish, Pacific sand dab, rosy rockfish, squarespot rockfish, starry rockfish, treefish, vermillion rockfish, and yelloweye rockfish) in ROV transects containing cold-water corals at depths from 22 to 189 meters. Off Southern Oregon, Enticknap et al. (2013) observed 12 FMP groundfish species (greenstriped rockfish, widow rockfish, quillback rockfish, China rockfish, tiger rockfish, canary rockfish, rosy rockfish, olive/yellowtail rockfish, yelloweye rockfish, kelp greenling, and lingcod) in ROV transects containing cold-water corals at depths from 28 to 228 meters. In the Aleutian Islands, rockfish were frequently observed in close association with sea fans and groundfish (including Pacific cod) and cold-water corals were linked by physical habitat type (Zenger 2005).

In addition to these largely descriptive or correlative studies, some directed studies that link cold-water corals and eastern North Pacific groundfishes with more rigorous analysis are available. Using manned submersible video, Pirtle (2005) investigated associations between macroinvertebrates, including cold-water corals, and groundfishes at Cordell Bank. The following taxa occurred in significantly greater abundance in association with sea fans: juvenile rockfish, *Sebastomus* spp., rosy rockfish, and widow rockfish. Conversely, pygmy and yellowtail rockfish were statistically less common near sea fans (Pirtle 2005). Greenspotted rockfish were more often found near sea pens (*Ptilosarcus* spp.), whereas juvenile rockfish avoided them (Pirtle 2005). Tissot et al. (2006) found that swordspine rockfish occurred in significantly greater abundance near sea fans. In the Channel Islands, Bright (2007) found that 13 percent of observed black corals and gorgonian corals had close associations with managed groundfish species (including bank, canary and cowcod rockfishes), but no estimate of relative use was calculated, so this study represents Level 1 information. Bianchi (2011) did not find that FMP groundfishes were significantly more abundant near corals in three submarine canyons, however the corals in the study were small in size and present at low densities. Baillon et al. 2012 observed larval redfish (*Sebastes* spp.) sheltering in sea pens in the western Atlantic, however, this association has not been explored in the Eastern Pacific where rockfishes are much more abundant and diverse.

Three submersible studies have been recently conducted in the U.S. Pacific Northwest and British Columbia that provide information on groundfish associations with cold-water corals. In a comparison of fauna on trawled and untrawled regions of Coquille Bank, there was no correlation found between sea pen and fish densities based on submersible transects, but the authors did find 23% more fish in the untrawled areas, and structure-forming invertebrate density was six times greater in untrawled areas than in trawled areas (Hixon and Tissot 2007). Off the Washington coast, Wang (2005) associated groundfish and invertebrates; however, only four coral types (sea whips) were observed and their habitat importance could not be determined. DuPreez and Tunnicliffe (2011) compared densities of fishes among habitats off northern British Columbia and determined that: 1) half of primnoid corals >30 cm tall had associated rockfishes; 2) less than 2% of the seafloor had large coral, and 3) small coral had no associated rockfishes. In regions where *Primnoa* spp. abundance was greatly reduced, shortspine thornyhead abundance significantly increased whereas rockfish (mainly sharpchin and rosethorn) abundance was reduced significantly.

Many studies on the relationship of groundfish with structure-forming invertebrates have been conducted in Alaskan waters recently, including several Level 2 studies. A study of Pacific ocean perch habitat by Brodeur (2001) in Pribilof Canyon used a combination of ROV dives and trawls to determine that Pacific ocean perch aggregations take shelter in sea whip forests by night, and feed on euphausiids above them by day. Seafloor regions with damaged sea whips had far fewer Pacific ocean perch, and areas without this biogenic habitat had no Pacific ocean

perch (Brodeur et al. 2001). Off Southeast Alaska, Else (2002) discovered that shortspine thornyhead occurrence is slightly negatively correlated with cold-water coral occurrence, indicating that coral habitat may not be important to this species. Rooper and colleagues have conducted several contemporary studies in the Aleutian Islands and eastern Bering Sea using primarily trawl data to investigate habitat associations of Pacific ocean perch and flathead sole. Juvenile Pacific ocean perch catch per unit effort (CPUE) increased significantly with increasing coral CPUE (Rooper and Boldt 2005). Pacific ocean perch were closely associated with complex structure, including cold-water corals, based on analysis of ROV video data (Rooper et al. 2007). These results indicate that cold-water corals may have an important role in the early life history of Pacific ocean perch in the Aleutian Islands and eastern Bering Sea. Flathead sole CPUE increased with increasing potential cover (structure-forming invertebrates, including corals) in the eastern Bering Sea (Rooper et al. 2005). Rooper and Martin (2012) identified CPUE of corals and sponges in Gulf of Alaska trawl surveys as significant predictors of CPUE for all 6 rockfish species examined in their study, although CPUE of one species, shortspine thornyhead, was negatively correlated with coral and sponge abundance.

More recent research has been conducted off Kodiak Island and in Bering Sea submarine canyons. At Albatross and Portlock Banks, Rooney (2008) estimated groundfish habitat associations at multiple scales, and associated macroinvertebrate and groundfish assemblages. A similar study on Albatross Bank used multivariate techniques to define sympatric assemblages of groundfishes and invertebrates (Reynolds et al. 2012). A recent publication by Miller et al. (2012) investigated associations between groundfish and structure-forming invertebrates in Pribilof and Zhemchug Canyons, which harbor dense aggregations of gorgonian and pennatulacean corals. Many rockfishes were significantly more likely to occur near gorgonians (Pacific ocean perch, shortraker rockfish, rougheye rockfish, shortspine thornyhead) or pennatulaceans (Pacific ocean perch, shortspine thornyhead, combined rockfish).

**Sponges**

Compared to cold-water corals there is a slightly greater body of literature available on sponge-groundfish associations in the eastern North Pacific. This is likely a result of the relative ubiquity of sponges on hard-bottom habitats when compared to cold-water corals, especially at shallow depths. Several studies looked at associations of both of these structure-forming invertebrates, sometimes using combined biogenic habitat types. The level of information for groundfish associations with sponges is quite similar to that of cold-water corals, in terms of the EFH framework of information, with the majority of sponge-groundfish studies providing Level 1 data.

A great deal of observational information is available on sponge-groundfish habitat associations in the eastern North Pacific, with much of this information published since the last EFH review. Manned submersible operations off California provide observational data on sponge-groundfish associations. Yoklavich et al. (2000) remarked that most juvenile and adult rockfishes in Soquel Canyon were associated with some structure, including sponges. Starry rockfish and small sharpchin rockfish have been observed within and nearby vase sponges off California (Love et al. 2002). Longspine thornyheads were noted on muddy seafloor with rocks and sponges, whereas yelloweye rockfish were found near sponges on vertical walls (Love et al. 2002). Off southern California juvenile cowcod were observed resting in foliose sponges (Love and Yoklavich 2008). Longnose skate typically lay their eggs on bare rock, but those on structure-forming invertebrates, including sponges (n = 4), were far less susceptible to predation (Love et al. 2008). Off British Columbia, Martin and Yamanaka (2004) incorporated sponges and other macroinvertebrates into habitat types based on towed camera transects, but did not directly associate any fishes with specific structure-forming invertebrates. Off Monterey Bay and Carmel Bay, Shester et al. (2011) observed 22 FMP groundfish species (blue rockfish, cabezon, canary rockfish, China rockfish, copper rockfish, Dover sole, flag rockfish, gopher rockfish, greenspotted rockfish, greenstriped rockfish, halfbanded rockfish, kelp greenling, lingcod, olive/yellowtail rockfish, rosy rockfish, squarespot rockfish, starry rockfish, rock sole, stripetail rockfish, treefish, vermillion rockfish, and yelloweye rockfish) in ROV transects containing sponges at depths from 22 to 189 meters. Off Southern Oregon, Enticknap et al. (2013) observed 13 FMP groundfish species (greenstriped rockfish, widow rockfish, quillback rockfish, China rockfish, tiger Rockfish, canary rockfish, rosy rockfish, olive/yellowtail rockfish, yelloweye rockfish, rex sole, kelp greenling, and lingcod) in ROV transects containing sponges at depths from 28 to 228 meters.

Conway et al. (2001) described extensive hexactinellid sponge reefs on the British Columbia continental shelf and observed rockfish using the reef structure and complex shapes of individual sponges as seafloor habitat and refugia. At these same reefs, Krauter et al. (2001) also observed several groundfishes using sponge reefs as refugia, including ratfishes, flatfishes, and rockfishes (greenstriped, yellowtail, quillback, vermillion, redstripe, yelloweye). Juvenile rockfish may also use the reef for nursery functions (Krauter et al. 2001). Cook et al. (2008) further studied these reefs with mixed results. The greatest abundance of juvenile and adult rockfish occurred at one undamaged sponge reef, but another had the lowest faunal associations observed, even less than highly damaged reefs. Although there while many of the same species of sponges occur in U.S. waters, the high relief glass sponge reefs have not been confirmed to be present in the Pacific Council Region. At areas with high concentrations of glass sponges at Gray's Canyon on the Washington State margin, Clarke and Fruh (2012) found 28% of the 3,112 fishes observed to be within one body length of sponges.

Marliave et al. (2009) compared habitat use of hexactinellid sponges reefs and sponge gardens (consisting of many individual sponges) of the cloud sponge, *Aphrocallistes vastus*. Newly recruited quillback rockfish were much more abundant at sponge gardens, perhaps because of greater associated food subsidies, whereas older juveniles and adults of many rockfishes (quillback, yelloweye, redstripe, greenstripe) were observed in greater abundance on sponge reefs (Marliave et al. 2009).

Submersible observations in the Gulf of Alaska indicate that dusky rockfish (and/or light dusky rockfish, as these species were not considered distinct at the time of publication) associate with rocky areas that have extensive sponge beds (NMFS et al. 1998). Freese and Wing (2003) noted that juvenile rockfish were strongly associated with sponges in the Gulf of Alaska, and Zenger (2005) also noted rockfish in association with sponges in Seguam Pass, in the Aleutian Islands. In the central Aleutians, Heifetz et al. (2007) found several rockfishes to be frequently observed "in the same video frame" as sponges, including: sharpchin rockfish (100%), juvenile rockfish (100%), dusky (and/or light dusky) rockfish (100%), northern rockfish (97%), rougheye rockfish (90%), shortraker rockfish (89%) and Pacific ocean perch (88%). In the same region, coral gardens, which included three classes of sponges (Demospongiae, Hexactinellida, and Calcarea), were highly correlated with FMP groundfish and juvenile rockfish occurrence (Stone 2006). Far fewer review documents are available concerning sponges as compared to cold-water corals, and none are sponge-specific (Burd et al. 2008; Yoklavich and O'Connell 2008; Boutillier et al. 2010; Buhl-Mortensen et al. 2010).

Several more rigorous, quantitative studies and Level 2 studies have been published on sponges, as well as structure-forming invertebrate assemblages that include sponges, in the eastern North Pacific. Among these, several masters' thesis projects involved the use of manned submersibles to study associations between groundfish and structure-forming invertebrates off the West Coast. Wang (2005) did not find significantly higher densities of yelloweye rockfish, canary rockfish, or lingcod in association with several morphological groupings of sponges off the outer coast of Washington. Bianchi (2011) also used morphological sponge groups to investigate associations between groundfish and structure-forming invertebrates in Carmel and Ascension Canyons. She found that the overall the frequency of fishes observed near structure-forming invertebrates was not significantly different from a random distribution, although lingcod and squarespot rockfish were significantly more abundant near mound sponges in Carmel Canyon (Bianchi 2011).

In the Channel Islands, flat sponges (33%), vase sponges (21%), basket stars (18%), foliose sponges (17%) and barrel sponges (17%) had the highest percent of fish associations (Bright 2007). The following rockfishes occurred at higher densities in association with structure-forming invertebrates: squarespot, pygmy, swordspine, widow, pinkrose, and *Sebastomus* spp. At Cordell Bank, Pirtle (2005) determined that several FMP groundfishes (yellowtail rockfish, squarespot rockfish, widow rockfish, rosy rockfish, pygmy rockfish, canary rockfish,

greenspotted rockfish, juvenile rockfish, painted greenling, and lingcod) occurred in greater densities near large sponges with complex morphologies (foliose, barrel, and shelf) and had a similar affinity for hard-substrate habitats preferred by sponges.

From an extensive manned submersible survey off southern California, Tissot et al. (2006) determined that < 1% of the observations of organisms sheltering near or within structure-forming invertebrates involved fishes, but that several species occurred in significantly greater numbers near foliose sponges (pinkrose, shortbelly) or multiple sponge varieties (*Sebastomus* spp., bank, cowcod). An early submersible study off British Columbia determined that cloud sponge gardens are important nursery areas for yelloweye and especially quillback juveniles because of the added structure they provide. By contrast, greenstriped rockfish were slightly negatively correlated with sponges (Richards 1986).

Reynolds et al. (2012) and Rooney (2008) used multivariate techniques to define fish and macroinvertebrate assemblages off Kodiak Island, with Rooney (2008) investigating habitat associations at multiple scales. Directed species studies showed that: 1) bigmouth sculpin eggs deposited in at least four sponges in the Gulf of Alaska and Bering Sea (barrel sponge, *Halichondria lambei*; clay-pipe sponge, *Aphrocallistes vastus*; boot sponge, *Acanthascus dawsoni*; and tree sponge, *Mycale loveni*; Busby et al. 2012); 2) depth, substrate type, and sponge presence were most highly correlated with shortspine thronyhead abundance in the southeast Gulf of Alaska, but the relationship was confounded because sponge abundance also was highly correlated with substrate type (Else et al. 2002), and 3) higher densities of Pacific ocean perch, and especially juveniles, occurred on complex habitat, including those with sponges and other biogenic cover (Rooper et al. 2007).

Six Level 2 studies on sponges, all published within the last decade, were conducted off British Columbia and Alaska. At British Columbia sponge reefs, Cook (2005) determined that densities of juvenile and adult rockfish were significantly greater on live reef than dead reef or seafloor regions near reefs. He further postulated that live reefs are important nursery habitat for juvenile rockfishes, as their relative abundance in these habitats was much greater than that of adults (Cook 2005). In the same general region, the majority of rockfish (80%) were associated with sponges $\geq$ 50 cm in height, and beds of short sponges contained 400% more rockfish than nearby substrata without large epifauna (De Preez and Tunnicliffe 2011).

Under laboratory conditions, using fishes obtained near Kodiak Island, Stoner and Titgen (2003) determined that: 1) small (48-77 cm total length) and medium (90-134 cm total length) Pacific halibut exhibited a highly significant preference for high-density sponge habitat over sand, whereas the relationship weakened slightly in large juveniles (270-337 cm total length). Small (15-25 cm total length) and large (42-74 cm total length) rock sole also exhibited a significant preference for sponge habitat (Stoner and Titgen 2003). Pacific ocean perch were observed to be

strongly associated with boulders, sponges, and gorgonian corals in Pribilof Canyon, where this species was most abundant as compared to other Bering Sea Canyons (Miller et al. 2012). In the Gulf of Alaska, juvenile Pacific ocean perch trawl CPUE increased significantly with increasing sponge (and coral) CPUE (Rooper and Boldt 2005). The CPUE of flathead sole in the eastern Bering Sea increased with increasing structure-forming invertebrate densities, including sponges (Rooper et al. 2005).

**Other Structure-Forming Invertebrates**

In addition to cold-water corals and sponges, many other marine invertebrates may form structure on the benthos, including bivalve and gastropod aggregations or shell mounds, barnacle tests, crinoids, brittlestars, bryozoans, polychaete worm tubes, sea cucumbers, sea urchins, and hydroids. In addition, although anemones (Actinaria) are grouped within the cold-water corals, they are treated here because they typically occur shallower than most cold-water corals and have a rather dissimilar morphology. Other structure-forming invertebrates generally are of lower relief and complexity than most sponges and corals and are often mobile. The amount of literature with information on the association between groundfish and other structure-forming invertebrates in the eastern North Pacific is comparable to that of cold-water corals, and only slightly less than that of sponges. These organisms are generally not afforded the same level of attention, however, in publications that associate multiple fishes and invertebrates. The great majority of work simply associates groundfish and other structure-forming invertebrates (Level 1), with less literature providing density or abundance comparisons.

Most of the literature concerning other structure-forming invertebrates and groundfish has been published within the last ten years and is derived from manned submersible studies. Off California, the following relationships have been reported: juvenile sharpchin and speckled rockfish in association with crinoids (Love et al. 2002); unspecified groundfishes and basket stars (Bright 2007); young-of-the-year cowcod and anemones (*Metridium* spp.); unspecified rockfish with crinoids and anemones (Yoklavich et al. 2000); shell mounds, anemones, and sea stars with young rockfishes of large species (cowcod, copper, brown, stripetail, blackgill, greenspotted), small rockfishes (halfbanded, pinkrose, greenblotched, rosy), lingcod, and Pacific sanddab (Love and Yoklavich 2005); cowcod and *Metridium* spp. (Allen 1982), and one longnose skate egg case with a sea anemone (Love et al. 2008). Off British Columbia, Martin and Yamanaka (2004) incorporated other structure-forming invertebrates, such as barnacles, bryozoan, urchins, sea cucumbers, and crinoids, into habitat types but did not directly associate them with groundfishes. Painted greenling nests collected off California and British Columbia were associated with barnacle tests, worm tubes, or scallop shells (Crow et al. 1997).

Habitat off Seguam Pass that contained hydroids and bryozoans also harbored Atka mackerel, Pacific cod, softnose skates (*Bathyraja* spp.), rockfish, and Pacific halibut (Zenger et al. 2005). FMP groundfish and rockfish were associated with sponge habitats in the Aleutian Islands that also contained hydroids, bryozoans, sea anemones, and sea cucumbers (Stone 2006). Qualitative video analysis from manned submersible dives in the Aleutian Islands indicated high co-occurrence of dusky rockfish (100%), sharpchin rockfish (90%), Pacific ocean perch (86%), shortraker rockfish (85%), rougheye rockfish (83%), Pacific cod (75%), and juvenile rockfish (71%) with other structure-forming invertebrates such as hyrdroids, bryozoans, sea anemones, and crinoids (Heifetz et al. 2007). Three reviews summarize groundfish spatial associations with other structure-forming invertebrates in the eastern North Pacific (Tissot et al. 2008; Yoklavich and O'Connell 2008; Buhl-Mortensen et al. 2010).

Quantitative research concerning groundfish spatial associations with structure-forming invertebrates, including density estimates among habitat types (Level 2), can be divided between single species and assemblage studies. In terms of single species studies, Abookire et al. (2007) used general additive models to determine that significantly greater densities of young-of-the year Pacific cod occurred with cucumber mounds near Kodiak Island, AK. In the Aleutian Islands, denser aggregations of Pacific ocean perch were found in association with complex habitats, including those containing bryozoans and anemones (Rooper et al. 2007). Shortspine thornyhead occurrence was significantly correlated with that of sea anemones off southeast Alaska (Else et al. 2002).

Significantly greater densities of the following species were found in association with other structure-forming invertebrates: flathead sole (bivalves and empty bivalve shells, gastropods, anemones, bryozoans) (Rooper et al. 2005), young-of-the-year northern rock sole with worm tubes and sea cucumbers (Stoner et al. 2007); blackeyed goby and orangethroat pikeblenny with worm mats (Zalmon et al. 2010); Pacific halibut and northern rock sole with bryozoan mimics and shells (under laboratory conditions), and bivalve and gastropod shells, sea stars, sea urchins and sand dollars (under field conditions) (Stoner and Titgen 2003). A laboratory study indicated that lingcod abundance was significantly greater in structured environments (shells, eelgrass, rock) but that the type of structure was not relevant (Petrie and Ryer 2006).

Wang (2005) determined that yelloweye rockfish, canary rockfish, and lingcod all occurred in significantly greater densities in association with crinoids. Several studies used multivariate statistics to associate fish and invertebrate assembles (including other structure-forming invertebrates). Tissot et al. (2007) determined that unspecified thornyheads, Dover sole, and rex sole associated with sea urchins, sea cucumbers, and sea stars on mud habitats. Pirtle (2005) discovered that rosy rockfish, adult *Sebastomus* spp., yellowtail rockfish, and rockfish juveniles were strongly associated with the sea anemone, *Urticina picivora*, in hard and mixed-substrate

habitats, whereas sharpchin rockfish and flatfishes were more strongly associated with a different anemone (*Metridium gigantium*).

Off Kodiak Island, Rooney (2008) and Reynolds et al. (2012) investigated habitat associations of groundfishes and invertebrates, including several other structure-forming invertebrate (e.g., sea anemones, bryozoans, hydroids, brittlestars). Love and York (2005) found much greater densities of structure-oriented fishes (e.g., halfbanded rockfish, lingcod, stripetail rockfish, greenblotched rockfish, vermillion rockfish) on pipe that were heavily fouled with other structure-forming invertebrates, including sea anemones, sea urchins, sea stars, and basket stars. Dover sole and shortspine thornyheads were grouped with sea stars and hermit crabs as part of an assemblage found on heavily trawled seafloor off the Oregon coast (Hixon and Tissot 2007).

## Conclusions

The available literature on biogenic habitat use by groundfishes provides evidence for functional associations for several groundfish species with structure-forming invertebrates. The FMP groundfish species that use cold-water corals, sponges, or other structure-forming invertebrates as habitat tend to be those that are known to occupy structured environments, especially rockfishes in deep rock habitats (e.g., cowcod, lingcod, *Sebastomus* spp., yelloweye rockfish, sharpchin rockfish, squarespot rockfish; Love and Yoklavich 2006). Structure-forming invertebrates may be important to these species because they provide added structure and complexity to physical habitat, regardless of whether these species are also associated with other types of non-invertebrate structures. Other FMP groundfishes, such as shortspine thornyhead and Dover sole, appear not to be found in association with structure-forming invertebrates but rather occur in higher densities on largely featureless, sedimentary seafloors. The evidence for structure-forming invertebrate use by some groundfish species (e.g., greenstripe rockfish, some flatfish species) remains unclear because of limited studies and/or conflicting results.

Overall, the newly-available Level 1 information largely confirms the previous understanding that associations exist between numerous groundfish species and structure-forming invertebrates. Some of the Level 2 studies, moreover, have documented specific relationships in terms of abundance of FMP groundfish with respect to structure-forming invertebrates, including several instances of increased groundfish abundance in the presence of biogenic habitat.

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# Living Sea Images

190 Orchard Road · Felton, CA 95018 · 831-335-4849 · books@LivingSeaimages.com

Ms. Dorothy M. Lowman
Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

**RE: Agenda Item D.2, Finalize EFH Phase 2 Report & Guidance on A-19 Evaluation Criteria**

Dear Chair Lowman and Council Members:

I am writing on behalf of Living Sea Images, a multimedia company which publishes all three volumes of the Wonders of the Sea series of coffee-table books and manages the sales of my stock photography and fine art prints. My relationship with our beautiful ocean spans over 35 years—from the moment I first learned to dive in 1978, which led to my passion for marine life photography, to my work as a stakeholder representative to the Marine Life Protection Act. While my photography began as a way to make the spectacularly colorful images I love persist, I quickly learned that it was not only the best way to share my passion with others, but also a way to help life in the ocean communicate to humanity. I hope that my photographs will communicate some of the fragility and indescribable beauty I experience in our living ocean, and motivate people who might otherwise never know about it to preserve it.

That is why I write to urge you to continue moving ahead toward the protection of additional essential fish habitat, based on the new information brought to light in your recent 5-year review. I support the Council's intent to conduct, in collaboration with NOAA Fisheries, an evaluation of the existing protections put in place in 2006 through Amendment 19. I urge the Council to develop robust criteria for this review that adequately consider the Council's duty to improve upon existing protections and take a broad, precautionary, ecosystem-based approach to EFH protection. The Council and NMFS should make certain to ask the right questions, including whether the Amendment 19 protections have met the goals of Amendment 19: to mitigate certain adverse impacts of fishing, and the separate question of whether there are other, newer adverse impacts that can and should be mitigated now. In addition, the precautionary approach suggests you look forward toward impending impacts likely to occur in the foreseeable future and move toward mitigating them *before* damage is done. These steps are critical to ensuring that we are doing all we can to protect ecologically important areas that are susceptible to damage caused by bottom trawling and other fishing practices.

As a concerned citizen and a lover of the ocean, I encourage the council to build upon the work done through the current review process by implementing a rigorous process that

both protects important habitat areas and provides an opportunity for continued sustainable fishing.

I am encouraged that the Council recognizes the need to protect these ecologically important areas. I look forward to the Council taking positive action that gives everyone the security of knowing we can rely on a productive ocean to provide an economic engine for years to come.

Thank you for your time and attention to this matter and my comments. I appreciate your stewardship of our marine resources and the work you do to maintain healthy oceans and sustainable fisheries.

Respectfully yours,

Marc Shargel
Living Sea Images

Sea Life Photographer and Author of
***Wonders of the Sea: North Central California's Living Marine Riches*** and
***Wonders of the Sea Volume Two: Marine Jewels of Southern California's Coast and Islands*** and
***Wonders of the Sea Volume Three: Hidden Treasures of California's Far North Coast*** and ***Yesterday's Ocean: A History of Marine Life on California's Central Coast***

Ms. Dorothy M. Lowman
Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

**RE: Agenda Item D.2, Finalize EFH Phase 2 Report & Guidance on A-19 Evaluation Criteria**

Dear Chair Lowman and Council Members:

As the Chef at Alchemy Cultural Fare & Cocktails, a southern California restaurant based out of San Diego, it is my food philosophy to let the products speak for themselves. I focus on the many local products that California and our Pacific coast have to offer. The diverse menu at Alchemy is a testament to my ideals, eclectic background, and commitment to sustainability. I am conscious of the effects a productive marine environment has on the food that I serve to my diners, which is why Alchemy has set out to educate the community on the importance of local and sustainable food. We understand that maintaining a healthy, balanced, and productive Pacific Ocean is everyone's responsibility.

That is why I write to urge you to continue moving ahead toward the protection of additional essential fish habitat, based on the new information brought to light in your recent 5-year review. I support the Council's intent to conduct, in collaboration with NOAA Fisheries, an evaluation of the existing protections put in place in 2006 through Amendment 19. I urge the Council to develop robust criteria for this review that adequately consider the Council's duty to improve upon existing protections and take a broad, precautionary, ecosystem-centered approach to EFH protection. The Council and NMFS should make certain to ask the right questions, including whether the Amendment 19 protections have met the goals of Amendment 19 to mitigate certain adverse impacts of fishing, and the separate question of whether there are other, newer adverse impacts that can and should be mitigated now. These steps are critical to ensuring that we are doing all we can to protect ecologically important areas that are susceptible to damage caused by bottom trawling and other fishing practices.

As a concerned citizen and a lover of the ocean, I encourage the council to build upon the work done through the current review process by considering a rigorous review process that both protects important habitat areas and provides an opportunity for continued sustainable fishing.

Thank you for your stewardship of our marine resources. We look forward to the Council taking positive action that gives us the security of knowing we can rely on a healthy ocean to provide an economic engine for years to come.

Respectfully yours,

Ricardo Heredia, Executive Chef/Partner
Alchemy Cultural Fare & Cocktails

Ms. Dorothy M. Lowman
Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

**RE: Agenda Item D.2, Finalize EFH Phase 2 Report & Guidance on A-19 Evaluation Criteria**

Dear Chair Lowman and Council Members:

I am grateful for the work the Council performs. Your progressive actions signal a positive milestone that begins a new era in fishery management, which takes into account the many links in the ocean food web and how everything is connected. As chef and partner at award-winning One Market Restaurant, a northern California establishment based out of the San Francisco Embarcadero, I make it a point each day to serve food that is created by blending the freshest, seasonal ingredients from California and off of our coast. My approach to cooking ensures that the menu is a true reflection of the finest raw materials used- featuring inventive farm-fresh dishes- all stemming from the restaurant's commitment to sustainability. This would not be possible without a healthy Pacific Ocean. I know that maintaining a productive and balanced marine ecosystem is a responsibility that we all must share.

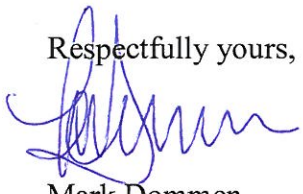
That is why I write to urge you to continue moving ahead toward the protection of additional essential fish habitat, based on the new information brought to light in your recent 5-year review. I support the Council's intent to conduct, in collaboration with NOAA Fisheries, an evaluation of the existing protections put in place in 2006 through Amendment 19. I urge the Council to develop robust criteria for this review that adequately consider the Council's duty to improve upon existing protections and take a broad, precautionary, ecosystem-centered approach to EFH protection. The Council and NMFS should make certain to ask the right questions, including whether the Amendment 19 protections have met the goals of Amendment 19 to mitigate certain adverse impacts of fishing, and the separate question of whether there are other, newer adverse impacts that can and should be mitigated now. These steps are critical to ensuring that we are doing all we can to protect ecologically important areas that are susceptible to damage caused by bottom trawling and other fishing practices.

As a concerned citizen and a lover of the ocean, I encourage the council to build upon the work done through the current review process by considering a rigorous review process that both protects important habitat areas and provides an opportunity for continued sustainable fishing.

I am encouraged that the Council recognizes the need to protect these ecologically important areas. I look forward to the Council taking positive action that gives everyone the security of knowing we can rely on a healthy ocean to provide an economic engine for years to come.

Thank you for your consideration of my comments and for your continued work and commitment to ensuring a healthy and productive Pacific Ocean.

Respectfully yours,



Mark Dommen,
Chef & Partner
One Market Restaurant

Ms. Dorothy Lowman (Chair)
c/o Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384

February 12, 2014

Dear Ms. Lowman,

This public statement is in regard to the EFHRC Phase 2 report and is based on the concerns of a substantial number of EFHRC members (seven of thirteen, a majority) that stem from what is considered a flawed review process of the proposals to reevaluate EFH, which is now being considered by the Council. However, even though this flawed process was an internal problem within the committee, an attempt to include a minority (by a majority of committee members) statement within the report was denied by staff and essentially censored.

Our primary point of contention is that the best scientific practices were not applied in the reviews of the proposals, as the process was more agenda driven than scientific. Specifically, proposal sponsors with vested interests in the outcome of the review were not required to recuse themselves from reviewing their own proposals, as is standard practice in scientific proposal reviews. This along with a failure to properly review the scientific merits of the proposals led us to question the scientific value of the review process. In other words, the scientific data presented to the committee has not been interpreted and vetted through peer review.

This concern about how the proposals were being evaluated at the time of our deliberation provided an opportunity to statistically appraise the process. Data on individual scoring compiled through the statistical model called BASS provided a very rare opportunity to learn how bias may have affected the outcome of the review. Given the controversy surrounding this analysis we (the undersigned) seriously considered withholding it from the Council; however, the data illuminates a serious problem that would otherwise go unnoticed. As scientists, we accept the responsibility to inform the Council of issues that may impact the integrity of scientific information, and for this reason, we feel it is imperative to make these results available to the Council. We submit the attached appendix in full recognition that this is a challenging subject. Based on this concern, we question how Phase 3 can move ahead when Phase 2 was not undertaken using the best scientific practices.

The decision to submit this report as public comment is not arbitrary. We earnestly want to see this process succeed. The role of science in habitat decisions by the Council is central to that success. In fact four committee members that support this public comment (four out of the seven) are the pioneers of marine benthic habitat characterization and represent over 110 cumulative years of experience in mapping benthic habits, much of this from in situ observations made of the seafloor from submersibles. These scientists have freely shared their data with the Council, which has always valued their contributions. Thus, there is a great desire from these scientists and the signatories of this statement to see that the work of the committee is successful and beneficial to the Council as a whole. In that regard, we hope you consider our concerns seriously and accept our sincere desire to work with you in a common effort to obtain the best science for use in your deliberative process. We strongly believe that if you succeed, we succeed. Thank you for your attention.

Respectfully,

H. Gary Greene
Chris Goldfinger
Joe Schumacker
Bob Eder

Attachment: Appendix A

APPENDIX A - Additional Opinion:

Chris Goldfinger, Steve Copps, Bob Eder, Gary Greene, Joe Schumaker, Waldo Wakefield, Mary Yoklovich

In this minority (majority) statement, we present a brief analysis of the BASS data, which was tested at the September, 2013 EFHRC meeting, as an illustration of how BASS and similar tools can be used to help insure that a decision-making process is both consistent and transparent, and based in scientific principles going into the future. BASS (Bayesian Analysis for Spatial Siting) is a software system developed by Oregon State University, Robust Decisions Inc., Parametrix, and supported by BOEM (Bureau of Ocean Energy Management). The system is further described by Erhardt (2013) and Ullman et al. (2013). The raw BASS data and plots are presented in Appendix A of the Phase 2 report. In a split vote, the EFHRC elected not to include further analysis of the BASS data in Appendix A. Raw BASS scores and plots presently included in the Phase 2 report can be misinterpreted by the reader without further analysis by the BASS authors (C. Goldfinger and C. Romsos, Oregon State University). Therefore, the analysis as originally submitted for inclusion in Appendix A of the Phase 2 report is presented here in order to provide the Council with some insight into the EFHRC proposal evaluation process. While the report and appendix seem to have become a bit contentious, the intent of both is to help the EFHRC and the Council move toward both transparency and toward a scientific process. These things are very important we think, and doing our process, as well as our science, using the scientific method is a good path forward to make sure what we do is credible, defensible, and just plain sensible. Not everyone is used to this type of review process (for some of us, it's an everyday thing), and some may take some of the statements or outcomes personally, but there is no such intent. The integrity of the process is important to keep foremost, painful as it might be from time to time, otherwise we've accomplished nothing at all.

Use of decision-support tools such as BASS has previously been limited to high-level processes at large organizations such as Boeing or DoD. However, these tools are now available and being used more commonly for committee-level decision making. In addition to a typical use for selecting or filtering decision alternatives, stakeholder data collected using BASS also can provide powerful diagnostic examination of the decision-making process. This is a particularly valuable tool to help the facilitator understand the nature of the data (member evaluations), such as whether the evaluation process was conducted with consensus on the meaning of the criteria, was conducted with all parties operating on the same premises regarding all aspects of the process etc. A few useful diagnostic questions addressing consensus include:

- Is there disagreement or confusion within the committee regarding the proposals?
- Are there specific proposals that cause disagreement?

- Are there members with outlying evaluations on a given proposal(s)?

In the context of a process where committee members represent diverse interest groups by design (such as those on the EFHRC), that alone will render widely divergent viewpoints. However, responsible committee membership includes acting as a member of the committee as well, not simply representing a special interest, thus there is a fine line between potentially competing interests. Use of the BASS tool increases transparency in committee processes, and allows interested parties to examine potential responses to the above questions at any time. Identifying proposals that cause disagreement in member evaluations reveals where further consideration of criteria may be needed. Identifying members with outlying evaluations provides an opportunity to expose and address specific member concerns and motivations. Knowing where consensus is high, on the other hand, allows a facilitator to move forward from topics that have already been settled.

Discussion of the EFHRC Results

When considering the complete set of evaluations, all measures and all proposals, offered by individual committee members (144 evaluations per member) we observe fairly similar distributions of evaluation scores among members (Figure 1). Eight of the ten members show median evaluations at or very near the 0.5 probability of satisfaction threshold, with only modest variance of the means, even though evaluations of each proposal varied considerably. Two members (S and W) evaluations showed significant negative (left) overall evaluation skewness.

Outliers may be defined in a number of ways, but conventionally, in normally distributed data, 99.73% of the data lie within three standard deviations of the mean. Of the two observations, S (0.71) and W (0.73) greatly exceed the maximum limit of expected values for normally distributed data at the 90% confidence level range of 0.503-0.599 (Figure 1). (The 90% confidence level is appropriate for the small sample size of 10).

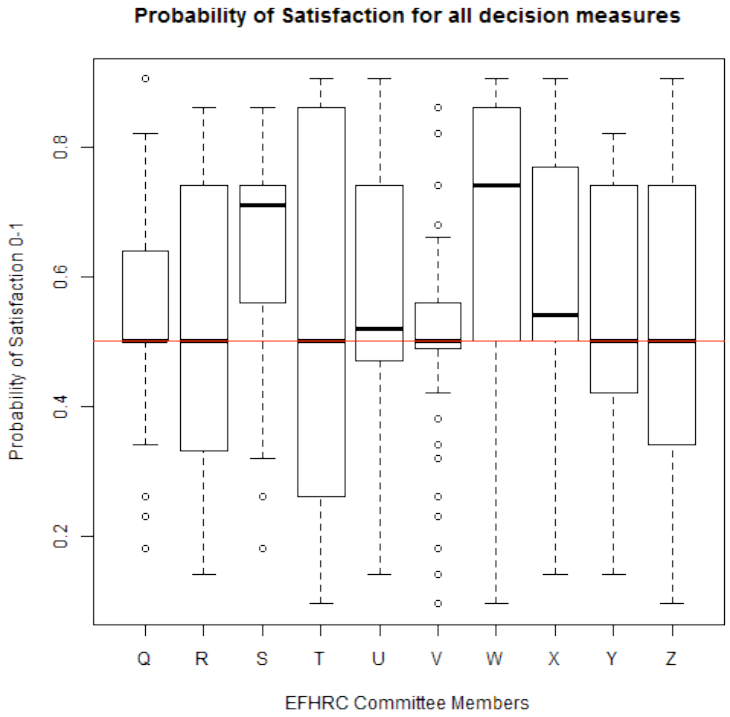



Figure 1. Box-plot demonstrating Probability of Satisfaction by EFHRC committee member. Evaluations for all decision measures (18) and all proposals (8) are lumped. Total evaluations per member = 144. The box-plot shows that for the EFHRC proposal evaluation process median probability of satisfaction scores for most members varied around 0.5, or "neutral", meaning that most committee members offered both satisfactory and unsatisfactory evaluations during the exercise.

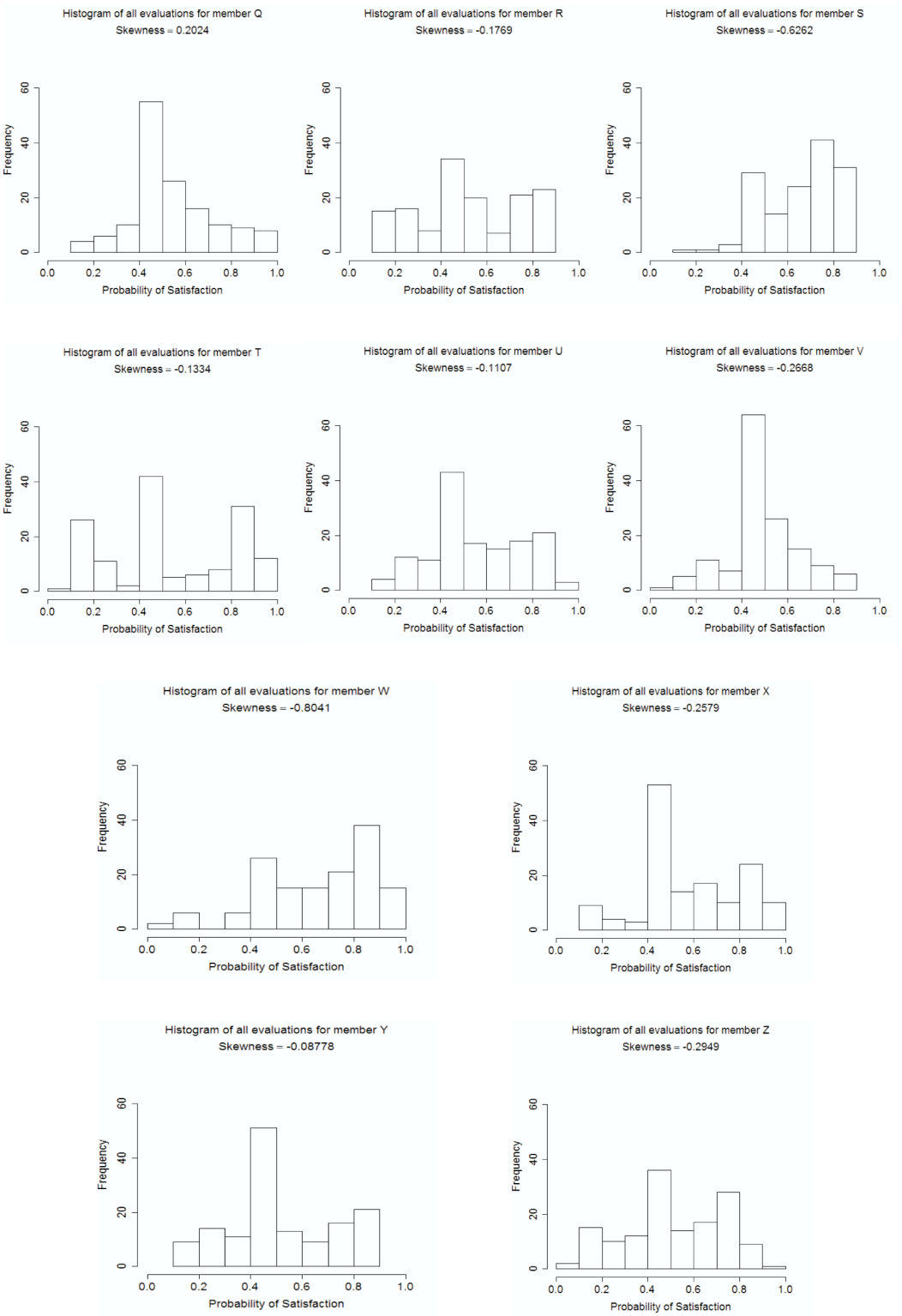



Figure 2. Probability of Satisfaction distributions for each committee member (n=144 observations per committee member).

Figure 2 presents probability of satisfaction histograms for each committee member. We calculated the mean skewness of all members to be -.2717 (negative means shifted toward positive satisfaction). However, if we look at the average skewness of members S and W, which is -0.715 (very strongly skewed toward positive satisfaction), compared to the remaining 8 members average of skewness of -0.141, it is clear that members S and W are more than 4 standard deviations from the mean, and 4.6 standard deviations from the median of the other members.

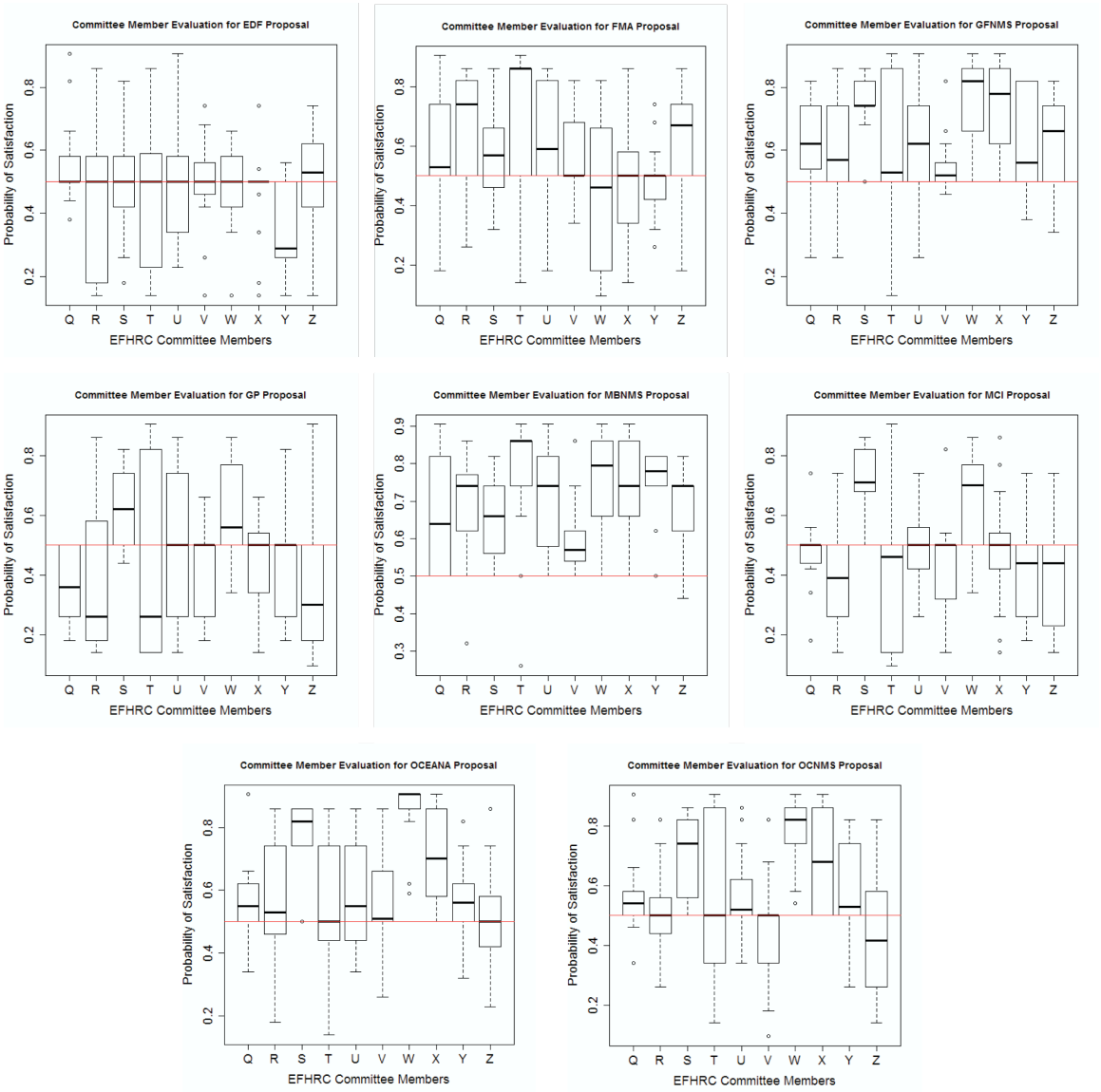



Figure 3. Each plot in this series presents a unique proposal with box-plots demonstrating the Probability of Satisfaction by EFHRC committee member.

Figure 3 shows the probability of satisfaction scores for each proposal by committee member. The plots reveal committee member overall or aggregate (all measures considered) satisfaction for a given proposal. Considering the 0.5 satisfaction threshold as a transition between satisfactory and unsatisfactory criteria performance, generally the committee scored individual proposals similarly. However, by breaking out the committee member contributions from each proposal evaluation, the impact of including the potential outlying evaluations can be examined.

Considering all proposals, scores were variable across committee members. The EDF proposal had remarkably similar scores from all members except Y, who ranked it quite low. The FMA proposal had significant scatter, with a high score by member T. The GFNMS proposal was ranked highly by nearly all members except V. The GP proposal was ranked well below the mean by four members, near the mean by four members, and well above the mean by two members, S and W. The MBNMS proposal was ranked highly by nearly all members except V. The MCI Proposal was ranked at or below the mean by 8 members, and well above the mean by two members, S and W. The Oceana/NRDC/Ocean Conservancy proposal (Oceana proposal) was ranked slightly above the mean by seven members, above the mean by one member, and very highly ranked (above 0.8) by two members, S and W. The OCNMS proposal was ranked near the mean by seven members, and high above the mean by three members, S, W and X.

Of all proposals, only the GP and MCI proposals are evaluated consistently below the neutral threshold. The EDF proposal is evaluated consistently close to 0.5 with stakeholder Y driving the proposal into the unsatisfactory group. For all proposals, variability in median Probability of Satisfaction across the 0.5 threshold is good indication of disagreement among evaluators. Across the proposals, much of the scatter can be attributed to reviewers S and W, which as previously noted, are strongly skewed toward the positive, but not for all proposals. Primarily the strong skewness is driven by high values for GP, Oceana, OCNMS and the MCI proposals. Reviewers S & W offer the only overall favorable evaluations for the MCI proposal, and extremely high values for the Oceana, MCI, and OCNMS proposals, high values for GP but relatively average values for most other proposals.

At least three alternative explanations for outliers and their effects on the decision making process are suggested:

1. The evaluations may reflect true differences in the values of the outlying committee members.
2. Members S and W may have understood the evaluation metrics in a substantively different way than the other committee members (biased criteria).
3. The observed skewness in member S and W evaluations may result from and represent a form of selection bias in the committee (biased evaluation).

While not all forms of skewness and bias can or should be removed (Alternative 1), committee members are selected not only to represent various stakeholder groups, but also to act as responsible members of the committee and thus not to intentionally bias committee actions. Examination of alternatives 2 and 3, however, may provide information that is useful for this process and any subsequent processes the committee may undertake. Evaluation metrics that are not understood and applied consistently (Alternative 2) represent a potential bias in any process. While some differences in interpretation of the questions was observed, these differences did not appear to be systematic enough to generate a bias, as opposed to increasing the scatter of responses for a given measure. Misunderstanding the measures likely was not a primary driver of the observed outliers. The question of whether or not specific members either were strongly biased toward proposals that they sponsored, or biased for a class of proposals (Alternative 3) must be considered. Selection bias appears to best fit the data as the other two options do not fit well. That members of the EFHRC may evaluate and score their own proposals is a uniquely problematic conflict of interest that appears likely to have influenced individual and overall results in this case. Scoring entire classes of proposals well above or well below is a less clear but equally problematic issue, and appears likely here.

The issues outlined above ultimately did not bear on the outcome of the committee's work, as the EFHRC decided not to rank or filter the proposals at this stage of the EFH review process. However, these issues would have remained unknown were it not for the BASS data collection and analyses used by the EFHRC. Based on the analyses presented in this Minority Statement, we suggest that increased levels of transparency and objectivity are needed as the Council moves into Phase 3 of this EFH Review.

Key to Committee Member Affiliations:
Fishing Industry Representative = Z
Habitat Scientist = Y
NOAA Sanctuaries Representative = X
Environmental NGO Representative = W
Tribal Representative = V
NOAA Representative= U
NOAA Fisheries Representative = T
Environmental NGO Representative = S
NOAA Representative= R
NOAA Fisheries Representative = Q

References

Erhardt, M.W., 2013, A Bayesian Approach to Marine Spatial Planning, [M.S. thesis], Oregon State University, Corvallis, Oregon, 338 pp.

Ullman, D., Halsey, K., Goldfinger, C., 2013, Managing Eco-System Services Decisions, BASS system white paper, 11 p.

From: **Bill James** <Halibutbill@live.com>
Date: Thu, Feb 13, 2014 at 12:13 AM
Subject: D.2 Essential Fish Habitat (EFH) Evaluation Criteria Phase 2
To: "pfmc." <pfmc.comments@noaa.gov>
Cc: Bill James <Halibutbill@live.com>

Chairman Members of the Council : My name is Bill James. I am the fisheries consultant for the PSLCFA. I request a moratorium on any new habitat designations until the Council has scientific information on "How Much Conservation (in quantifiable terms...% of protection) or Protection Already in place in the GroundFish Fishery in the federal waters of California, Oregon, and Washington.

The Magnuson-Stevens Fishery Conservation and Management Act is the fishery management law for federally managed species in waters out to 200 nautical miles on the pacific coast.

National Standard (1) Conservation and management measures shall prevent overfishing while achieving on a continuing basis the optimum yield (now ACL) from each fishery for the United States fishing industry.

"While Achieving on a continuous basis the optimum yield (ACL)". This I believe means we should be landing the ACL for each fishery. It is my belief that we already have too much protection in place so the fishermen cannot on a continuing basis catch the optimum yield for each fishery. We know through stock assessments and harvest control rules how much fish of each species we can land in terms of a % , but we do not know in terms of a percentage of protection we already have in place. I believe adding more habitat protection without balancing conservation with resource extraction (Landing fish) is a violation of Nation Standard # 1 of the Magnuson -Stevens Fishery Conservation and Management Act. Sincerely, Bill James

From: **Patty Unterman** <pattyunterman@comcast.net>
Date: Wed, Feb 12, 2014 at 5:04 PM
Subject: Agenda Item D2
To: pfmc.comments@noaa.gov
Cc: Karla Martinez <karla@24connect.net>

Ms. Dorothy M. Lowman
Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

**RE: Agenda Item D.2, Finalize EFH Phase 2 Report & Guidance on A-19 Evaluation Criteria**

Dear Chair Lowman and Council Members:

I am writing on behalf of Hayes Street Grill, a fish restaurant in San Francisco's Civic Center district that drew inspiration from old San Francisco grills and took the grill concept a step further by seeking out local ingredients and cooking them in a modern style. First thing in the morning, the grill chef calls our fish purveyor, pioneering Monterey Fish Company to find out what looks good that day, and we base our daily menu on that. The whole menu benefits from the stunning array of seasonal produce we get directly from the Ferry Plaza Farmers Market two times a week. Above every other consideration, we want the freshness and pristine quality of the fish, produce, and naturally raised meats to speak for themselves. This is why, after 34 years in business, we understand the importance of sustainable fishing advocacy. I know that maintaining a healthy, balanced, and productive Pacific Ocean is everyone's responsibility.

That is why I write to urge you to continue moving ahead toward the protection of additional essential fish habitat, based on the new information brought to light in your recent 5-year review. I support the Council's intent to conduct, in collaboration with NOAA Fisheries, an evaluation of the existing protections put in place in 2006 through Amendment 19. I urge the Council to develop robust criteria for this review that adequately consider the Council's duty to improve upon existing protections and take a broad, precautionary, ecosystem-centered approach to EFH protection. The Council and NMFS should make certain to ask the right questions, including whether the Amendment 19 protections have met the goals of Amendment 19 to mitigate certain adverse impacts of fishing, and the separate question of whether there are other, newer adverse impacts that can and should be mitigated now. These steps are critical to ensuring that we are doing all we can to protect ecologically important areas that are susceptible to damage caused by bottom trawling and other fishing practices.

As a concerned citizen and a lover of the ocean, I encourage the council to build upon the work done through the current review process by considering a rigorous review process that both protects important habitat areas and provides an opportunity for continued sustainable fishing.

I am encouraged that the Council recognizes the need to protect these ecologically important areas. I look forward to the Council taking positive action that gives everyone the security of knowing we can rely on a healthy ocean to provide an economic engine for years to come.
Thank you for your consideration of my comments and for your stewardship of our marine resources.

Respectfully yours,

Patricia Unterman
Hayes Street Grill, Founder & Co-Owner
Ferry Plaza Farmers' Market, Founding Board Member

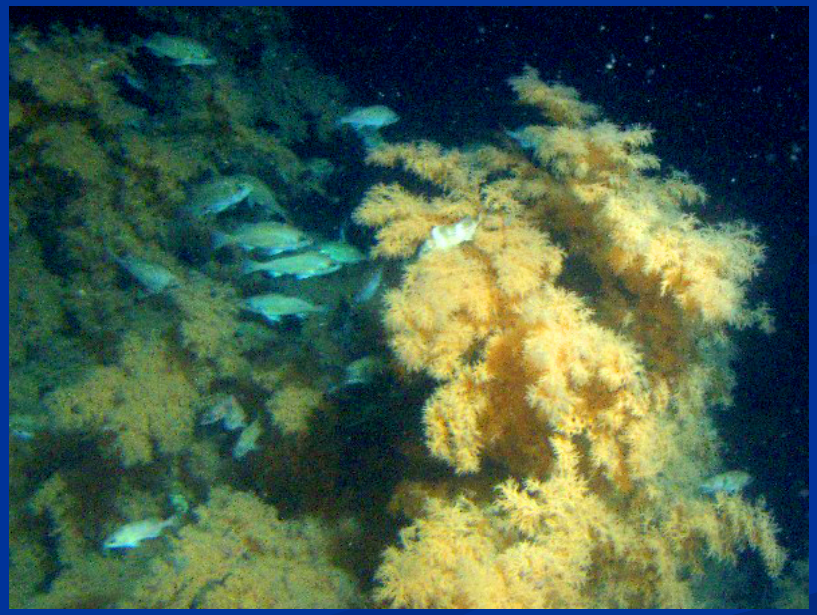
# Comments on Groundfish EFH

Geoff Shester, Ph.D.
Oceana
March 8, 2014

# Overall Goal:

Protect habitat while maintaining vibrant fisheries

Sharpchin rockfish with sponges and crinoids. Daisy Bank, Oregon. Oceana



Widow and squarespot rockfish in Christmas tree coral. Channel Islands, CA. Milton Love

# Recommended Council Actions

- Accept Phase 2 Report and Adjourn EFHRC
- Encourage further stakeholder collaboration
- Prepare for Scoping Decisions this Fall
  - Amendment 19 Evaluation
  - Request Preliminary Analysis of Proposals

NOAA OCNMS

NOAA GFNMS

# Suggested Guidance on Amendment 19 Evaluation

- Economic indicators before and after closures
  - How did outcome compare to what was predicted at the time?

- Measures of potential impacts before and after closures
  - Compare impacts maps from NMFS Synthesis
  - Compare observed coral/sponge bycatch
  - Map areas of no trawl effort outside current EFH conservation areas

# Preliminary Analysis of Proposals

## (To Inform Development of Action Alternatives this Fall)

- Economics: Trawl effort displacement estimates
- Habitat coverage: Changes relative to what is currently protected
- Maps: Show all proposals to identify overlap

# Moving Forward

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831.643.9266
www.oceana.org

February 12, 2014

Ms. Dorothy Lowman, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

Mr. William Stelle, Regional Administrator
NOAA Fisheries, West Coast Region
7600 Sand Point Way NE
Seattle, Washington 98115

**RE: Agenda Item D.2: Groundfish Essential Fish Habitat**

Dear Chair Lowman, Mr. Stelle, and Members of the Council,

Oceana appreciates the Council's November 2013 decision to initiate Phase 3 of the Groundfish Essential Fish Habitat (EFH) 5-year review. This Council has long recognized that habitat protection is fundamental to maintaining vibrant west coast groundfish fisheries, and it has a track record of leadership on this pillar of ecosystem-based management. We further appreciate the deliberate, step-wise approach and the resources this Council has put into the review, which should pay major dividends as the Council moves toward the development of alternatives and final action.

In November, the Council signaled its desire for an assessment of Amendment 19, and we understand the Council's primary focus at the upcoming March 2014 meeting is to provide guidance to National Marine Fisheries Service (NMFS) on the desired products of this assessment. Oceana supports such an assessment, and we crafted a series of constructive suggestions that are included in the EFH Review Committee's Phase 2 Report, (Appendix B, Recommended Guidance for NMFS Science Center Assessment of Amendment 19, p. 14-15).

We understand from the Council's action, that decisions regarding the scope of modifications to EFH will be made later this year after the NMFS Science Center analysis of Amendment 19 is complete. In the interim, we will continue our conversations with Tribes, fishing communities, scientists, and stakeholders throughout the U.S. West Coast. We ask the Council to continue its encouragement of these ongoing dialogues and to provide clarity about the schedule moving forward for the scoping and FMP amendment processes.

We firmly believe it is possible to prevent irreversible impacts to fish habitat and address current impacts in a manner that maintains vibrant fisheries and coastal communities. Amendment 19 is proof that such solutions are possible. Oceana has contributed to this process by collecting new data on seafloor habitat with remotely operated vehicles; participating as an active, constructive member of the EFHRC; submitting a comprehensive proposal for modifications to EFH; contributing to an updated literature review (submitted as a separate Public Comment on this Agenda Item); and conducting outreach with Tribes and west coast fishing communities. We hope to see the Council continue to refine and advance its precautionary habitat conservation approach, and set a precedent for adaptive management based on best available science in this five-year review of groundfish EFH, as was originally envisioned in Amendment 19.

Sincerely,

Geoffrey Shester, Ph.D.
California Program Director

**Examples of 32 public comments thanking the Council for moving forward in the groundfish EFH review process**

From: **Rudy and Vicky** <rampturn@tidepool.com>
Dear Members of the Pacific Fishery Management Council,

I want to thank you for having taken the next step in your Essential Fish Habitat review process so that the protections for important seafloor habitat will get a fresh look. I hope your ultimate action will be to enact legally binding prohibitions on damaging fishing practices, such as heavy nets that rake across ecologically sensitive areas. Thousands of animals live among the deep-sea corals and sponges on the ocean bottom, part of a vibrant marine ecosystem along the West Coast that is essential both to healthy fish populations and to sustainable fishing.

Sincerely,
Rudy Ramp
370A California Ave.
Arcata, CA 95521

---------- Forwarded message ----------
From: **Dan Silver** <dsilverla@me.com>
Date: Tue, Nov 26, 2013 at 9:06 AM
Subject: Essential Fish Habitat
To: pfmc.comments@noaa.gov

Gentlepersons
Thank you and please continue to move forward to protect the sea bed.

Sincerely
Dan Silver, Executive Director
Endangered Habitats League
8424 Santa Monica Blvd., Suite A 592
Los Angeles, CA 90069-4267

213-804-2750
dsilverla@me.com
www.ehleague.org

From: **Caryn Cowin** <caryn_cowin@yahoo.com>
Date: Wed, Nov 27, 2013 at 6:07 AM
Subject: Essential Fish Habitat
To: "pfmc.comments@noaa.gov" <pfmc.comments@noaa.gov>
Please enact legally binding prohibitions on damaging fishing practices, such as heavy nets that rake across ecologically sensitive areas. Thousands of animals live among the deep-sea corals and sponges on the ocean bottom, part of a vibrant marine ecosystem along the West Coast. There is public support for this; please consider new options to protect seafloor habitat that's essential both to healthy fish populations and to sustainable fishing.

Caryn L. Cowin
caryn_cowin@yahoo.com
Please consider the environment before printing this e-mail

From: **Lance Morgan** <Lance.Morgan@marine-conservation.org>
Date: Tue, Feb 11, 2014 at 1:08 PM
Subject: Comments on EFH from Marine Conservation Institute
To: "pfmc.comments@noaa.gov" <pfmc.comments@noaa.gov>

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

Dear Members of the Council,

Marine Conservation Institute would like to draw the Council's attention to a recent peer-reviewed publication (attached) on fishery resource management applications using cold water coral predictive habitat models. The full reference of the attached paper is:

Penney AJ and JM Guinotte (2013) Evaluation of New Zealand's high-seas bottom trawl closures using predictive habitat models and quantitative risk assessment. *PLoS ONE* 8(12): e82273. Doi: 0.1371/journal.pone.0082273

This paper shows that properly designed trawl closures can increase the protection of Vulnerable Marine Ecosystems (VMEs) identified by models and prevent economic loss by the fishing industry. This publication is an example of a real world management application and highlights the utility of predictive habitat models for fishery management. The methods used in the predictive habitat models described in this study are identical to the methods used to predict cold water coral habitat on the U.S. West Coast, which provide the basis for the EFH proposal submitted by us for the U.S. West Coast.

In addition, we recently were made aware that the following paper has been accepted for publication subject to minor revisions. The information contained in this paper has been included in the EFH Data Catalogue as part of the data package prepared by NMFS.

Guinotte JM and AJ Davies (accepted) Predicted cold water coral habitat suitability for the U.S. West Coast. *PLoS ONE*

We are concerned that suggestions made by representatives of the National Marine Fisheries Service incorrectly characterize this approach as not appropriate for management, and are using this criticism to argue that Marine Conservation Institute's proposal for EFH revisions should not be further considered or analyzed. This is clearly not a substantiated criticism. In fact, the gaps in real data on deep sea coral distribution and the need for predictive models were identified in Amendment 19. Our predictive modeling represents the first and only attempt to fill these identified gaps on the west coast. We are also aware that predictive coral habitat modeling by NMFS staff in the North Pacific Fishery Management Council is being used in management discussions.

Frankly there are also significant limitations to using the trawl survey records as the primary basis for coral distribution. Trawl surveys are patchy at best, designed to sample fish and are

very imprecise estimates of location. Coral models are the best available means for a comprehensive look at coast wide deep sea coral distributions. These models are the best available information for areas that have not been surveyed by trawl or camera work (which is most of the region).

We are also concerned that the EFH Review Committee made recommendations regarding our proposal without conducting a review of the predictive model or analyzing our proposal in light of the Phase 1 and 2 Data Catalogue and NMFS Synthesis. Having responded to the Council's Request For Proposals with a reasonable, complete proposal covering many areas not addressed by other proposals, we expect to see our proposal fully analyzed and considered in the Council process.

Marine Conservation Institute hopes the Council will recognize the utility of these models for identifying new EFH Conservation Areas on the West Coast. These peer-reviewed publications should dispel the criticisms posed by some members of the EFH Review Committee regarding model results only being useful for research purposes.
Sincerely,

**Dr. John Guinotte, Marine Biogeographer**
**Marine Conservation Institute**
**360-467-4043**
**John.Guinotte@marine-conservation.org**

**Dr. Lance Morgan, President**
**Marine Conservation Institute**
**707-938-3214**
**Lance.Morgan@marine-conservation.org**

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*Saving wild ocean places, for us and future generations*

PENNEY AND GUINOTTE PUBLICATION INCLUDED IN BRIEFING BOOK MATERIALS ELECTRONIC ONLY

OPEN ACCESS Freely available online

PLOS ONE

# Evaluation of New Zealand's High-Seas Bottom Trawl Closures Using Predictive Habitat Models and Quantitative Risk Assessment

**Andrew J. Penney**[1]*, **John M. Guinotte**[2]

**1** Australian Bureau of Agricultural and Resource Economics and Sciences Ministry of Fisheries, Canberra, Australian Capital Territory, Australia, **2** Marine Conservation Institute, Bellevue, Washington, United States of America

## Abstract

United Nations General Assembly Resolution 61/105 on sustainable fisheries (UNGA 2007) establishes three difficult questions for participants in high-seas bottom fisheries to answer: 1) Where are vulnerable marine systems (VMEs) likely to occur?; 2) What is the likelihood of fisheries interaction with these VMEs?; and 3) What might qualify as adequate conservation and management measures to prevent significant adverse impacts? This paper develops an approach to answering these questions for bottom trawling activities in the Convention Area of the South Pacific Regional Fisheries Management Organisation (SPRFMO) within a quantitative risk assessment and cost : benefit analysis framework. The predicted distribution of deep-sea corals from habitat suitability models is used to answer the first question. Distribution of historical bottom trawl effort is used to answer the second, with estimates of seabed areas swept by bottom trawlers being used to develop discounting factors for reduced biodiversity in previously fished areas. These are used in a quantitative ecological risk assessment approach to guide spatial protection planning to address the third question. The coral VME likelihood (average, discounted, predicted coral habitat suitability) of existing spatial closures implemented by New Zealand within the SPRFMO area is evaluated. Historical catch is used as a measure of cost to industry in a cost : benefit analysis of alternative spatial closure scenarios. Results indicate that current closures within the New Zealand SPRFMO area bottom trawl footprint are suboptimal for protection of VMEs. Examples of alternative trawl closure scenarios are provided to illustrate how the approach could be used to optimise protection of VMEs under chosen management objectives, balancing protection of VMEs against economic loss to commercial fishers from closure of historically fished areas.

**Citation:** Penney AJ, Guinotte JM (2013) Evaluation of New Zealand's High-Seas Bottom Trawl Closures Using Predictive Habitat Models and Quantitative Risk Assessment. PLoS ONE 8(12): e82273. doi:10.1371/journal.pone.0082273

**Editor:** Christopher J. Fulton, The Australian National University, Australia

**Received** March 7, 2013; **Accepted** October 31, 2013; **Published** December 16, 2013



**Funding:** AJP's involvement in this work was funded as an employee of the then Ministry of Fisheries, New Zealand. The Ministry of Fisheries funded this research and publication as part of ongoing work to periodically update the New Zealand bottom fishery impact assessment, which was prepared in response to the requirements of the interim measures for bottom fisheries adopted by the South Pacific Regional Fisheries Management Organisation. Global habitat prediction work by JGM was funded under a previous project conducted at the Marine Conservation Institute (Davies AJ, Guinotte JM [2011]) PLOS ONE 6(4): e18483). The Marine Conservation Institute had no other role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

**Competing Interests:** The authors have declared that no competing interests exist.

* E-mail: andrew.penney@daff.gov.au

## Introduction

United Nations General Assembly Resolution 61/105 on sustainable fisheries [1] calls upon regional fisheries management organisations to establish measures requiring participants in bottom fisheries to assess, on the basis of the best available scientific information, whether fishing activities would have significant adverse impacts on vulnerable marine ecosystems (VMEs), and to close areas where VMEs are known or are likely to occur, unless conservation and management measures have been established to prevent significant adverse impacts on those VMEs. These requirements were incorporated into interim measures for bottom fisheries adopted by participants in the negotiations to establish the South Pacific Regional Fisheries Management Organisation [2].

The FAO International Guidelines for the Management of Deep Sea Fisheries in the High Seas [3] include advice on broad characteristics of VMEs and guidelines on what might constitute a significant adverse impact. However, these guidelines provide no advice on what might constitute adequate measures to prevent significant adverse impacts. In 2009, the UN General Assembly reaffirmed resolution 61/105 and emphasized the need for full implementation in UNGA Resolution 64/72 [4]. Three difficult questions arise from these UNGA Resolutions for managers charged with conducting risk assessments and implementing measures to prevent significant adverse impacts:

1. What are vulnerable marine ecosystems and where are these likely to occur?
2. What constitutes a significant adverse impact and how can the likelihood of interaction and risk of fisheries impact on VMEs be assessed?
3. What might qualify as adequate conservation and management measures to prevent significant adverse impacts?

This paper describes an approach for addressing these questions for bottom trawling activities in the SPRFMO Convention Area. The first two questions are addressed using a quantitative risk

assessment framework [5,6] using catch and effort data for the New Zealand high-seas bottom trawl fishery and predicted model results for deep sea coral (scleractinian) habitat suitability [7]. Optimisation of spatial protection planning options to address the third question is explored using cost : benefit analysis to evaluate spatial closures implemented by New Zealand for eight high seas fishing areas under the interim SPRFMO bottom fishing regulations [8,9] and to compare these with alternative closure scenarios.

An overview of the seabed topographic characteristics of the northern Tasman Sea study area west of New Zealand is shown in Figure 1. Shaded bathymetry shows the extensive plateaus and ridges constituting the important Challenger Plateau, Lord Howe Rise and West Norfolk Ridge areas fished by New Zealand bottom trawlers. The high seas portions of these fishing areas fall under the management jurisdiction of the South Pacific Regional Fisheries Management Organisation (SPRFMO), whose Convention entered into force in August 2012. Under interim conservation and management measures adopted in 2007 by participants in the negotiations to establish SPRFMO, participants in bottom fisheries in the SPRFMO Convention Area are required to limit bottom fishing activities to within areas fished over the period 2002–2006 [2], with these fished areas being mapped as a 'footprint' of fished 20-minute latitude/longitude blocks. The 20-minute blocks constituting the New Zealand bottom trawl footprint on the Challenger Plateau, Lord Howe Rise and West Norfolk Ridge over the period 2002–2006 are shown in Figure 1. New Zealand has similarly mapped their trawl fishing footprint as 20-minute blocks along the Louisville Ridge, east of New Zealand. Within this bottom trawl footprint, New Zealand has established spatial closures to protect vulnerable marine ecosystems by closing 40% of the blocks constituting the total New Zealand bottom trawl footprint.

## Methods

### Catch and Effort Data

Catch and effort data for New Zealand high-seas bottom trawling in the SPRFMO Area were obtained from the New Zealand Ministry of Fisheries commercial catch and effort database. 1990 is the first full year represented in this database and 2006 is the end of the 2002–2006 reference period chosen by SPRFMO participants as the basis for mapping historically fished areas. 2002–2006 was also the time period covered by the data analyses used to develop the New Zealand management measures for their SPRFMO Area bottom fisheries [9].

This database includes data for foreign-flagged vessels that operated under charter to New Zealand companies. Whereas foreign flag charter vessel data were excluded from the SPRFMO Area impact assessment developed by New Zealand [8,9], data for all vessels have been included in this paper to ensure comprehensive mapping of fishing effort for impact assessment purposes. New Zealand vessels have conducted about 90% of the fishing effort in this region, with little evidence of illegal, unreported or unregulated (IUU) fishing. Inclusion of data from 1990–2001, and for foreign charter vessels, extended the bottom trawled area outside the 2002–2006 footprint published by the New Zealand Ministry of Fisheries (Figure 1) [8]. For the purposes of evaluating the spatial closures implemented by New Zealand within the bottom trawl footprint in these fishing areas, catch and effort analyses were restricted to the tows that were conducted within the 20-minute blocks constituting the New Zealand SPRFMO Area bottom trawl footprint over the period 2002–2006 [9].

Bottom trawl data for the period 1990–2006 were retrieved from the high seas versions of the Trawl Catch Effort and Landings Return (TCELR) forms, which provide tow-by-tow information with start and end date, time and location, fishing method, depth and estimated catch by species (kg) for each tow. This is primarily an orange-roughy (*Hoplostethus atlanticus*) targeted fishery and data were error-checked using standardised procedures routinely used for orange roughy-targeted trawl catch and effort analyses for this fishery [10,11]. Error checks were performed for fishing position, depth, tow speed, duration, distance and target species [12]. Additional comprehensive geospatial (tow start and end position) error checking and correction was conducted using procedures described in Penney [13]. Records were excluded for tows with no fishing position information or which fell within Exclusive Economic Zones (EEZs). Two minor fishing areas near the Kermadec Islands and New Caledonia had only one trawl per 20-minute footprint block, contributed negligible catches, and were excluded from the analyses.

### Mapping of Historical Bottom Trawl Effort

New Zealand fishers reported 43,289 bottom trawl tows in the SPRFMO Area over the period 1990–2006. Of these, 39,902 tows had reliable position information, 1,627 appeared to have east/west errors, and 1,760 clearly had unreliable positions. Original data forms, observer reported tow positions and vessel monitoring system data were checked for all of the erroneous positions, resulting in the correction of 1,716 tows, including most of the tows with east/west position errors. The remaining 1,671 (4%) erroneous tows were excluded from analyses.

All valid trawl tows for the period 1990–2006 were imported into ArcGIS©, incorporating a randomised jitter up to 0.5 minutes either side (latitude and longitude) of the reported positions to compensate for rounding to the nearest minute of reported start and end positions [13]. Tows were geospatially cropped to the 1600 m depth contour, or to fishing effort bounding polygons [13] in areas where GEBCO data [14] appeared to be inadequate. This provided an analysis dataset of 41,618 high-seas bottom trawl tows occurring within fishable depths over the period 1990–2006, including reported orange roughy and total top ten species catches per tow. The depth of 1500 m has previously been reported as the maximum depth fished by New Zealand bottom trawlers on the high seas [10,11]. The maximum fishing depth has been extended slightly in this analysis to 1600 m, based on geospatial analysis of the depth range of trawl tows and comparison with GEBCO bathymetric data.

Tow lengths were determined in ArcGIS© using an Albers equal area conic projection (which provides proportionally correct area estimates) and tow lines were then split by the boundaries of the 20-minute blocks constituting the New Zealand 2002–2006 SPRFMO Area bottom trawl footprint. Although the Albers projection does not conserve length, there is negligible distortion of length across the width of a 20-minute blocks (~32 km), and these lengths were only used to determine proportional catches per segment within each block. The lengths of split tow segments within each block were determined and the proportional orange roughy and top ten species catches for each tow segment were calculated from the ratio of the tow segment length over the full tow length. The resulting tow segment data were summed by footprint block to determine the total number of tows (segments), the summed (cumulative) tow length and the total reported orange roughy and top ten species catches within each footprint block over the period 1990–2006.

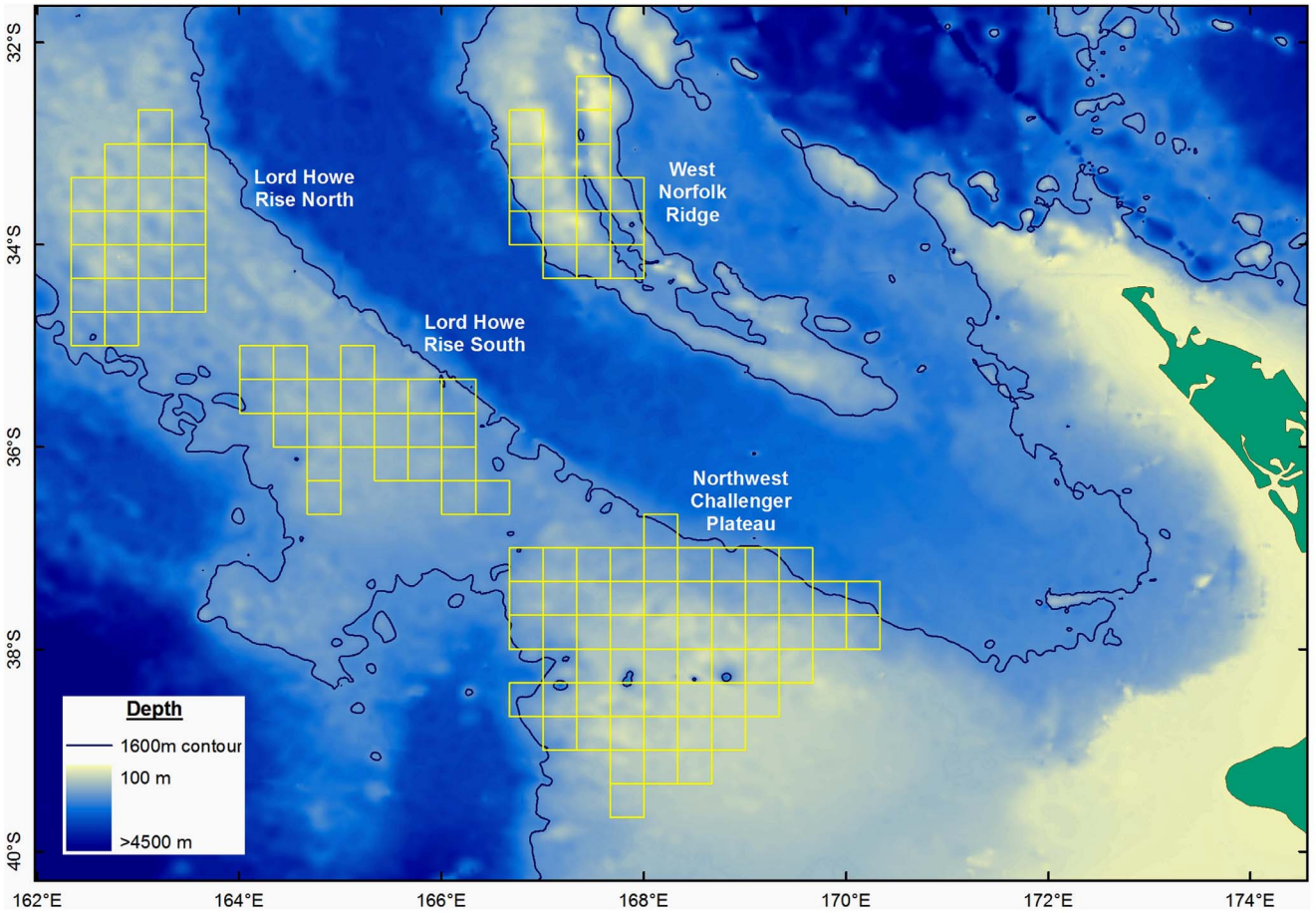


**Figure 1. Characteristics of the high-seas bottom trawling areas in the Tasman Sea west, of New Zealand.** Shaded bathymetric depth of the Challenger Plateau, Lord Howe Rise and West Norfolk Ridge fishing areas to the west of New Zealand, showing the 1600 m depth contour used to delineate 'fishable depth' areas. Yellow 20-minute latitude/longitude blocks show the New Zealand bottom trawling footprint fished by New Zealand vessels in this western portion of the study area over the years 2002 to 2006. New Zealand has similarly mapped the bottom trawl footprint along the Louisville Ridge in 20-minute blocks.
doi:10.1371/journal.pone.0082273.g001

## Estimation of Seabed Swept Areas

Two alternative measures of seabed swept are used in this paper, for two different purposes. Cumulative swept area is the simple sum of estimated areas swept over time, with individual areas of all tows simply being added together, without accounting for any overlap in tows. Cumulative swept area provides a measure of the repetitive impact in an area over time. This is essentially a measure of fishing intensity and is an appropriate measure of the increasing likelihood of interaction with vulnerable marine ecosystems in repetitively trawled areas. However, this measure ignores the fact than many tows may overlap and does not measure the area of the seabed that was actually swept. Actual swept area was therefore estimated by first merging overlapping trawls and then estimating the swept area of the resulting merged tows. This provides a measure of the seabed area that has actually been swept, correcting for any overlap in tows. This is an appropriate measure of the area of the seabed that has actually been impacted by fishing operations, for use in discounting the biodiversity or habitat suitability of an area.

New Zealand vessels fishing in the SPRFMO Area average 48 m in length [15] and Baird et al. [16] applied a swept width between trawl doors in the orange-roughy fishery of 100 m for vessels up to 46 m length (S. Baird, NIWA, pers comm). The summed lengths of tow segments within each footprint block were therefore converted to estimates of cumulative swept area per block by multiplying the cumulative tow length by an assumed swept width of 0.1 km (100 m) between trawl doors.

Even after jittering of tow start and end positions, many tow lines overlap, particularly in heavily fished areas. Actual swept area within each trawl footprint block was estimated using ArcGIS© to generate polygon buffers 50 m either side of each of the tow lines (assuming 100 m door spread width). These buffered tow lines were dissolved into merged swept-area polygons which were then split by the boundaries of the trawl footprint blocks. Actual swept areas over the period 1990–2006 were calculated as the sum of the areas of the dissolved, split, buffered tow polygons within each block.

The planar surface area of 20-minute bottom trawl footprint blocks decreases polewards as a result of convergence of longitudinal meridians. The New Zealand bottom trawl footprint blocks average 1,088 $km^2$ in area, decreasing from 1,240 $km^2$ in the Fiji Basin to 901 $km^2$ at the southern end of the Louisville Ridge (Albers equal area conic projection). Any particular trawl swept area will therefore impact a greater proportion of the area of a footprint block towards the south of the fished regions than towards the north. To enable comparison between blocks, cumulative and actual swept areas within each block were

expressed as proportions of the total area of the blocks within which they occurred.

To enable comparison of seabed swept areas with areas of available fishable depth, the proportion of fishable depth within each footprint block was determined from the proportion of data points in the GEBCO 30 arc-second ($\sim$1 km$^2$) bathymetric data set [14] that are $<$1600 m depth within each block. Cumulative and actual swept areas within each block were expressed as proportions of the planar area of fishable depth in the blocks within which they occurred, to provide indices of the cumulative and actual swept proportion of the fishable area in each block.

## Predictive Habitat Models

The global deep-sea scleractinian coral habitat suitability model developed by Davies & Guinotte [7] was used to generate indices of the likelihood of occurrence of VMEs within each of the New Zealand high seas bottom trawl footprint blocks. This is a 30 arc-second ($\sim$1 km$^2$) resolution maximum entropy (Maxent) model that predicts habitat suitability for six species of deep-sea, habitat-forming scleractinian corals (*Enallopsammia rostrata*, *Goniocorella dumosa*, *Lophelia pertusa*, *Madrepora oculata*, *Oculina varicosa* and *Solenosmilia variabilis*), using global databases for 15 bathymetric, hydrographic, chemical and biological predictor variables. This global model incorporated all the available scleractinian reef-forming coral occurrence records for thespecies occurring in the New Zealand region from Tracey *et al.* [35] (n = 631; *G. dumosa* = 204; *S. variabilis* = 191; *M. oculata* = 118; *E. rostrata* = 98; *O. varicosa* = 20; *L. pertusa* does not occur in the New Zealand region). The predicted, combined habitat suitability for these species in the New Zealand region is shown in Figure 2 from Davies & Guinotte [7].

This scleractinian habitat model was used to generate 1600 data points (about one per 1 km$^2$) for each of the 20-minute blocks in the New Zealand SPRFMO Area bottom trawl footprint. Each data point included position (latitude/longitude), depth (from the underlying 30-arc-sec bathymetric data), and the overall predicted habitat suitability (0–100%) for all scleractinian species combined. The scleractinian habitat suitability values for data points within each block were averaged over all depths to provide indices of overall coral habitat suitability per block, and over fishable depths (0–1600 m) to provide indices of fishable-depth coral habitat suitability per block.

## Quantitative Risk Assessment

The multi-level approach to Ecological Risk Assessment for Effects of Fishing (ERAEF) developed by Hobday *et al.* [5,6] has become internationally well established. In particular, the intermediate (level-2) quantitative risk assessment approach using multi-component, scored productivity/susceptibility analysis (PSA) plots has been widely adopted as a standard approach to generating two-dimensional, integrated measures of risk for fishery resources [6,17,18]. Although originally developed for evaluating risks to fish stocks, ERAEF has more recently been adapted to evaluate the risk of benthic impacts of fishing [19].

The ERAEF productivity–susceptibility analysis approach was further adapted in this study to directly address the two main questions arising out of y UNGA resolution 61/105: where are VMEs likely to occur? and what is the risk of fisheries interaction with these VMEs? These questions were expressed as the axes of a two-dimensional analysis, similar in concept to the PSA plots used in level-2 ERAEF assessments. Likelihood of VME Occurrence was plotted against Likelihood of Fishery Interaction to quantify the risk of significant impacts on VMEs in each footprint block. Risk indices for each of the 20-minute trawl footprint blocks along these two axes were quantified as described below.

**Likelihood of VME occurrence.** The ERAEF PSA approach uses quantified or ranked answers to a range of questions to provide integrated measures of productivity based on a number of measures or indicators [5,6]. Similarly, predictive habitat models predict the likelihood of favourable habitat for VMEs, in this case deep-sea corals, using a wide variety of predictor variables. These models therefore provide multi-factorial, integrated measures of the likelihood of favourable habitat that can be directly used as indices of likelihood of occurrence of the VMEs concerned.

The Scleractinia-combined habitat suitability values from Davies & Guinotte [7] were used as indices of the VME-Likelihood (x-axis) values per footprint block. Although technological advances may extend the trawlable depth range in future, the risk at depths greater than 1600 m is currently zero for this fishery. Risk assessments for effects of fishing can therefore be confined to the fishable depth portion of each footprint block. For the purposes of risk assessment, the average habitat suitability values per footprint block for the VME-Likelihood axis were calculated using only the fishable depth (0–1600 m) habitat suitability points within each block.

Predicted fishable-depth VME likelihood values were then discounted for the effects of historical fishing in each block. The impacts of trawling, particularly the removal of fragile, habitat-forming species and resulting reduction in biodiversity, have been well documented [20,21,22,23,24,25]. There is evidence that recovery of these impacted deepwater areas is extremely slow. Waller *et al.* [26] and Rogers *et al.* [27] report total denudation of trawled areas on the Corner Rise seamount complex in the northwest Atlantic, with little sign of recovery after periods of 20 to 40 years. Williams *et al.* [28] found no evidence of recovery in multivariate assemblage patterns for historically trawled areas on New Zealand and Australian seamounts over a 5–10 year timeframe following cessation of trawling in those areas. Recent work on age determination of the dominant New Zealand region habitat forming scleractinian coral *Solenosmilia variabilis* by Neil *et al.* [29] have indicated that re-establishment of small colonies could take hundreds of years, while re-establishment of large colonies (2–3 m across) could take thousands of years. The degree to which seabed biodiversity is likely to have been reduced in fished areas is therefore an important factor to consider in risk assessments and when evaluating the cost-benefit of alternative spatial closures.

Residual biodiversity discounting factors should ideally be determined from properly designed control-impact seabed biodiversity surveys in fished and unfished areas. However, no such surveys have been conducted for any of the SPRFMO bottom-trawled areas. Noting observations by Koslow *et al.* [22,23] and Waller *et al.* [26] regarding denudation of bottom trawled areas, for the purpose of determining discounting factors in this paper, it was assumed that residual predicted habitat suitability in actual swept areas was zero. Assuming that coral occurrence in swept areas has been reduced to zero results in discounted overall habitat suitability values per block being inversely proportional to the proportion of the fishable depth area that has actually been swept. For example, if half of the fishable depth area has been swept, then the discounted habitat suitability index for the fishable depth area will be half of the original average habitat suitability for the fishable depth area. Resulting discounted, fishable depth, habitat suitability values for each footprint block were used for the VME-Likelihood axis in risk assessment plots.

**Likelihood of fishery interaction.** The y-axis on ERAEF productivity-susceptibility plots measures the susceptibility of

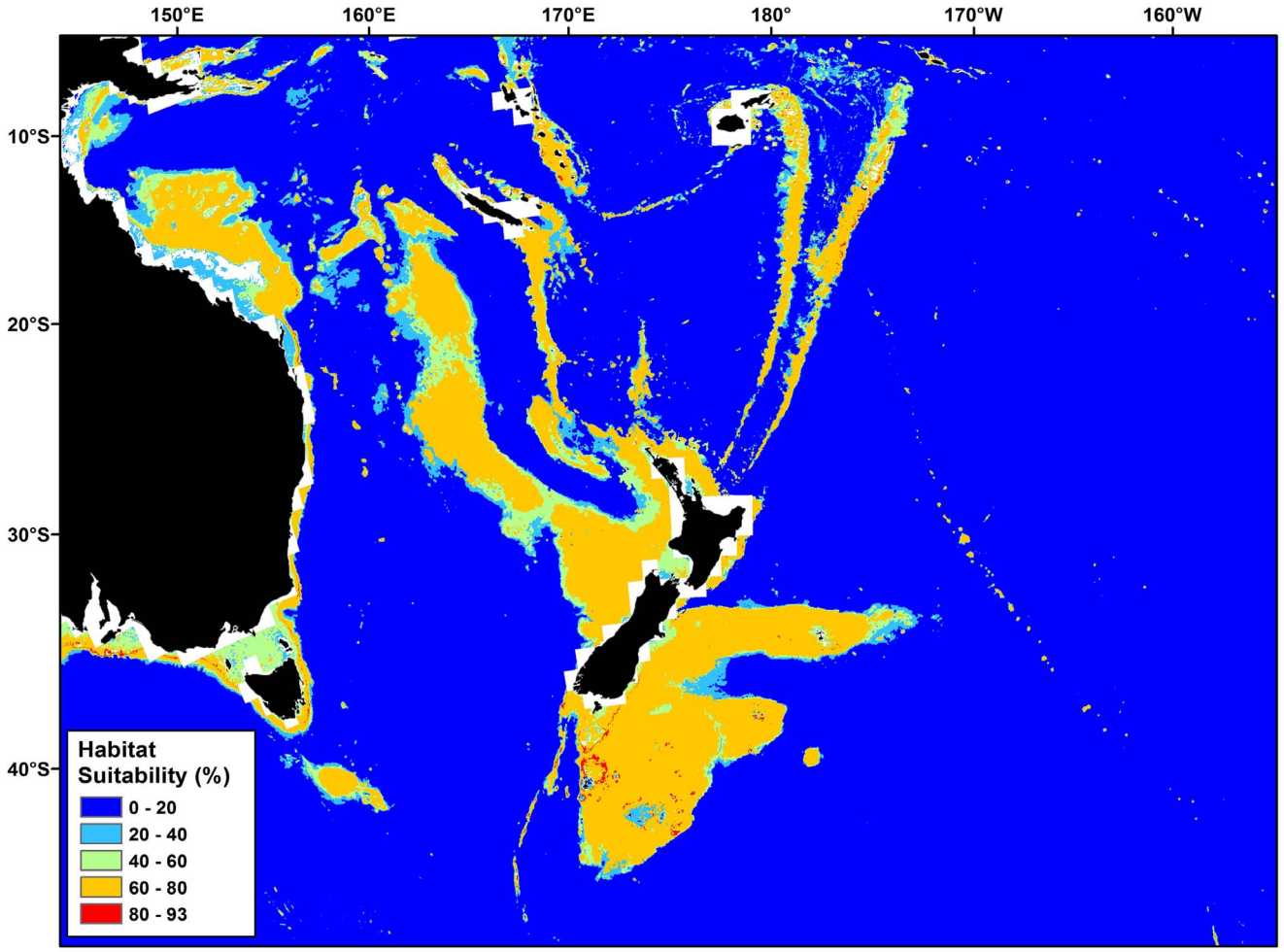


**Figure 2. Predicted scleractinian coral habitat suitability (*Goniocorella dumosa, Solenosmilia variabilis, Madrepora oculata, Enallopsammia rostrata* and *Oculina varicose)* in the New Zealand region (Davies &Guinotte 2011).**
doi:10.1371/journal.pone.0082273.g002

fisheries or areas to a particular impact. In the context of the questions posed by the UNGA requirements, the comparable y-axis in the risk assessments presented here measures the likelihood of fisheries interaction with VMEs in each of the footprint blocks. Of the two measures of seabed impact calculated, cumulative swept area (being a measure of fishing intensity) provides the most appropriate indicator of the likelihood of fishery interaction with VMEs. Areas that are repeatedly trawled each year are of more interest to the fishery and will have a higher likelihood of ongoing fisheries interaction with any residual VMEs. Cumulative swept area values for each footprint block were therefore used for the Fishery-Interaction axis in risk assessment plots.

## Cost : Benefit Analysis of Alternative Spatial Closures

The predicted, discounted likelihood of occurrence of VMEs provides a measure of the potential benefit of closing each trawl footprint block, in terms of meeting UNGA requirements to protect areas likely to contain VMEs. Provided some meaningful measure of cost to industry of the closure of alternative footprint blocks can be calculated, the cost : benefit trade-off of alternative spatial closure scenarios can be evaluated and optimised against any specified cost and benefit objectives.

For analysis of previously fished areas, quantitative measures of historical catch and effort can provide indices of fishing industry interest in an area. Strictly, these are retrospective measures of the cost that would have been incurred if those blocks had been closed historically. However, if the intention is to maintain stocks at sustainable levels in each area, rather than to pursue a policy of sequential depletion and movement to new fishing areas, then historical catch and effort provide appropriate measures of the ongoing suitability of the area for the fish species concerned, and of potential future value of the area to the fishing industry.

New Zealand's high-seas spatial closures currently involve the closure of entire 20-minute footprint blocks, irrespective of depth [9]. However, closure of a block with a small area of fishable depth, and therefore with little area of high suitability for stony corals, and at no risk from fishing, will be of less benefit than closing a block lying entirely within fishable depth. In contrast to the approach taken in risk assessments, for the purposes of cost : benefit analysis of existing closures, average habitat suitability should be determined across the entire depth range of each block, and not just across fishable depth range. The average, all-depths VME likelihood of each trawl footprint block was therefore calculated using habitat suitability values for all points in each block across all depths, and not just fishable depth, after discounting the habitat suitability of points within the actual fishable depth swept areas in each block to zero to account for reductions in biodiversity as a result of trawling.

Either effort or catch could be used as measures of industry interest in particular areas, and therefore of the cost of closing those areas. However, loss of catch provides a more direct measure of cost of closures to industry than effort. The cost to industry of closing particular footprint blocks was therefore calculated as the total historical catch of the top ten species (Table 1) within each block over the period 1990–2006. Although orange roughy dominate catches, alfonsino (*Beryx splendens, B. decadactylus*) and/or oreos (*Allocyttus*, *Pseudocyttus* and *Neocyttus* species) have contributed substantial catches in some areas or years. The top ten species catch was therefore considered to be a better measure of cost than orange roughy alone. While the relevance of historical catch as a measure of cost to industry may be questioned, it is worth noting that, during a marine protected area (MPA) planning process for the Antarctic Ross Sea region [30], the fishing industry themselves chose historical fishing effort as their preferred measure of the cost to industry of alternative MPA proposals.

**Evaluation of alternative closure scenarios.** Existing spatial closures in the New Zealand SPRFMO bottom trawl footprint close 40% of the blocks across the entire footprint [9]. However, existing closures do not close 40% of the blocks within each fishing area, with some fishing areas having more, and some areas having less, than 40% of blocks closed. The decision to close 40% of blocks across the footprint was a choice by managers within the 30% to 50% range for representative closures recommended by Clark [31], Lauck *et al.* [32], Botsford *et al.* [33], Airame *et al.* [34] and Rogers *et al.* [27]. For the purposes of evaluating alternative spatial closure scenarios in this paper, it was assumed that closure of 40% of the footprint blocks remained a management objective. However, in order to ensure regional representation of closures, it was further assumed that the objective should be to close 40% of the blocks within each of the fishing areas, and not just across the footprint, to ensure representivity by fishing area. This approach taken in this analysis therefore differs from that used by New Zealand, and this has consequences for the optimisation of spatial closures (see cost : benefit analysis results).

Having determined the number of blocks (40%) to be closed in each fishing area, cost : benefit trade-off curves for alternative spatial closure scenarios were generated. The starting closure scenario for each fishing area was generated by sorting the footprint blocks in descending order of discounted, all-depths, average habitat suitability and closing the 40% of blocks with highest average habitat suitability. This starting scenario provides the highest overall, average, discounted habitat suitability that can be achieved by any 40% closure of blocks within each fishing area. Scenarios of decreasing overall average habitat suitability were then generated by opening the closed block with the highest historical catch (cost) and closing the block with the next highest average habitat suitability. This process was repeated, re-calculating the average habitat suitability and total cost of the revised closures at each step, until all blocks in each fishing area had been accounted for.

This process generates cost : benefit trade-off curves starting from the closure scenario of highest average habitat suitability (benefit), and ending with the closure scenario of least historical catch lost (cost), with each sequential scenario along these curves having decreasing cost to industry, as well as decreasing average coral habitat suitability. To provide visually reciprocal declining conservation benefit and increasing retained catch curves, the cost to industry was plotted as percentage retained catch. The benefit and cost of the existing closures in each fishing area were calculated in the same way and plotted as points on these optimisation curves to provide a direct comparison of the value and cost of existing closures with the explored range of alternative scenarios.

**Optimisation of spatial closures.** Cost : benefit trade-off curves for each fishing area can be used to select an 'optimal' spatial closures at some point along the trade-off, given specified management objectives in terms of benefit and cost. Selection of a preferred position along the trade-off curves would usually be based on an iterative consultation between fisheries managers, industry representatives and other stakeholders, using pre-agreed objectives for each axis, comparing conservation benefit of spatial closures *vs.* cost to industry resulting from lost access to fishing

**Table 1.** Total reported all-areas bottom trawl catch (t) of the top ten species/groups, and of all species, by New Zealand flagged and foreign flag charter vessels in the convention area of the South Pacific Regional Fisheries Management Organisation (SPRFMO) over the period 1990–2006.

| Common Name | Latin Name | 1990–2006 Catch (t) | | |
|---|---|---|---|---|
| | | NZ Flag | Other Flag | All Flags |
| Orange roughy | *Hoplostethus atlanticus* | 49,515 | 11,374 | 60,889 |
| Black cardinalfish | *Epigonus telescopus* | 3,875 | 206 | 4,081 |
| Black oreo | *Allocyttus niger* | 1,748 | 399 | 2,146 |
| Smooth oreo | *Pseudocyttus maculatus* | 1,428 | 140 | 1,567 |
| Alfonsino | *Beryx splendens/B. decadactylus* | 1,049 | 211 | 1,260 |
| Ribaldo | *Mora moro* | 345 | 111 | 456 |
| Spiky oreo | *Neocyttus rhomboidalis* | 371 | 55 | 426 |
| Rattails | Macrouridae | 320 | 13 | 334 |
| Seal shark | *Dalatias licha* | 165 | 7 | 172 |
| Boarfish | *Pseudopentaceros richardsoni, Paristiopterus labiosus* | 124 | | 124 |
| Total top ten species catch | | 58,940 | 12,515 | 71,455 |
| Total all species catch | | 60,899 | 16,451 | 77,350 |

These include catches made outside the New Zealand 2002–2006 bottom trawl footprint prior to 2002, and so are higher than the fishing area totals in Table 2.
doi:10.1371/journal.pone.0082273.t001

**Table 2.** Number of 20-minute latitude/longitude bottom trawl footprint blocks, total footprint area ($km^2$), fishable depth (0 m–1600 m) area ($km^2$), cumulative tow length (km), cumulative and actual swept areas ($km^2$) and reported catches (t) by New Zealand flagged and foreign flag charter vessels within each of the fishing areas constituting the New Zealand bottom trawl footprint in the convention area of the South Pacific Regional Fisheries Management Organisation (SPRFMO) over the period 1990–2006.

| Fishing Area | Number of Blocks | Total Area ($km^2$) | Fishable Area ($km^2$) | Total Tow Length (km) | Cumulative Swept Area ($km^2$) | Actual Swept Area ($km^2$) | Orange Roughy Catch (t) | Top Ten Catch (t) |
|---|---|---|---|---|---|---|---|---|
| Lord Howe North | 22 | 25,075 | 25,051 | 4,307 | 431 | 273 | 99 | 1,091 |
| Lord Howe South | 23 | 25,633 | 25,417 | 23,832 | 2,383 | 1,162 | 3,998 | 5,719 |
| Challenger Plateau | 58 | 62,833 | 59,642 | 179,275 | 17,928 | 8,608 | 12,382 | 16,020 |
| West Norfolk Ridge | 16 | 18,317 | 14,910 | 3,513 | 351 | 219 | 1,737 | 1,776 |
| Three Kings Ridge | 8 | 9,584 | 3,684 | 678 | 68 | 49 |  | 84 |
| Louisville North | 17 | 18,515 | 3,849 | 15,638 | 1,564 | 682 | 8,542 | 8,616 |
| Louisville Central | 21 | 21,374 | 2,449 | 30,597 | 3,060 | 933 | 21,394 | 22,008 |
| Louisville South | 12 | 11,456 | 1,071 | 5,602 | 560 | 213 | 5,341 | 7,624 |

All areas were calculated in ArcGIS© using an Albers equal area conic projection.
doi:10.1371/journal.pone.0082273.t002

areas. Such a process is described by Sharp and Watters [30] for the Ross Sea MPA planning process. The objectives to be pursued would also typically be established by managers in consultation with stakeholders. However, for the purpose of generating illustrative 'optimised' closure examples in this paper, the following example management objectives were assumed:

1. To achieve protection of at least 75% of the achievable range in average habitat suitability (maximum to minimum) across the alternative scenarios in each fishing area (75% of the benefit axis range).
2. To retain at least 75% of the historical top ten species catch in each fishing area (75% of the retained catch axis).

An optimisation approach such as this involves an explicit balancing of competing objectives related to maximising conservation and catch, using objective and quantitative measures for each axis. In generating examples of 'optimised' closure scenarios against these management objectives, the conservation objective was initially given precedence. If the fisheries cost reduction objective could not be achieved while retaining 75% of potential habitat suitability, then retained catch was allowed to decrease below 75% of historical catches to retain at least 75% of potential habitat suitability. However, if both objectives could be achieved across a range of alternative closure scenarios, then within this range of 'acceptable' alternatives, the objective of reducing cost to industry was given precedence, so that retained catch was maximised after ensuring protection of at least 75% of potential habitat suitability.

## Results

### New Zealand's Historical High Seas Bottom Fishing Catch

New Zealand flagged bottom trawl vessels and foreign charter vessels operating for New Zealand companies reported a total high-seas bottom trawl catch of 77,350 t of all species in the SPRFMO Area over the period 1990–2006 (Table 1). This includes catches made outside the New Zealand 2002–2006 SPRFMO Area bottom trawl footprint prior to 2002 [9]. The top ten species contributed 92% of this catch, with orange roughy contributing 79% of the all species catch and 85% of the top ten species catch. The other top ten species, black cardinalfish (*Epigonus telescopus*), oreos (black oreo *Allocyttus niger*, smooth oreo (*Pseudocyttus maculatus)*, spiky oreo (*Neocyttus rhomboidalis*), alfonsino, ribaldo (*Mora moro*), rattails (Macrouridae), seal shark (*Dalatias licha*) and boarfish (*Pseudopentaceros richardsoni*, *Paristiopterus labiosus*), together contributed 12% of the total reported catch (Table 1).

### Distribution of Historical Bottom Trawl Effort and Impact by Fishing Area

The fishable depth areas of the eight fishing areas constituting the New Zealand SPRFMO Area 2002–2006 bottom trawl footprint, and the total amount of fishing effort in each fishing area over the period 1990–2006, are summarised in Table 2. The western fishing region (Lord Howe Rise, Challenger Plateau, West Norfolk Ridge and Three Kings Ridge) is almost three times the area of the eastern (Louisville Ridge) region and has the longest fishing history, particularly the NW Challenger Plateau, where high-seas bottom trawling started in the late 1980 s as an extension of the inside-EEZ fishery. The differences in historical fishing effort are partially attributable to differences in seabed topography between the western and eastern regions. The western region consists of easily accessible, large plateau and ridge features that lie predominantly within fishable depth, whereas fishable areas along the Louisville Ridge are confined to the summits of distant, relatively small, discrete seamounts. Over 90% of the bottom trawl footprint in the western region lies within fishable depth (0–1600 m) whereas only 14% of the Louisville Ridge footprint lies at fishable depths (Table 2).

Total fishing effort (total tow length and cumulative swept area) in the western region is four times that on the Louisville Ridge and actual swept area in the western region is five times that on the Louisville Ridge (Table 2). The ratio between cumulative and actual swept area differs substantially between blocks depending on the degree of overlap of tows in repetitively trawled areas. In the more lightly fished West Norfolk Ridge and Three Kings Ridge fishing areas, with less overlap of tows, cumulative swept area is two to three times the actual swept area. In the more heavily fished Challenger Plateau and Louisville Ridge areas, where substantial tow overlap occurs, cumulative swept area is four to six times actual swept area over the period 1990–2006.

Across the entire western region, 7% of the all-depths footprint area, which amounts to 8% of the fishable depth footprint area, has actually been swept. Despite the fact that most of the trawl

**Table 3.** Summary of the estimated minimum, average and maximum percentage of the fishable depth (0 m–1600 m) area actually swept in footprint blocks in the Lord Howe Rise, West Norfolk/Three Kings Ridges, Challenger Plateau and Louisville Ridge fishing areas.

| Fishing Area | % of 0 m–1600 m Area Actually Swept | | | | | Mean % 0 m–1600 m | Cumulative/ |
|---|---|---|---|---|---|---|---|
| | Min | Max | Mean | StdDev | % Swept >50% | Cumulatively Swept | Actual Swept Ratio |
| West Norfolk/Three Kings | 0.02% | 12.6% | 1.8% | 3.1% | 0% | 2.8% | 1.6 |
| Lord Howe Rise | 0.03% | 17.6% | 2.9% | 4.5% | 0% | 5.6% | 1.9 |
| Challenger Plateau | 0.01% | 75.2% | 13.8% | 19.6% | 9% | 28.7% | 2.1 |
| Louisville Ridge | 0.99% | 89.8% | 28.5% | 22.6% | 14% | 75.5% | 2.6 |

Also shown are the percentages of blocks in each fishing area that were estimated to have had more than 50% of the fishable depth actually swept, the percentage of the fishable depth area cumulatively swept and the cumulative/actual swept depth ratios. These last two measures provide indices of the fishing intensity in each fishing area.

doi:10.1371/journal.pone.0082273.t003

footprint on the Challenger Plateau lies within fishable depth and that this area has the longest fishing history, only 14% of the 20-minute block footprint in this area has actually been swept (Table 2). In comparison, despite lower overall fishing effort, as a result of the small area of fishable depth available on the Louisville Ridge seamounts, 25% of the available fishable depth area on the Louisville Ridge has been swept. In the more heavily fished Central Louisville Ridge area, 38% of the fishable depth area has been swept, almost three-times the 14% of fishable depth area swept on the Challenger Plateau (Table 2).

The minimum, maximum and average percentages of the fishable depth area swept per 20-minute block in the Lord Howe Rise (north and south combined), Challenger Plateau, West Norfolk Ridge and Three Kings Ridge (combined) and Louisville

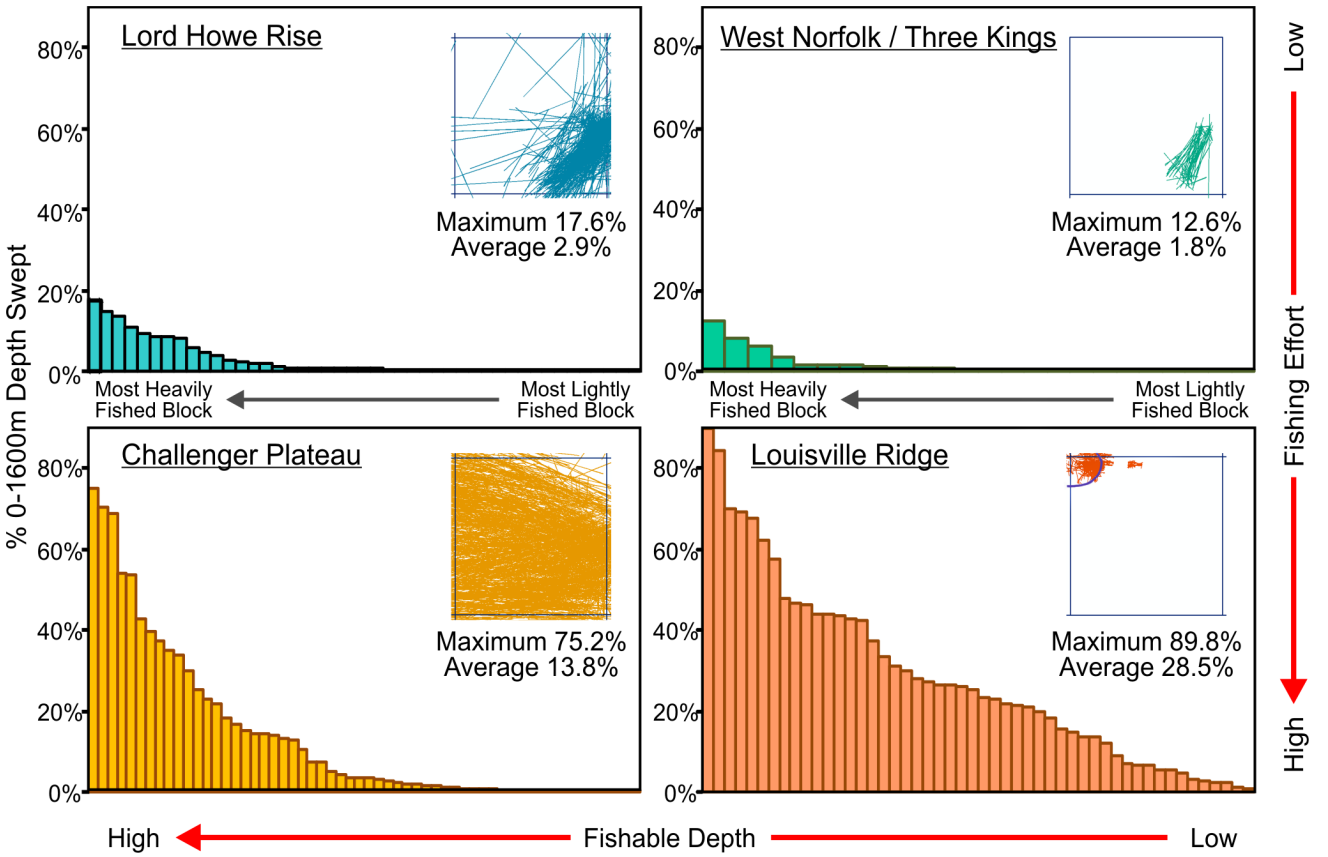


**Figure 3. Swept area of seabed at fishable depth.** Percentage of fishable depth area (0 m–1600 m) swept in each of the 20-minute blocks constituting the New Zealand SPRFMO Area bottom trawl footprint in the Lord Howe Rise (north and south combined), Challenger Plateau, West Norfolk Ridge and Three Kings Ridge (combined) and Louisville Ridge (north, central and south combined) fishing areas, sorted in descending order from most heavily to most lightly fished. Inset maps show the footprint block with the highest percentage fishable depth swept, with the maximum and average percentage fishable depth swept per block, for each fishing area. Blue contour lines show the extent of fishable depth area in the most heavily fished blocks in the Three Kings Ridge and Louisville Ridge areas.

doi:10.1371/journal.pone.0082273.g003

Ridge (north, central and south combined) fishing areas are summarised in Table 3 and illustrated in Figure 3. The insets in Figure 3 show maps of the 20-minute footprint block with the highest proportion of fishable depth area swept in each of the fishing areas, and the maximum and average percentage fishable depth swept for each of these blocks.

The proportion of fishable depth area actually swept per block in the lightly fished Lord Howe Rise, West Norfolk Ridge and Three Kings Ridge areas averages 2% –3%, with less than 18% of the fishable area of the most heavily fished block having been swept (Table 3). In the heavily fished Challenger Plateau and Louisville Ridge areas, the percentage of fishable depth that has actually been swept averages 14% and 29% per block respectively. 75% of the fishable depth in the most heavily fished block on the Challenger Plateau has been swept and 9% of the Challenger Plateau blocks have had more than half of the fishable depth swept. 90% of the fishable depth in the most heavily fished block on the Louisville Ridge has been swept and 14% of the blocks along the Louisville Ridge have had more than half the fishable depth swept (Table 3).

## Predicted Coral Habitat Suitability in the New Zealand Region

Predictive habitat model results from Davies & Guinotte [7] predict large areas of highly suitable habitat in the New Zealand region for a number of deepwater coral species, particularly *Goniocorella dumosa* and *Solenosmilia variabilis* (Figure 2), both of which are important habitat-forming components of deep-water benthic communities in the region [35]. There is a strong inverse relationship between depth and predicted coral habitat suitability within the New Zealand high-seas bottom trawl footprint (Figure 4a). Predicted scleractinian coral habitat suitability is high (50%–80%) across fishable depths (0 m–1600 m), decreasing rapidly below 1600 m to less than 10% below 2500 m.

The entire New Zealand high-seas bottom trawl catch has been taken in depths less than 1600 m and over 90% of the orange roughy trawl catch has been taken in 600 m–1300 m depth. Fishing effort is therefore concentrated in the depth range where predicted coral habitat suitability is highest, exceeding 60% (Fig. 2a). Using these predicted habitat model results, as a result of the strong relationship between depth and coral habitat suitability, there is a strong correlation between the proportion of fishable depth and the average coral habitat suitability in each footprint block. The average coral habitat suitability is essentially determined by the proportion of fishable depth area in each block (Figure 4b).

The distribution of predicted coral habitat suitability from Davies & Guinotte [7] within each of the blocks constituting the New Zealand SPRFMO Area bottom trawl footprint is shown in Figure 5 for the Lord Howe Rise, Challenger Plateau and West Norfolk Ridge fishing areas, and in Figure 6 for the Northern and Central Louisville Ridge. As a result of the determining effect of depth on predicted coral habitat suitability, these closely resemble bathymetric charts for these areas. The high proportion of suitable coral habitat at fishable depth in the western region is particularly evident (Figure 5), as is the low proportion of suitable coral habitat, confined to seamount summits, along the Louisville Ridge (Figure 6).

## VME-Likelihood/Fishery-Interaction Risk Assessments

Figure 7a shows the VME Likelihood - Fishery Interaction risk-assessment plot for all fishing areas combined, using the non-discounted average habitat values for fishable depths in each footprint block, plotted against the cumulative swept area per block over the period 1990–2006. The blocks have been classified according to their current management status as open, move-on, or closed [9]. The tiered distribution of block status by cumulative swept area is a direct result of open/move-on/closed status being originally determined by historical fishing effort in each block. The more heavily fished third of the blocks were left open to fishing, the more lightly fished third were closed, and the moderately fished third were made subject to a move-on rule [9]. An additional 10% of block closures in the moderately and heavily fished areas [9] is apparent as closed blocks in areas with higher cumulative swept area.

Original, non-discounted habitat suitability values per block (Figure 7a) can be used to evaluate whether the current closed blocks were comparable to the move-on and open blocks in terms of original likelihood of occurrence of VMEs before fishing. Discounted values (Figure 7b) can then be used to compare the residual VME likelihood in these block categories after discounting

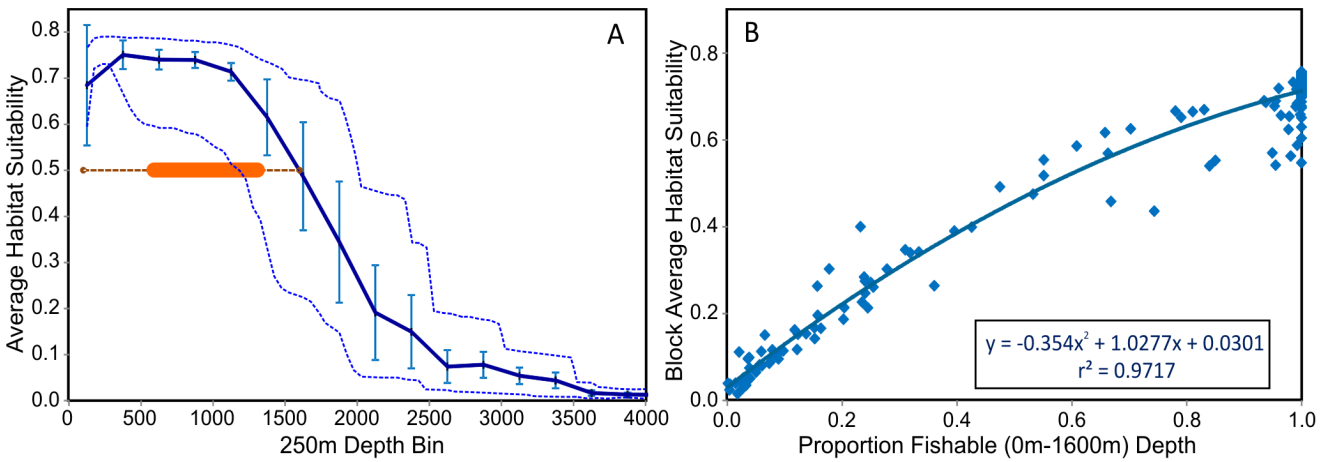


**Figure 4. Depth – coral habitat suitability relationships.** a) Predicted coral habitat suitability by depth within the New Zealand high seas bottom trawl footprint area (mean, standard deviation and range). The orange line shows the depth range (dotted line = total catch, bar = 90% of catch) over which bottom trawl catches are made; b) Relationship between the proportion of fishable depth (0 m–1600 m) and average, all-depths, predicted habitat suitability per 20-minute block in the New Zealand high-seas bottom trawl footprint. (Data from Davies &Guinotte 2011).
doi:10.1371/journal.pone.0082273.g004

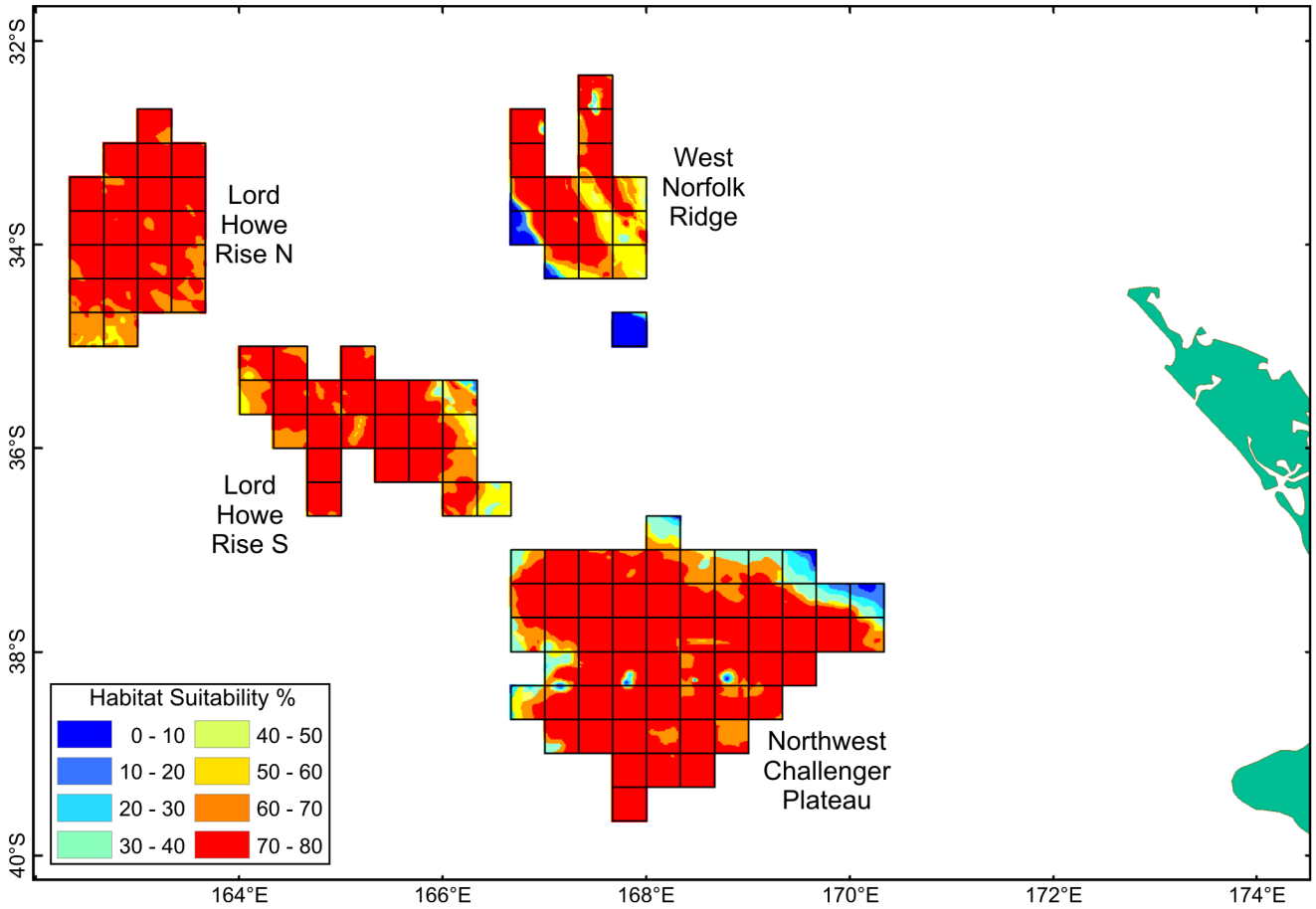


**Figure 5. High-seas fishing footprint coral habitat suitability – western region.** Distribution of predicted scleractinian coral habitat suitability in each of 20-minute latitude/longitude blocks constituting the New Zealand bottom trawl footprint in the Lord Howe Rise, Northwest Challenger Plateau and West Norfolk Ridge fishing areas (Davies &Guinotte 2011).
doi:10.1371/journal.pone.0082273.g005

for the effects of fishing. In the western region (Lord Howe Rise, Challenger Plateau, West Norfolk Ridge and Three Kings Ridge), non-discounted habitat suitability values for fishable depths are virtually identical for the three block categories, averaging 69.7%, 69.7% and 70.0% for the open, move-on and closed areas respectively (Table 4). However, after discounting for the effects of fishing, the average fishable depth habitat suitability of the western region open areas is reduced to 55.4%, with only slight reduction in the average value of the move-on areas (68.7%) and closed areas (68.3%).

Before discounting, the average fishable depth habitat suitability of open areas along the Louisville Ridge (67.7%) is similar to that of the move-on areas (66.1%) and slightly higher than that in the closed areas (63.8%) (Table 4). After discounting, average Louisville Ridge fishable depths habitat suitability values decrease to 41.9% for open areas, 49.3% for move-on areas and 50.5% for closed areas. After discounting for the effects of historical fishing, the likelihood of residual VMEs in fishable depths in closed and move-on blocks is therefore higher than in open areas in both the western and eastern regions. This indicates that, using the three effort-based management tiers, these closures are providing protection to the tier with a higher likelihood of containing VMEs.

Individual, discounted, VME-Likelihood/Fishery-Interaction risk assessment plots for the six main fishing areas are shown in Figure 8. There is little effect of discounting in the lightly fished Lord Howe North, Lord Howe South and West Norfolk Ridge areas, where discounted fishable-depths habitat suitability remains greater than 60% for most of the blocks. Discounting results in reduction of VME habitat suitability in the more heavily fished open blocks in the Lord Howe South and West Norfolk Ridge areas. Closed blocks then have a higher average coral VME likelihood than open blocks in these two areas. The effect of discounting is greatest in the most heavily fished blocks on the Challenger Plateau, most of which are open under the current management arrangements. Due to the high proportion of fishable depth that has been swept in these blocks, discounted habitat suitability is reduced to less than 60% for most of the open blocks, while most of the closed and move-on blocks retain habitat suitability greater than 60%.

Along the Louisville Ridge, as a result of the small areas of fishable depth on seamounts and the high proportions of these areas that have been swept, discounting has a substantial effect on residual VME likelihood. On the more lightly fished Northern Louisville Ridge, the effect of discounting is moderate and the discounted VME likelihood of closed blocks remains less than that of the open or move-on blocks. However, the effect of discounting is substantial on the heavily fished Central Louisville Ridge where the residual VME likelihood of open blocks is reduced to less than 40%, with closed blocks then having a higher VME likelihood than the open or move-on blocks (Figure 8).

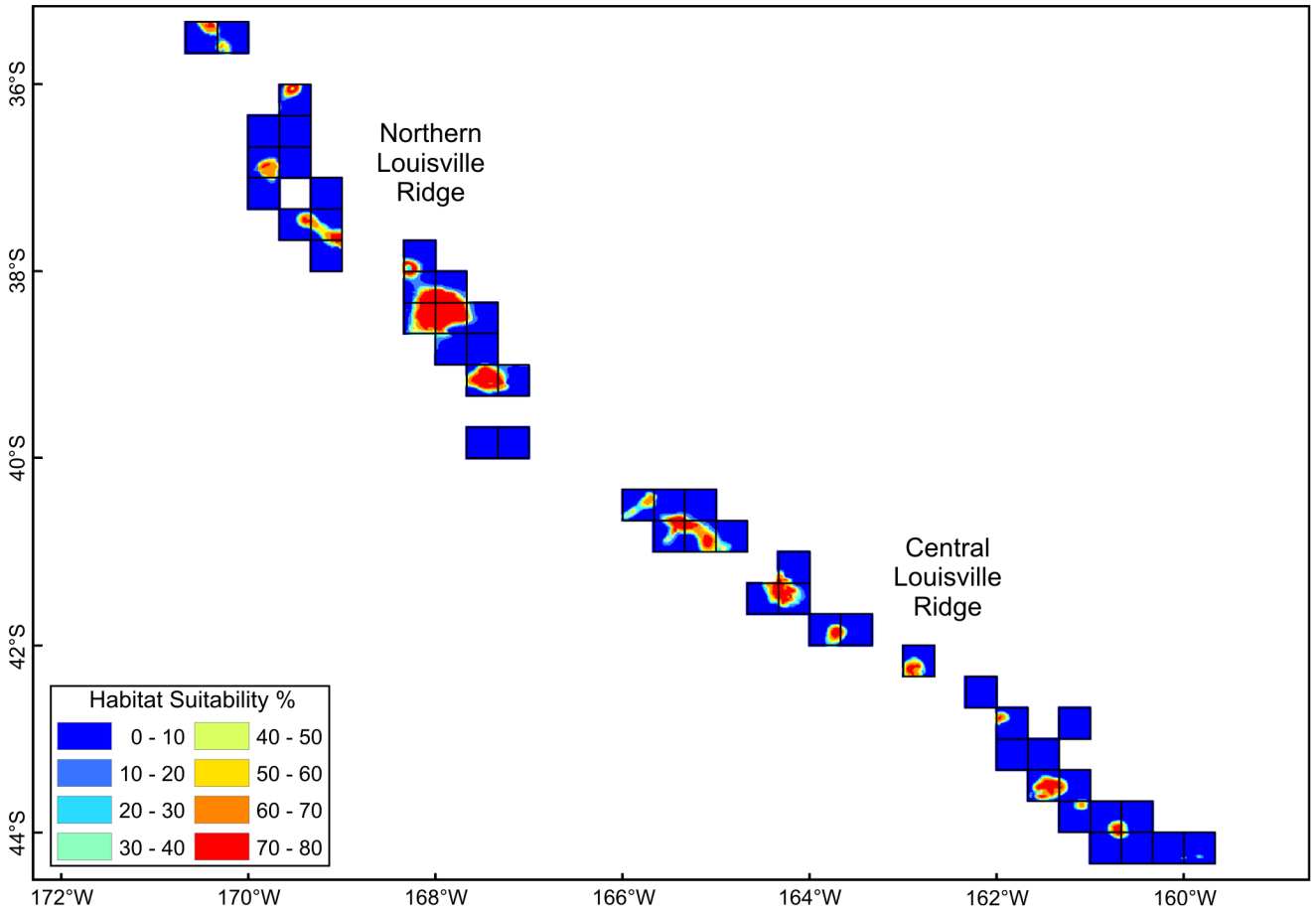


**Figure 6. High-seas fishing footprint coral habitat suitability – eastern region.** Distribution of predicted scleractinian coral habitat suitability in each of 20-minute latitude/longitude blocks constituting the New Zealand bottom trawl footprint in the Northern and Central Louisville Ridge fishing areas (Davies &Guinotte 2011).
doi:10.1371/journal.pone.0082273.g006

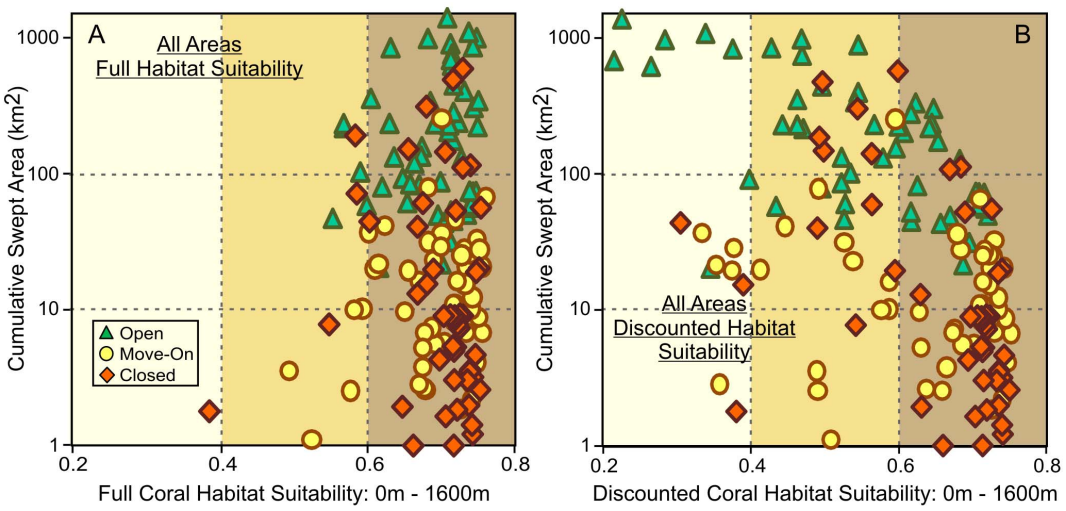


**Figure 7. Overall VME-likelihood/fishery-interaction risk assessment analysis.** Combined (all fishing areas) VME-likelihood/fishery-interaction risk assessment plots for all footprint blocks constituting the New Zealand SPRFMO Area bottom trawl footprint in all fishing areas. Coral habitat suitability is the average Davies & Guinotte (2011) Scleractinia habitat suitability values for the fishable depth (0 m–1600 m) points in each block. Risk of interaction is measured as the cumulative swept area over time in each block. Blocks have been classified by their current management status (open, move-on or closed, from Penney *et al*. 2009). a) Full fishable-depths habitat suitability, without discounting; b) Discounted fishable-depths habitat suitability, with habitat suitability of actual seabed swept areas set to zero.
doi:10.1371/journal.pone.0082273.g007

**Table 4.** Average, predicted habitat suitability of fishable depth areas (0 m–1600 m) in the open, move-on and closed footprint blocks in the western region (Lord Howe Rise, Challenger Plateau, West Norfolk Ridge and Three Kings Ridge) and on the Louisville Ridge (North, Central and South), showing the original, non-discounted, average habitat suitability and the remaining average habitat suitability after discounting for actual swept area in previously fished areas.

| Fishing Area | Full Habitat Suitability: 0 m–1600 m | | | Discounted Habitat Suitability: 0 m–1600 m | | |
|---|---|---|---|---|---|---|
| | Open | Move-On | Closed | Open | Move-On | Closed |
| Western Region | 69.7% | 69.7% | 70.0% | 55.4% | 68.7% | 68.3% |
| Louisville Ridge | 67.7% | 66.1% | 63.8% | 41.9% | 49.3% | 50.5% |

doi:10.1371/journal.pone.0082273.t004

## Cost : Benefit Analysis of Alternative Spatial Closures

Cost : benefit trade-off curves for six of the fishing areas are shown in Figure 9. These show the decline in average, all-depths, discounted habitat suitability and the increase in percentage retained catch, moving from closure of 40% of blocks with highest all-depths, discounted habitat suitability, to the closure of 40% of blocks of least cost to industry. The average, all-depths habitat suitability and percentage retained catch of the current spatial closures in each area are shown as points along these trade-off curves. These cost : benefit curves only consider two block categories, closed or open, with no provision for the move-on areas in Penney *et al.* [9], and the current move-on blocks were considered to be open for the purposes of calculating the cost : benefit of current closures.

Comparing the cost : benefit of existing closures (shown by the points on Figure 9) with alternative closure scenarios, it is evident that existing closures have been selected to have low cost in terms of lost catch. This is a direct consequence of the original decision to primarily close lightly fished blocks, and to leave the more heavily fished blocks open [9]. Existing open and move-on areas retain, on average, 88% of historical catch across all fishing areas. In the western region (Challenger Plateau, Lord Howe Rise and West Norfolk Ridge) current closures effectively minimise the costs to industry in terms of lost historical catch, with retained historical catch averaging 93%.

In contrast, even using discounted habitat suitability indices, the average, all-depths habitat suitability of the current closures is below the range that could be achieved under any of the alternative 40% closure scenarios explored for all areas except the central Louisville Ridge (Figure 9). On the Challenger Plateau, the low average habitat suitability of current closures results mainly from the fact that only 15 blocks are currently closed, whereas a 40% closure would require 23 blocks to be closed. Any 23 block closure scenario will increase the average habitat suitability of the closed area on the Challenger Plateau. In the West Norfolk Ridge and Lord Howe North areas, one block more is currently closed than is required by a 40% closure, so the low habitat suitability of current closures does not result from insufficient closures, but results from closure of less suitable blocks.

The cost to industry of current closures along the Louisville Ridge is somewhat higher than for the western region, but retained catch is still well above the chosen 75% optimisation objective, averaging 85% across the eastern region. The predicted habitat suitability of fishable depth areas along the Louisville Ridge is slightly lower than the western region, but is still well above 60%. However, as a result of the small areas of fishable depth in many of the blocks along the Louisville Ridge and the heavy fishing on many of these areas, the discounted all-depths habitat suitability of alternative Louisville Ridge closure scenarios based on entire blocks is low, ranging from 1% to 33%. Fishing effort along the Louisville Ridge has concentrated on those blocks with more fishable depth area. As a direct consequence of closing blocks with lower historical fishing effort, most of which also have small fishable depth areas, the habitat suitability of the current Northern and Southern Louisville closed areas lies well below the range of all alternative closure scenarios. The Central Louisville area is the only fishing area where the average habitat suitability of existing closures slightly exceeds the habitat suitability for alternative closures in that area. This is achieved by closing only four blocks in the higher habitat suitability range for the area (after excluding blocks originally included in error by Penney et al. [9] as a result of erroneous tows), whereas a 40% closure requires the closure of eight blocks.

## Optimisation of Spatial Closures

The Challenger Plateau and the Northern Louisville Ridge were chosen to provide two contrasting examples of optimised spatial closures under the chosen management objectives, in areas with different fishing histories and fishable depth areas. The chosen example trade-off positions along the cost-benefit curves for these two areas, which achieve protection of at least 75% of the potential range in average habitat suitability and thereafter minimise costs to industry, are indicated on Figure 9. The block closures corresponding to the chosen optimised scenarios for the two areas were transferred into ArcGIS© and the resulting maps of these 'optimised' closure scenarios are compared with the current closures in Figure 10.

There are substantial differences between the effects of optimisation in these two areas. The Challenger Plateau bottom trawl footprint consists of 58 blocks, of which 15 are currently closed, 25 are open and 18 are subject to a move-on rule [9] (Figure 10a, current closures). A 40% closure requires 23 blocks to be closed in this area and the average VME likelihood of the current closures is below the value that could be realised using any 23 block closure (Figure 9). Of the 36 optimisation steps for the NW Challenger Plateau, retained historical catch ranges from 97.1% for scenario 1 to 99.9% for scenario 36, so the objective of retaining 75% of historical catch can be met by any scenario. Average discounted habitat suitability ranges from 73% for scenario 1 to 67% for scenario 36. Scenario 12 achieves 74% of this range in habitat suitability, so scenario 11, which achieves 86% of this range, was chosen as the scenario that minimises cost to industry while still retaining at least 75% of the range in potential habitat suitability. Under this scenario 11 (Figure 10a, optimised closures), the average discounted habitat suitability of closed areas increases from 63% to 72%, while retained historical catch increases from 98% to 99.6%, compared with current closures.

After removal of footprint blocks incorrectly incorporated by Penney *et al.* [9] as a result of erroneous tows (east-west errors), the

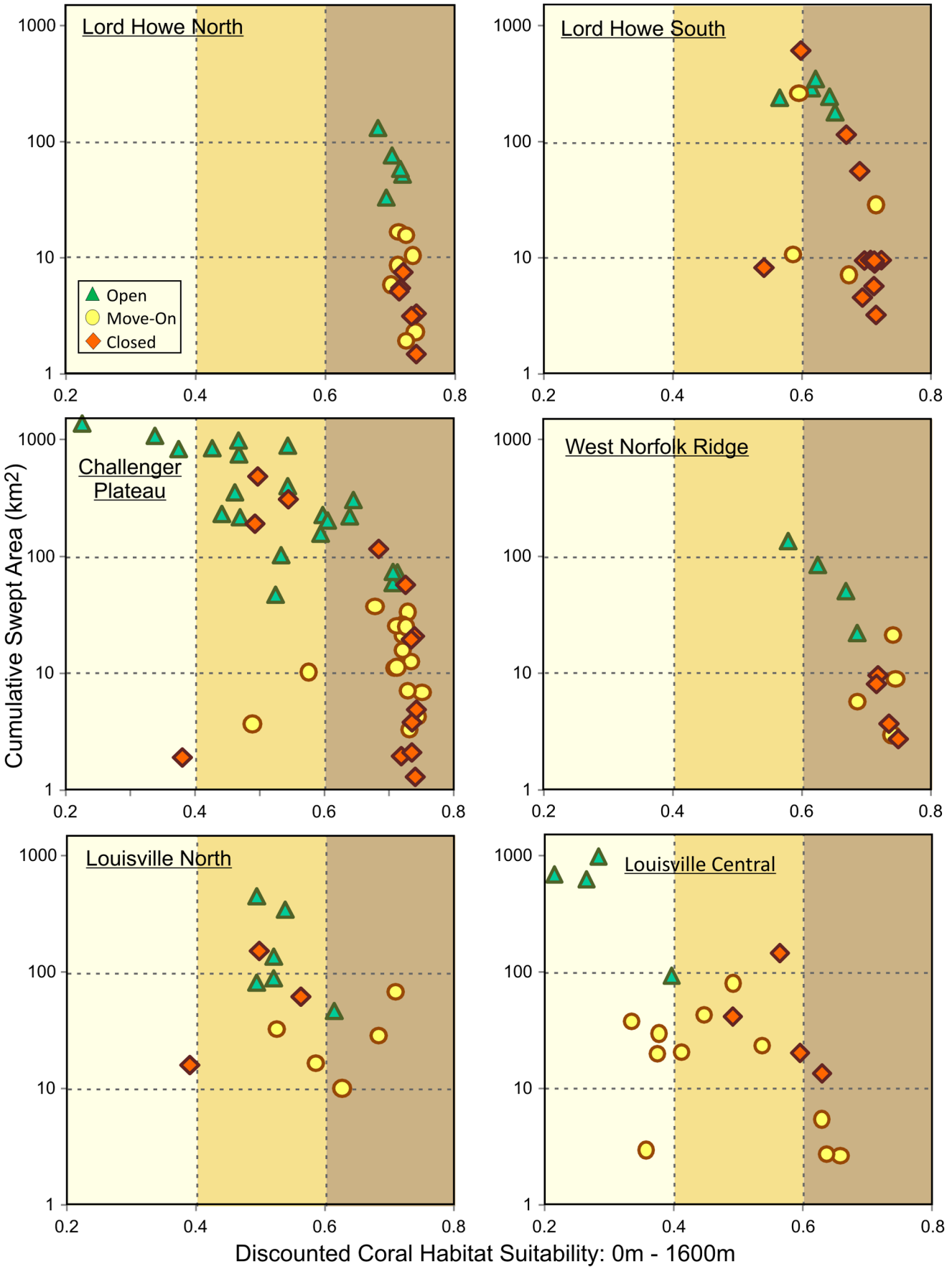
Lord Howe North
Lord Howe South
Challenger Plateau
West Norfolk Ridge
Louisville North
Louisville Central
Open
Move-On
Closed
Cumulative Swept Area (km2)
Discounted Coral Habitat Suitability: 0m - 1600m
1000
100
10
1
0.2
0.4
0.6
0.8

**Figure 8. VME-likelihood/fishery-interaction risk assessment analysis by fishing area.** Discounted VME-likelihood/fishery-interaction risk assessment plots by fishing area for footprint blocks in the Lord Howe Rise North and South, Challenger Plateau, West Norfolk Ridge and Louisville Ridge North and Central fishing areas. Coral habitat suitability is the average Davies & Guinotte (2011) Scleractinia-combined habitat suitability values for the fishable depth (0 m–1600 m) points in each block, discounted by setting habitat suitability of swept areas to zero. Risk of interaction is measured as the cumulative swept area over time in each block. Blocks have been classified by their current management status (open, move-on or closed, from Penney *et al*. 2009).
doi:10.1371/journal.pone.0082273.g008

Northern Louisville Ridge bottom trawl footprint consists of 17 blocks, five of which (29%) are currently closed, six are open and six are subject to a move-on rule [9] (Figure 10b, current closures). A 40% closure requires seven blocks to be closed and the VME likelihood of current closures is below the value that can be achieved by any seven block closure (Figure 9). Of the 11 optimisation steps for the Northern Louisville Ridge area, the retained historical catch ranges from 28% for scenario 1 to 97.3% for scenario 11, and only exceeds 75% from scenario 4 (81%) onwards. Average discounted habitat suitability ranges from 33% for scenario 1 to 20% for scenario 11. Less than 75% of this range is achieved from scenario 2 onwards. There is therefore no scenario that meets both the requirements of retaining 75% of potential habitat suitability range and 75% of retained catch. Scenario 2 achieves 74% of the potential range in protected habitat suitability, so almost achieves the habitat suitability

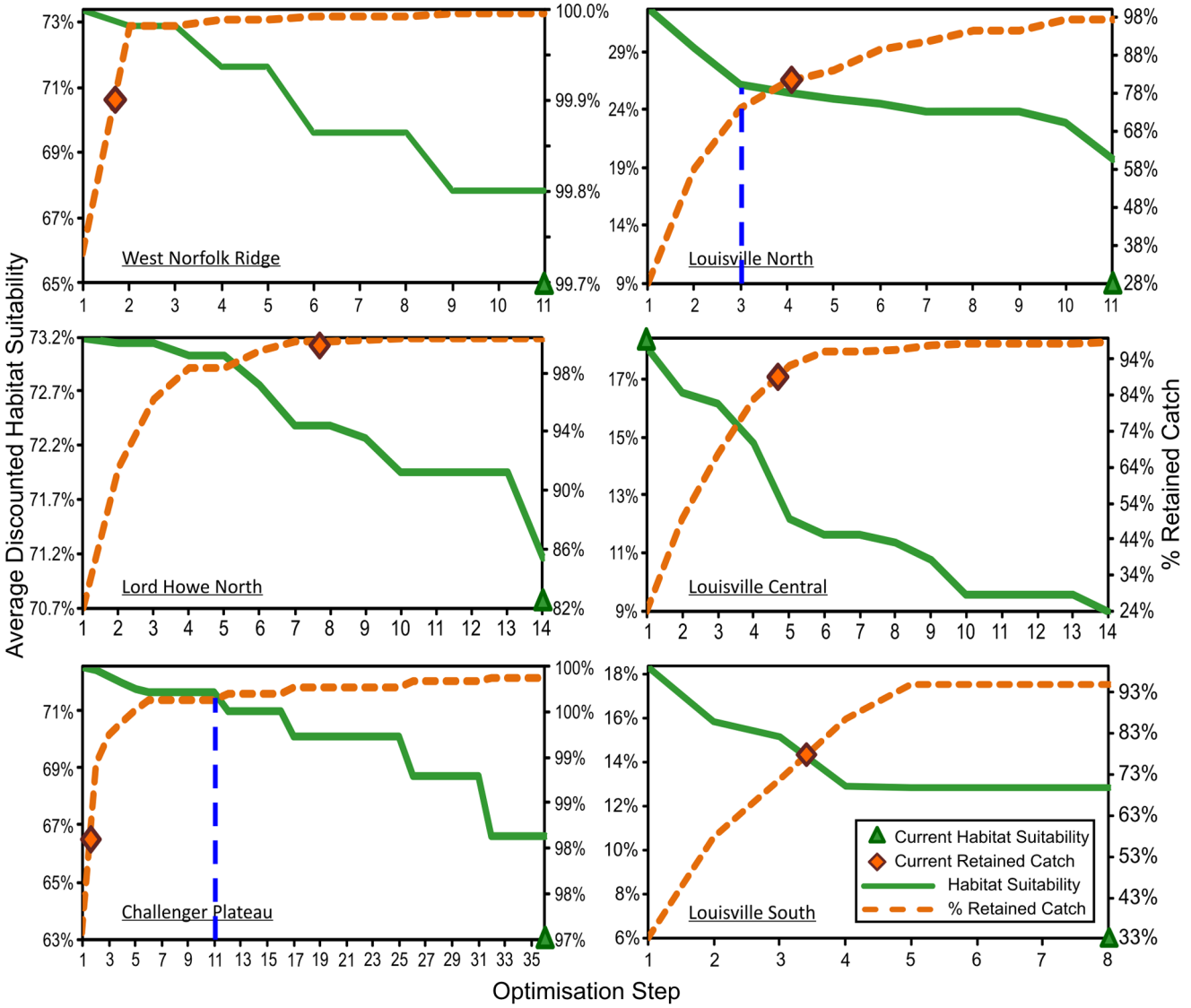


**Figure 9. Spatial closure cost-benefit analysis.** Cost : benefit curves for six of the New Zealand SPRFMO Area bottom trawl fishing areas, assuming closure of 40% of the blocks in each fishing area, and showing the decline in average, discounted habitat suitability and increase in percentage retained catch (decreasing cost to industry) as blocks of highest historical catch value are sequentially opened. The average discounted habitat suitability and percentage retained catch of current closures in each area (Penney *et al*. 2009) are shown as points on these curves. Blue dashed lines mark the position of the example optimised trade-off closure scenarios chosen for the Challenger Plateau and Northern Louisville Ridge areas, and illustrated in Figure 10.
doi:10.1371/journal.pone.0082273.g009

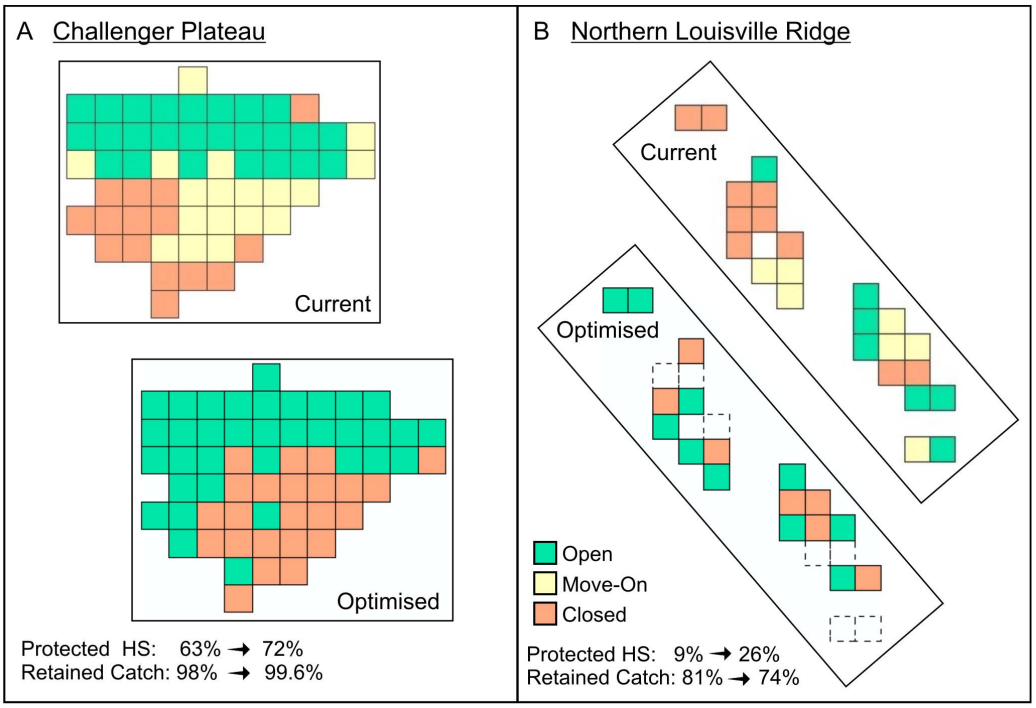


**Figure 10. Spatial closure cost-benefit optimisation.** Comparison of current and chosen example optimised spatial closures in a) the NW Challenger Plateau and b) the Northern Louisville Ridge fishing areas, assuming closure of 40% of the blocks in each fishing area and objectives of achieving at least 75% of the range in average habitat suitability, and retaining at least 75% of total historical catch, in each fishing area. The optimised scenarios shown use all-depths discounted habitat suitability, and are those marked with the blue dashed lines on the cost : benefit trade-off curves in Figure 9. Dashed line blocks are those deleted from the original trawl footprint after correction of erroneous trawl tow records. The current management approach includes blocks that are open to fishing, but within which a move-on rule is applied (Penney *et al.* 2009). The optimised closures shown do not include a separate move-on management category.
doi:10.1371/journal.pone.0082273.g010

objective. For the purposes of this exercise, scenario 3 was chosen as the trade-off scenario lying between the scenario that achieves the habitat suitability objective (scenario 2) and the one that achieves the retained catch objective (scenario 4). Under scenario 3, (Figure 10b, optimised closures), the average discounted habitat suitability of closed areas increases from 9% to 26%, while the retained catch decreases from 81% to 74%, compared with current closures.

## Discussion

The most fundamental question posed by UN General Assembly Resolutions 61/105 and 64/72 for bottom fisheries on the high seas is: Where are vulnerable marine ecosystems likely to occur? All consequent obligations to protect such ecosystems are dependent on answering that question objectively and reliably. The development of high-resolution benthic habitat prediction models for high-seas areas, such as those of Davies & Guinotte [7] for Scleractinians and Yesson *et al.* [36] for octocorals, provides a cost-effective way of answering this question consistently across large areas, such as the SPRFMO Convention Area.

When combined with quantitative mapping of the distribution of fishing effort, results of predictive habitat models can be used in quantitative assessments of the risk of fisheries interaction with those VMEs, similar to the 'productivity-susceptibility' risk assessment plots of Hobday *et al.* [5,6]. Provided trawl tow-by-tow data are available, measures of seabed area swept can be used to develop discounting factors to quantify the reduction in likelihood of VME occurrence as a result of the impacts of past trawling on swept seabed areas. Either non-discounted or discounted measures of predicted VME habitat suitability can then be used for planning of spatial management measures to protect areas of highest likelihood of VME occurrence, depending on whether the priority is to protect residual VMEs in unfished areas, or to protect and recover areas with the highest predicted coral habitat suitability.

### Cost-benefit Analysis and Evaluation of Current Closures

One of the approaches that has emerged in the planning of high seas spatial protection measures is that of restricting bottom fishing to areas that have already been fished and focussing spatial protection measures on high diversity areas that have not been impacted by fishing. This approach of 'freezing the footprint' underlies the SPRFMO bottom fishing interim measures [2], the spatial closures implemented by the North-East Atlantic Fisheries Commission [37] and the 'open-area' approach in the U.S. fishery management plans for groundfish in the Bering Sea and Aleutian Islands [38]. This approach also underpins the current New Zealand spatial closures in the SPRFMO Area footprint, where selection of closed, move-on and open areas was based directly on the level of historical (2002–2006) fishing effort in each footprint block [9].

Numerous studies have shown that bottom fishing reduces seabed biodiversity in fished areas, particularly of fragile, habitat forming corals. However, even in heavily fished areas Waller *et al.* [26] found areas of untouched, highly biodiverse seabed on parts of the northwest Atlantic Corner Rise seamounts. Clark & Rowden [24] and Clark et al. [39] report areas of undamaged corals on rough ground on the fished 'Graveyard' seamount

complex on the Chatham Rise. Some 80% of current deep sea coral and sponge gardens identified using underwater imagery in the Aleutian Islands region are located in areas open to bottom trawling [40,41]. These coral and sponge gardens have the highest diversity and abundance of deep sea corals and sponges documented in the North Pacific and yet remain open to trawling within the historically fished 'frozen footprint'.

Unfished areas occurring within 'fished area' footprints defined at coarse resolution are likely to contain undamaged benthic communities and may retain high coral likelihood, notwithstanding the fact that bottom fishing has occurred in parts of the footprint. The justification for leaving previously fished areas open to further fishing needs to be based on objective discounting of the biodiversity in swept areas, while recognising the likelihood of remaining biodiversity in un-swept areas. If there is an intention to leave some areas open to fishing while closing others with high likelihood of supporting undamaged VMEs, then use of indices of habitat suitability discounted for the impacts of past fishing can provide some objective justification for focussing spatial protection measures on previously unfished areas, leaving previously fished and substantially impacted areas open to further fishing.

This has important consequences for the planning of spatial closures. Without accounting for the potential effects of past fishing in reducing seabed biodiversity, most blocks in the New Zealand bottom trawl footprint within fishable depths would be of similar coral habitat suitability and any 40% of blocks could be closed to achieve 40% protection of predicted VMEs. In the absence of information on likelihood of VME occurrence at the time the New Zealand bottom fishery impact assessment was prepared, this was the implied logic behind the existing New Zealand closures [9]. These were justified at the time against open and move-on areas using comparisons of seabed topography and depth range, both of which are important determining factors of suitable coral habitat. However, subsequent availability of predictive coral habitat models, quantitative evaluation of seabed swept areas, application of discounting factors for reduced biodiversity in swept areas and estimation of residual coral VME likelihood shows that the existing closures are sub-optimal for protecting likely coral VMEs in all but one of the high-seas fishing areas constituting the New Zealand historical trawl footprint.

## Optimisation of Spatial Closures

The example optimised closure scenarios presented for the Challenger Plateau and Louisville Ridge (Figure 10) illustrate the conservation challenges that result from the different availability of fishable depth in these two areas. On the Challenger Plateau, where large areas of fishable depth exist, the optimised closure example easily meets both the conservation and cost minimisation objectives, resulting in a substantial increase in the average habitat suitability of the protected areas (63% to 72%) while also achieving a slight increase in retained historical catch (98% to 99.6%). All of the existing open blocks would remain open, and the areas open to fishing would be extended to include more of the western slope of the plateau (Figure 10a). The increased benefits would be realised by closing most of the move-on blocks in the southeast-central plateau. It would seem that this win-win alternative should be acceptable to industry and conservation groups.

In contrast, the optimisation objectives cannot be met by any of the explored alternative closure scenarios on the Northern Louisville Ridge. The optimised closure example shown is a compromise that results in a substantial increase in the all-depths habitat suitability of the protected areas (9% to 26%), but this is achieved at the cost of reducing retained historical catch from 81% to 74%. The resulting proposed closures differ substantially from the current closures (Figure 10b), with a number of the currently open blocks being closed and *vice versa*. It seems likely that this alternative closure scenario would be less enthusiastically received, and would require greater discussion with industry and conservation groups. For both of these areas, better consolidation of contiguous open and closed areas may also be preferred, requiring the consultative exploration of further alternative scenarios.

This approach does not address the question of implementation of a move-on rule. Reliance on move-on rules as a primary mitigation measure to avoid significant adverse impacts on VMEs has been increasingly criticised in recent years [42,43] as being inadequate to protect VMEs, as well as potentially contributing to the spread of fishing effort. Move-on rule weight thresholds have not been supported by studies linking by-catch weights to actual benthic biomass or biodiversity. In many cases, move-on weight thresholds have been set at high levels such that a move-on is seldom triggered [43]. As a result, Auster *et al.* [42] advocate permanent spatial closures as the preferred management response, noting that move-on provisions should only be an initial step towards identification and protection of areas known or likely to contain VMEs.

The optimisation approach taken in this paper is similar to that implemented in the conservation planning software package Marxan [44], which generates optimised closure scenarios based on the spatial distribution of a range of 'conservation features', under some specified optimisation objectives. Marxan is generally used to optimise a larger number of features at a finer spatial scale than the approach used here, which was tailored to cost : benefit analysis of the existing closures at 20-minute block resolution using single (albeit integrated) measures of benefit and cost. The approach in this paper therefore falls somewhere between a finer-scale multi-factorial optimisation approach and that adopted during scientific evaluation of alternative spatial closure proposals for the Ross Sea Region [30], where participants proposed alternative closure boundaries and the value and cost of individual alternative proposals were then quantified, but without any explicit optimisation process.

## Options for Improvement and Implementation

In the absence of seabed survey data on benthic community composition and seabed geology, predictive habitat models provide the only source of information with which to objectively evaluate the likelihood of occurrence of VMEs in high-seas areas. However, there is scope for improving these models to reduce shortcomings they have in reliably predicting VME. For example, the global scleractinian habitat model of Davies &Guinotte [7] used here is designed to optimise global habitat suitability predictions based on occurrence data for species which do not necessarily have global distributions. Such models may not optimise habitat predictions for a smaller geographic region where species composition and niche habitat requirements differ, such as the western SPRFMO Area. Deep-sea coral reefs in the northern hemisphere are dominated by *Lophelia pertusa* whereas deep-sea coral reefs around New Zealand are dominated by *Solenosmilia variabilis*. Without true absence data these models tend to over-predict and are not prevented from predicting the occurrence of species that do not actually occur in a region. It should be noted, though, that in doing so these models are predicting a suitable environmental niche for the species included in the model, rather than the presence of the species itself. The niche may well be suited to an alternative species in other regions.

Current global coral habitat suitability models predict high values for scleractinian habitat suitability across the entire depth range of the orange-roughy targeted bottom trawl fishery

(Figure 4a), providing low discrimination in predicted habitat suitability across the depth ranges of most interest in fisheries-related risk assessments. Habitat suitability across broad areas with similar depth, such as the Challenger Plateau and Lord Howe Rise areas, will be strongly influenced by seabed geology for which few data are available. Seabed geology or substratum type have therefore not been included in these models, potentially resulting in incorrect prediction of suitable habitat in areas of soft-substratum. Integration of substratum type data into the habitat models would improve the predictions and enable better discrimination of suitable habitat within the fishable depth range. The Davies & Guinotte [7] model also does not include species occurrence data for a number of other habitat-forming taxa included in the New Zealand VME evidence protocol [45], such as Antipatheria (black corals), Alcyonacea (soft corals), Gorgonacea (sea fans) [36], hydrocorals, bryozoans or crinoids, all of which contribute to VMEs in the region. Inclusion of these taxa would make habitat models more useful for identifying areas with a high probability of supporting the full range of key SPRFMO VME taxa. The Maxent modelling software also does not provide estimates of uncertainty in the predicted occurrence of species, without which it is not possible to determine how much confidence one can have in the results. These shortcomings should be addressed if the approaches described in this paper are implemented. High resolution, regionally tailored, predictive habitat models have been developed by Guinotte & Davies [46] for use in assessing deep-sea coral habitat suitability within essential fish habitat area closures and National Marine Sanctuaries in the U.S West Coast Exclusive Economic Zone [46], and by Ross & Howell to predict and map the extent of listed conservation habitats on the United Kingdom and Irish North Sea extended continental shelf [47]. Experience gained in developing those regional models is being applied in a project to develop a regionally optimised predictive habitat suitability model for the western SPRFMO Area, with inclusion of a broader range of VME taxa specific to the region and the application of alternative modelling approaches, including boosted regression trees [A. Rowden, NIWA, New Zealand, pers. comm.].

The most useful improvement that could be made to the reliability of predictive habitat models would be to conduct seabed biodiversity surveys to ground-truth the predictive models. Initial predictive habitat model results can be used to focus survey effort on selected areas where additional biodiversity and presence-absence data would have most power in improving model reliability. New Zealand is intending to conduct such survey work at selected sites in the SPRFMO Area in 2014. The results of ground-truthed, regionally tailored predictive VME habitat prediction models will provide an essential component for spatial planning and management initiatives in the South Pacific region.

## Acknowledgments

This paper had benefitted from constructive criticism of earlier versions by Martin Cryer (New Zealand Ministry for Primary Industries: Fisheries Management Directorate), Malcolm Clark and Steve Parker (National Institute of Water and Atmospheric Research, New Zealand), Jeff Ardron (Institute for Advanced Sustainability Studies, Germany), Piers Dunstan (Commonwealth Scientific and Industrial Research Organisation, Australia), Kerry Howell (School of Marine Science and Engineering, Plymouth University, United Kingdom) and two anonymous reviewers. Assistance with error checking and correction of individual trawl catch and effort records was provided by Craig Loveridge, Kim George and John Moriarty of the Research Data & Information team of the then New Zealand Ministry of Fisheries (now Ministry for Primary Industries).

## Author Contributions

Analyzed the data: AJP JMG. Contributed reagents/materials/analysis tools: AJP JMG. Wrote the paper: AJP JMG.

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March 2, 2014

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**RE: Agenda Item D.2, Groundfish Essential Fish Habitat Evaluation Criteria and Phase 2 Report**

Dear Chair Lowman and Council Members:

Please accept the following comments on behalf of the Natural Resources Defense Council (NRDC), with respect to Agenda Item D.2, the Groundfish Essential Fish Habitat (EFH) 5-year review.

We understand from the Council's motion last November, as well as the situation summary for this agenda item, that the main task for discussion at this meeting is to provide guidance to the National Marine Fisheries Service (NMFS) on the Amendment 19 study. The Council has already made the decision to move into Phase 3, and decisions on the scope of an Fishery Management Plan (FMP) amendment and National Environmental Policy Act (NEPA) document are tentatively scheduled for September of this year. Accordingly, NRDC expects the March EFH agenda item to be relatively brief, and we limit our comments to the actions before the Council at this meeting.

**1. Acknowledge the Precautionary Basis for Habitat Protection in the Amendment 19 Review**

In providing guidance to NMFS on the Amendment 19 review, the Council should not set its expectations unrealistically high and expect quantitative measures of "how much is enough," or precise measures of impacts to habitat and the resulting effects on fishery productivity. In an ideal world these kinds of numbers would be available, but it is widely understood that the current state of the science is such that they are not. Moreover, they may not be available any time in the near future.

Not having perfect information, however, is no excuse for inaction. Given that we do not know precise details about existing habitats, their structures and functions, the relationships between habitat and managed species, or even the specific impacts that we are inflicting on these habitats, it becomes a question of risk and precaution—essentially, can we take reasonable measures to avoid destroying things that we do not fully understand?

NMFS has explicitly acknowledged that perfect information is not required to take action and protect habitat. *See* Essential Fish Habitat Final Rule 67 Fed. Reg. 2343, 2351-52 (Jan. 17, 2002) (discussing the types of information used to make EFH decisions); *id.* at 2352 ("For most species managed under the Magnuson-Stevens Act, available information on habitat requirements falls into Levels 1 or 2 (distribution or relative abundance data)."); *id.* at 2354 ("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 EFH to the extent practicable.").

Moreover, in passing Amendment 19, this Council has already demonstrated its understanding that perfect information is not required before habitat protection can occur. Amendment 19 contained the beginnings of a habitat assessment (Appendix B), and an impact assessment (Appendix C), but it was never able to produce a quantitative estimate of how much intact habitat was necessary to maintain productivity in each managed species, nor of the precise extent to which current activities were impacting groundfish habitat. Rather, the management measures settled upon by the Council and approved by NMFS in Amendment 19 represented a policy decision made in the absence of perfect information.

For these reasons, NRDC regards the Amendment 19 review as an interesting and hopefully informative exercise, but we would caution the Council against expecting too much from it. During the last go-around on EFH there was no ready answer to the question of "how much is enough," and we do not expect one to appear this time around either. Instead, we recommend the Council explicitly instruct NMFS to acknowledge and discuss the precautionary basis for habitat protection in its study of Amendment 19.

**2. Avoid Inaccurate Metrics for Habitat Health in Assessing the Effectiveness of Amendment 19**

A common trope in discussions of fish habitat is that when biomass is high, habitat must be doing fine. This is not limited to dockside conversations; NMFS and the North Pacific Council explicitly relied on the idea in their first attempt to deal with EFH in the early 2000s. Fortunately, external reviewers caught this assumption and noted that it was incorrect. One reviewer explained:

> The primary criterion used to assess whether fishing is adversely affecting EFH in a more than minimal and non-temporary way was to assess whether any stocks were falling below their Minimum Stock Size Threshold (MSST). This is not an appropriate criterion:

> it may be triggered only after severe non-temporary degradation to EFH (of particular concern, coral and sponge grounds may require centuries to recover); and the role of habitat loss may be difficult to separate from other potential causes of declining fish stocks (e.g. climate change, direct effects of fishing).

J. Anthony Koslow, Review of the Draft Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska, at 1 (2004). Another reviewer added:

> A spawning stock above the minimum stock size threshold (MSST) was used, as an indication that its essential habitat was not adversely affected by fishing. . . . In my view, the MSST considerations have been given too much weight . . . and have been interpreted in the direction of no evidence of adverse effects of fishing on EFH. In cases when stocks are above MSST (or rather BMSY), I would conclude that the stock assessments give no evidence for reduced production. This does not exclude that possible effects may exist and might reduce stocks and fisheries in the future. For stocks observed to be associated with slowly recovering living structure I would add a warning that these species might be dependent on vulnerable habitats, and further protection of those habitats would be a precautionary step to reduce the risk of future losses to the stock, fishery and ecosystem.

Asgeir Aglen, Center for Independent Experts (CIE) Review of Evaluation of Fishing Activities That May Adversely Affect Essential Fish Habitat (2004) (Executive Summary). The chair of the CIE review panel added:

> If the habitat is being destroyed, it may take time for its effects to be observed. Certainly it is expected that the effect would probably be felt gradually. If this were combined with a large spawning stock biomass, it could be difficult to detect a habitat influence on the stock for a while after the habitat was damaged, perhaps until it was too late, i.e. too much of the habitat was destroyed. For this reason 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.

Ken Drinkwater, Review of the Draft of Appendix B: Evaluation of Fishing Activities that May Adversely Affect Essential Fish Habitat, at 9-10 (2004). The remaining CIE reviewers had similar things to say about using biomass to infer habitat status. *See* Kenneth T. Frank, Review Report: Evaluation of the Effects of Fishing on Essential Fish Habitat in Alaska, at 7-8 (2004); Pierre Pepin, Center for Independent Experts (CIE) Review of the National Marine Fisheries Service's Evaluation of the Effects of Fishing on Essential Fish Habitat in Alaska, at 12-14 (2004); Paul Snelgrove, Review of the National Marine Fisheries Service and the North Pacific Fishery Management Council Draft Environmental Impact Statement with Respect to Essential Fish Habitat, at 13-15 (2004).

Given the complexities of the habitat-productivity relationship, and the potential for shifting baselines in biomass reference points, NRDC urges the Council to avoid focusing on current biomass as a metric for habitat health, in its guidance to NMFS on the Amendment 19 evaluation.

**3. Analyze the Effects of Removing the Trawl RCA in the Amendment 19 Study**

In Amendment 19, the Trawl Rockfish Conservation Area (RCA) was acknowledged to be playing a de facto habitat protection role. *See, e.g.*, Pacific Fishery Management Council, Final Amendment 19 to the Pacific Coast Groundfish Fishery Management Plan, at 73 (2005) (noting the "mitigating effect on adverse impacts to EFH" created by the Trawl RCA). More recently, the Public Comment Draft Report of the Marine Stewardship Council certification of this fishery stated, "Much of the protection afforded to benthic habitats with respect to trawling is derived from the [Trawl RCA]." Paul A.H. Medley et al., MSC Assessment Report for United States West Coast Limited Entry Groundfish Trawl Fishery Version 4: Public Comment Draft Report, at 109 (Dec. 19, 2013).

Despite the habitat protection afforded by the Trawl RCA, NMFS has issued a proposed rule that would significantly reduce the scope of the Trawl RCA. *See* 78 Fed. Reg. 56,641 (Sept. 13, 2013). Industry has signaled its intent to eliminate the Trawl RCA entirely, and all signals indicate the Council intends to comply. Given the direction the Council and NMFS are moving on the Trawl RCA, it is imperative that the Amendment 19 study examine the loss of habitat protection that will ensue.

**4. Use the Data Gathered in Phase 1 to Ask Relevant Questions in the Amendment 19 Study**

The Council and NMFS gathered a tremendous amount of new data during Phase 1 of the EFH 5-year review. NRDC encourages the Council to make use of this new information, in evaluating Amendment 19. In particular, the Council should instruct NMFS to address the following:

- What are the long-term effects of current fishing patterns on sensitive habitats as identified by the Council (e.g., corals, sponges, sea pens, hard & mixed substrates)?

- To what extent has Amendment 19 minimized the bycatch of corals, sponges, and sea pens? Identify discrete geographic locations where this bycatch is occurring at the highest rate.

- Were there any discernable economic impacts on the groundfish fishery, local or coastwide, attributable to the implementation of EFH Conservation Areas? Specifically, were there increased costs or decreased revenues, or changes in landings?

- Develop and display results of a long-term effect index displaying the impacts of each fishing gear type on various habitat types, including but not limited to hard corals, sponges, and hard substrate.

- How accurate is the trawl footprint closure? To what extent are there remaining areas not subject to bottom trawling since Amendment 19 that fall outside EFH conservation areas? Identify the locations of such areas.

- How has our knowledge of the protection levels of sensitive habitat types (corals, sponges, sea pens, hard substrate, seamounts, submarine canyons) changed since Amendment 19 was adopted?

- In the area shallower than 700 fathoms, are there zones and/or depth ranges with disproportionately low levels of protection relative to others?

- To what extent are there areas that may contain corals or sponges that have not been trawled since implementation of Amendment 19, which are currently open to trawling?

- Which EFH Conservation Areas resulted in the greatest relative displacement of bottom trawl effort after Amendment 19, and to what extent have groundfish catch rates in the vicinity of those areas changed since 2006?

*See* March 2013 Briefing Book Agenda Item D.2.b, EFHRC Report at 59-60. NRDC believes all of these questions would provide useful starting points for evaluating the effectiveness of Amendment 19.

**5. Do Not Inappropriately Narrow the Scope of the EFH 5-Year Review**

Despite the Council's clear statement that scoping for a FMP amendment and NEPA document will take place this fall, we understand that some stakeholders are prepared to ask the Council to narrow the scope of the EFH 5-year review at this meeting—in particular by cutting proposals and limiting the geographic scope of any subsequent action. Doing so would be a bad idea, as there has been no analysis of the proposals at this point. While the EFHRC conducted a supposedly Bayesian polling exercise to gauge the subjective opinions of its members, this should not be confused with analysis of the proposals.

Cutting proposals and narrowing the geographic range of the action are by definition scoping decisions. In order for the Council to make a rational and non-arbitrary scoping decision, there must be a basis in the record for the decision. EFH decisions turn on two questions—protection of habitat and practicability. Currently no analyses have been done that inform these issues, and a scoping decision would lack a basis and be premature. NEPA requires an informed, non-arbitrary scoping decision and the Council is not yet situated to make such a decision.

**6. Run Some Simple Analyses on the Proposals Over the Summer**

Because the Council needs a basis to make its scoping decision this fall, NRDC recommends using the upcoming summer months to generate relevant information and set the stage for a reasoned decision.

As mentioned above, EFH decisions ultimately relate to the protection afforded to fish habitat from a certain policy, such as a trawl closure, and the corresponding practicability of that policy. NRDC recommends the Council instruct staff and NMFS to run a few easy analyses on the remaining proposals, focusing on these two aspects—protection created and practicability—in order to inform the scoping decision in September. In particular, we recommend the following:

- Make coastwide maps displaying spatial overlap of areas addressed by all proposals;

- Make coastwide maps displaying proposed EFH modifications of each proposal overlaid with physical and biogenic substrate data;

- Quantify changes in coverage of habitat types (corals, sponges, hard substrate, submarine canyons, representation) contained within bottom trawl closed areas resulting from each proposal; and

- Estimate the displaced and/or restored fishing effort resulting from the proposed changes in areas open and closed to fishing resulting in each proposal.

NRDC strongly recommends using the data gathered in Phase 1 to analyze the proposals so as to have a basis for making scoping decisions this fall.

* * *

We hope these comments are helpful, and thank you for your consideration.

Sincerely,

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March 2, 2014

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RE: Agenda Item D.2: EFH Evaluation Criteria and Phase 2 Report

Dear Chairman Wolford and Council Members:

Ocean Conservancy[1] participated extensively in the Council's development process for Amendment 19 and continues to view essential fish habitat (EFH) protection as a cornerstone of wise management of groundfish resources and their associated ecosystems. Ocean Conservancy is a co-author of the *Comprehensive Conservation Proposal for Ground fish Essential Fish Habitat Submitted by Ocean Conservancy, Oceana and NRDC* which supports this first comprehensive review of Amendment 19 by drawing on extensive new information, scientific findings and other material to recommend revised groundfish EFH identification and management measures. We urge the Council to accept the Phase 2 report, proceed with Phase 3 of EFH review, consider the following comments with respect to the report of the Essential Fish Habitat Review Committee (EFH RC) and Council guidance for developing criteria to evaluate Amendment 19.

In summary, Ocean Conservancy urges the Council to:

1. Close the trawl "footprint" in areas of the Economic Exclusive Zone (EEZ) seaward of 700 fathoms (fm) until information is available to determine EFH function is not impacted by fishing activity there;
2. Continue the precautionary, coastwide approach established in 2005 to implementing the Magnuson-Stevens Act (MSA) mandate to identify and conserve essential groundfish habitat, including deep sea corals and sponges; and
3. Request an Amendment 19 evaluation based on whether the scope and extent of EFH conservation areas meets the test of minimizing, to the extent practicable, the adverse effects of fishing on essential groundfish habitat.

[1] Ocean Conservancy is a non-profit organization that educates and empowers citizens to take action on behalf of the ocean. From the Arctic to the Gulf of Mexico to the halls of Congress, Ocean Conservancy brings people together to find solutions for our water planet. Informed by science, our work guides policy and engages people in protecting the ocean and its wildlife for future generations.

These recommendations are discussed below.

### 1. Designate Essential Habitat Necessary to Freeze the Trawl Footprint

The Council has previously addressed the scientific uncertainty associated with habitat use by each of the over 90 species covered under the Groundfish Fishery Management plan by utilizing a broad and inclusive definition of groundfish essential fish habitat.[2] In 2005, the Council submitted an EFH designation package to the National Marine Fisheries Service (NMFS) that would have placed EEZ areas from 700fm to the EEZ boundary within EFH Conservation Areas. However, NMFS objected because a portion of this area was not specifically designated groundfish EFH.[3] The Council's approach was appropriately precautionary given our incomplete understanding of habitat associations by each of the federally managed groundfish species and given extensive documentation of the fragile, slow to recover deep water coral and sponge (DSC) communities at those depths[4]. Additionally, discussions about the potential inclusion of abyssal grenadier (Coryphaenoides armatus) into the Groundfish FMP along with this species' currently managed cousin (Pacific rattail grenadier) raise the question of potential biological interconnections between "abyssal" and shallower habitat. Although the EFH Review Committee report recommends against such a footprint closure,[5] doing so appears to well within the Council's discretion. Seamounts, for example, in waters greater than 3,500 m are currently designated EFH. We urge the Council to continue with such inclusive, precautionary approaches to EFH designation in the face of incomplete information regarding habitat needs and associations of managed species. Designating these waters as EFH in order to close the deeper waters of the EEZ to trawling until more complete information exists is in the best interests of future resource conservation, provides a sound, precautionary management posture, and best suits the increasingly ecosystem-based approach to fisheries management being pursued by the Council.

Moreover, recent activities in Federal ocean resource management directly support this approach. The National Oceanographic and Atmospheric Administration's (NOAA) Strategic Plan for Deep Sea Coral and Sponge Ecosystems articulates a policy to freeze the footprint of mobile, bottom tending tear to protect DSC ecosystems "until research surveys demonstrate that proposed fishing will not cause serious or irreversible damage in those areas."[6] In keeping with the precautionary approach the Council established in Amendment 19, and which is being

[2] 50 CFR 660.75. EFH for Pacific Coast Groundfish includes all waters and substrate within areas with a depth less than or equal to 3,500 m (1,914 fm) shoreward to the mean higher high water level or the upriver extent of saltwater intrusion (defined as upstream and landward to where ocean-derived salts measure less than 0.5 parts per thousand during the period of average annual low flow). Seamounts in depths greater than 3,500 m (1,914 fm) are also included due to their ecological importance to groundfish.

[3] NMFS, 2006. Groundfish EFH Decision Document.

[4] NMFS noted in the 2006 Decision Document the sensitivity to even low levels of fishing activity, and the extended recovery times associated with these habitats.

[5] Review of Pacific Coast Groundfish Essential Fish Habitat Phase 2 Report to the Pacific Fishery Management Council, March 2014, p10

[6] NOAA, 2010 pp. 27-28.

more widely adopted, we urge the Council to designate as EFH and close to mobile bottom tending gear all waters deeper than 3500m in order to protect against impacts to unsurveyed waters and to fulfil the 2005 intention of placing the 700fm to EEZ boundary area under EFH conservation area protection. Should the administrative mechanics of doing so prove unattractive, we would urge the Council to consider—within the current Amendment 19 review process—using its discretionary authorities under MSA Sections 303(b)2(B) (deep coral protection zones), 303(b)(2)(A) (gear type exclusions), or 303(b)(12) (conservation of non-target species and habitats).

**1. Continue to Apply EFH Provisions to Sensitive Deep Sea Corals and Sponges**

The EFH RC makes recommendations under the section titled "Magnuson Act Fishing Activities" of EFH that appear inconsistent with the Council's approach to Amendment 19 and with the concept of "precautionary" management. The EFH RC report deems spatial fishery closures to protect DSC habitats as EFH as "appropriate provided the Council maintains a clear understanding that such measures would be precautionary (i.e. risk adverse in the absence of scientific certainty)[7]". This discussion, despite the accurate definition of precaution, goes on to imply that EFH protection, including that of deep sea coral and sponge habitats, is *optional*. This implication is expanded under section 3.3 recommendation 3 stating that the Council may "reasonably choose to narrow the geographic scope of EFH Phase 3 … in order to be more effective and responsive to local initiatives." We believe the Council enacted Amendment 19 measures that included measures based on conserving DSC habitats in order to fully implement MSA guidance for EFH, rather than simply selecting a discrete risk-averse option. The basic standard for considering EFH designation and protection is found in the EFH language added by Congress to the Magnuson-Steven's Act: "…(T)o minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat."[8] This congressional mandate to protect EFH is not optional. The vast array of newly available information contained, for example, in the *NMFS Phase 1 Habitat Report* and the *Groundfish Essential Habitat Synthesis Report* contributes substantially to confirming the Council's action under Amendment 19 as a necessary, appropriate and ongoing response to MSA's EFH provisions.

As for community initiatives, our impression from actively participating in the Amendment 19 process was that the Council's strong signals of intent to fully implement Amendment 19 spurred enhanced engagement by stakeholders and encouraged negotiation over regional EFH conservation initiatives. While numerous proposals for EFH revision emerged from the Council's Phase 2 request for proposals, experience from the 2005 process strongly suggests that this issue will receive much greater attention from a broad swath of stakeholders when the Council signals its intention to consider a comprehensive revision of Amendment 19.

[7] Review of Pacific Coast Groundfish Essential Fish Habitat Phase 2 Report to the Pacific i Fishery Management Council, March 2014, p10

[8] 16 U.S.C. 1853(a)(7).

Considerable attention is given in the EFH RC report to the incomplete ("Level 1") state of scientific certainty regarding groundfish use of DSC habitats. However, scientific certainty in this regard was similar and in most cases much weaker in 2005. Yet, documented presence, known groundfish species associations with, and sensitivity of DSC habitats were identified as a key rationale for enacting Amendment 19 in 2006.[9] NMFS's regulations implementing the EFH provisions also establish a clear standard for addressing scientific uncertainty as to which habitats should be deemed essential, guiding Councils to treat habitats with "Level 1" associations as essential until proven otherwise.[10] Finally, the above-referenced EFH Regulations explicitly states how "Level 1" habitat association should be treated in the absence of greater levels of certainty:

> *Councils should interpret this information in a risk adverse fashion to ensure adequate areas are identified as EFH for managed species.*[11]

DSC was found sufficient to trigger the MSA requirement to minimize adverse impacts in 2006, and new information regarding these habitats and potential impacts on it since then have only strengthened this interpretation.[12] Further, the value of DSC ecosystems has become recognized to extend well beyond their value as EFH for managed fish in initiatives such as NOAA's Deep-Sea Coral Research and Technology program[13] launched in 2009 and the new authorities for DSC established in the Magnuson-Stevens Reauthorization Act of 2006.[14]

On a more applied basis, we respectfully encourage the Council to recognize the complexity of habitat use by the many species managed under the Groundfish FMP. While managers and researchers can assign habitat use levels such as "obligate," "facultative," and "fortuitous" to the substrates containing managed groundfish, we believe the overall productivity and resilience of groundfish are served by each category of habitat. Occasional use of a habitat by a managed species may provide essential biological services to that species if the use occurs during a venerable or crucial life stage (e.g. breeding, cover from predators). This use may be more essential if the species range shifts due to temperature changes or if changes in species abundance or composition alter density patterns. This latter phenomenon is expected to be more common in Pacific waters due to the effect of climate change; such patterns are being observed elsewhere including in U.S. Northeast waters.[15] Habitat diversity is likely to provide adaptive advantages to the ecosystems supporting managed groundfish, just as species diversity contributes to ecosystem resilience in the face of environmental change. Thus, DSC

[9] 70 Fed. Reg. 39700 (July, 2000).
[10] 50 CFR Sec. 600.815(a)(1)(iii)(A)).
[11] 50 CFR Sec 600.815(a)(1)).
[12] It is worth noting that Amendment 19 called out protection of DSC habitats due to their sensitivity in a way that non-biogenic substrates were not. And EFH Conservation Areas restrict only the mobile bottom tending gears deemed most impactful, largely to the exclusion of non-mobile gears that nevertheless contact the seafloor.
[13] NOAA, Deep Sea Coral Research and Technology Program, http://coralreef.noaa.gov/deepseacorals/noaasrole/research_technology/.
[14] See, e.g., 16 U.S.C. §§ 1853(b)(2), 1884.
[15] See for example, discussion of Western North Atlantic cod in Travis, et al 2014 PNAS January 14, 2014 vol. 111 no. 2 583.

habitats contribute to the quality of EFH, and impacts to them reduce the quality of EFH. EFH guidelines define adverse impacts to EFH as "any impact that reduced the quality and/or quantity of EFH".[16] We therefore urge the Council to retain deep water coral and sponge habitats among the criteria for identifying and crafting management measures for groundfish EFH.

## 2. Develop a Practical Assessment of Amendment 19 and Evaluate the Habitat Effects of RCA Modifications

Numerous Council committees including the EFH RC have noted the absence of a specific assessment of Amendment 19, and the Council has requested such an assessment. Ocean Conservancy shares the view that an objective review of Amendment 19 is an important step in the review process. We believe this assessment will aid in developing a clear statement of need and purpose to guide the review, and that it will help guide the Council in determining whether and how new information provided in both NMFS interpretive documents as well as the public EFH proposals should be applied. We are, however, concerned with several requests that have defined such an assessment in inappropriate and unrealistic stock status and yield terms that are neither likely to be achievable nor focused on the appropriate metrics.

We are also concerned with significant changes to the scope of habitat protection in the Pacific EEZ that will likely be associated with recently approved modifications to the Rockfish Conservation Area (RCA).[17] Although the action to significantly reduce the scope of the RCA was taken based on changes in groundfish bycatch programs, there are enormous implications for groundfish essential fish habitat that have not yet been explored. Moreover, Amendment 19 management measures, including the habitat conservation areas, were developed in the management context of extensive, contiguous areas of the critical continental shelf being closed to high impact fishing gear. In that regard, the RCA forms—or formed—the skeleton of the overall groundfish habitat management system. The changes to this system stemming from a significantly narrower RCA are likely sufficient by themselves to prompt a review of groundfish EFH measures, but should *at least* be fully analyzed in an EFH evaluation process. Further, since it is evident that changed conditions in groundfish bycatch programs are likely to prompt future changes in the RCA, we would urge the Council to establish a procedure that links the effects of such changes to the effectiveness of groundfish habitat protections.

As discussed in the foregoing section, the chief standard for evaluating Amendment 19 should be whether the statutory purpose set out by Congress in establishing the Essential Fish Habitat program has been achieved, based on new information developed since Amendment 19. NMFS should apply new information regarding habitat locations and characteristics, and may consider newly developed techniques to quantify and measure Amendment 19 measures against this

[16] 50 CFR 600.810(a).
[17] September 2013 PFMC decision summary, at p4, *available at.* http://www.pcouncil.org/wp-content/uploads/0913decisions.pdf.

metric: how well has Amendment 19 served "(T)o minimize to the extent practicable adverse effects on such habitat caused by fishing"?

We recommend the Council provide guidance to NMFS in developing an Amendment 19 evaluation that gathers information and develops products related to the following types of questions:

1) Where is bycatch of habitat (substrate, corals and sponges) occurring most?
2) Are EFH conservation areas included in these areas? Are the conservation measures in these areas minimizing habitat bycatch "to the extent practicable"?
3) How are other management measures, including the rockfish conservation areas, minimizing adverse impacts to groundfish habitats, and what are the effects of planned changes in those programs on the scope and extent of habitat protection?
4) What changes in our scientific knowledge about impacts to and locations of sensitive habitats and high-impact gears have occurred since Amendment 19? How can this new knowledge be applied to meeting the MSA standard?
5) What has been the economic effect of Amendment 19 measures on the groundfish industry? Which EFH Conservation Areas have the highest and lowest displacement of trawl effort, and how have catch rates changed since 2006 in adjacent or nearby areas?

The above questions are likely to yield useful products and illuminate comparative data to assess Amendment 19, and are well suited to producing indices and illustrations to aid evaluation by the Council, Council advisory bodies and the public. We encourage the Council and NMFS to work toward a common set of focal areas for EFH evaluation in order to serve future Groundfish EFH reviews and to apply to EFH programs in other FMPs. Such an effort might be conducted or aided by Fishery Ecosystem Plan Cross-FMP Initiative #4.

With respect to requests that an Amendment 19 evaluation determine the specific effects of EFH Conservation Areas on stock status, there is considerable evidence and literature to suggest that this effort would be unproductive and inconsistent with the core purpose of EFH. An early EFH implementation effort by the North Pacific Fishery Management Council produced a great deal of controversy over the criteria for determining whether existing measures were successfully addressing the EFH provisions enacted in 1996. In that case, NMFS requested a review of its approach from the Center for Independent Experts (CIE). In confirming the need for a precautionary approach when considering the "burden of proof" over which habitat features to consider as "essential," the CIE directly addressed the appropriateness of stock productivity and status as a standard for evaluating the adequacy of habitat protections.[18] The CIE warned that habitat effects on fish productivity measures such as Minimum Stock Size Threshold (MSST) will become apparent well after potential damage is done. "MSST is inappropriate with regard to the impact of fishing on sensitive habitats…" the report stated,

[18] Drinkwater, 2004 *Evaluation of Fishing Activities That May Adversely Affect Essential Fish Habitat in Alaska.*

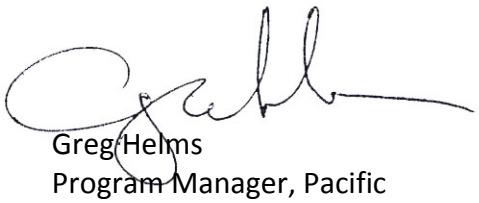
"…since it is likely difficult to detect an influence on the stock until after the habitat is damaged, perhaps even until much of the habitat is destroyed."[19]

It is understandable—even desirable—that many stakeholders wish to know the benefits of habitat conservation to stock status and fishery sustainability. We encourage scientific inquiries into this subject; however, such efforts are unlikely to yield near-term guidance for how best to accomplish the EFH provisions in law. Essential Fish Habitat is necessarily a preventative effort, and assessments of current catches and stock productivity cannot answer the question of "how much is enough?" or "is it working?." Instead, the effectiveness of EFH must be determined in light of the legal mandate of maximizing EFH conservation against the standard of what is "practicable." We believe the above listed questions are the best guide as to this standard.

**Conclusion**

We recommend that the Council determine the successful conclusion of Phase 2 of the Groundfish EFH process with the completion of the Phase 2 report by the EFH RC. The Council has a substantial array of scientific data and stakeholder proposals to inform a coastwide Groundfish EFH review process, and greater engagement and input is likely to follow from a Phase 3 effort. We urge the Council to retain its precautionary management posture with respect to groundfish EFH, to develop an EFH designation that allows the area from 700fm to the EEZ boundary to be placed within an EFH Conservation Area, and to guide NMFS towards a realistic, productive assessment of existing Amendment 19 measures. We look forward to further engagement in this important effort to conserve the habitats that sustain managed species and the ecosystems that support them.

Yours



Greg Helms
Program Manager, Pacific

[19] *Id*. at 18.

THE PEW CHARITABLE TRUSTS

4189 SE Division St.
Portland, OR 97202

March 2, 2014

Dorothy Lowman, Chair
Pacific Fishery Management Council
1100 NE Ambassador Place, #101
Portland, OR 97220

**RE: Agenda Item D.2 (Groundfish Essential Fish Habitat)**

Dear Chair Lowman and Council Members,

We write to express our support for the Pacific Fishery Management Council's (Council) ongoing efforts to review and update Essential Fish Habitat (EFH) designations and protections for managed groundfish species. We appreciate the Council's efforts to date in conducting a five-year review of groundfish EFH, as called for under EFH guidelines issued by the National Oceanic and Atmospheric Administration's Fisheries Service (NOAA Fisheries).[1] We also appreciate the Council's decision in November 2013 to initiate Phase 3 of this review process, including an evaluation of existing groundfish EFH provisions implemented through Amendment 19 to the Groundfish Fishery Management Plan (FMP).[2] We support the Council's decision to conduct such an evaluation as a preliminary step intended to facilitate the development and analysis, through Phase 3, of alternatives to update EFH measures.

We understand that the Council's main EFH-related objective at the March meeting is to provide guidance to the NOAA Fisheries Northwest and Southwest Fisheries Science Centers (NW/SWFSC) on the criteria and approach of the Amendment 19 evaluation, along with other business related to the completion of Phase 2 and the ongoing 5-year review.[3] On the following pages we offer several recommendations in these areas, summarized as follows:

- Approve the final Phase 2 report of the Essential Fish Habitat Review Committee (EFHRC), including the minority statements.
- Continue with Phase 3 development of a range of alternatives for a Groundfish FMP amendment to revise and update EFH designations and protections.
- Adopt the guidance criteria for the evaluation of existing EFH provisions as recommended in the EFHRC Phase 2 Report (Section 3.4.3, Appendix B) with the following additions:
    - Assess whether Amendment 19 successfully mitigated the potential adverse effects for which it was designed

[1] See 67 Fed. Reg. 2343-2383 (January 17, 2002) ("Magnuson-Stevens Act Provisions; Essential Fish Habitat (EFH)") available at https://www.federalregister.gov/articles/2002/01/17/02-885/magnuson-stevens-act-provisions-essential-fish-habitat-efh page 2379
[2] See PFMC, Situation Summary, Agenda Item D.2, March 2014 Briefing Book available at http://www.pcouncil.org/wp-content/uploads/D2_SITSUM_MAR2014BB.pdf
[3] Ibid

    - Assess whether there are remaining, new, or potential adverse effects which must be mitigated
    - Analyze the effects of recently proposed changes to the Rockfish Conservation Area (RCA) which if implemented will change RCA boundaries such that previously closed areas are re-opened to bottom trawl effort
    - Assess the degree to which the Amendment 19 EFH regime is consistent with current NOAA Fisheries and Council management priorities
- Maintain a broad range of potential alternatives for Phase 3, to include:
    - A coastwide scope
    - Utilization of EFH or other discretionary authorities for new deep-sea coral (DSC) protections
    - All remaining stakeholder proposals in their entirety. We reiterate our request here that the Council initiate a technical analysis of the proposals to support Phase 3 decision-making
- Use core tenets of EFH and an ecosystem-based approach to fisheries management (EBFM) to guide analysis and further action.[4]

The following information provides a more thorough analysis and justification of our requests.

Adopt the final Phase 2 EFHRC Report including Minority Statements

The Phase 2 report, including the minority statements in Section 1.5, Section 2.4, and Section 3.4 (Appendix B), provides useful background information and forward-looking recommendations. It also supports the Council's previous decision to initiate Phase 3 and consider changes to the EFH provisions of the FMP. Therefore we recommend the Council finalize the Phase 2 report, including an endorsement of the minority statements in Sections 1.5, 2.4 and 3.4 (Appendix B).

In particular, we would highlight the general Phase 2 Report finding that "there are topics relevant to the fishing impact subject area that may be worthwhile for consideration by the Council during Phase 3."[5] The Phase 2 Report also illustrates that there is a significant new body of information on EFH now available through the various Phase 1 products (e.g., the Phase 1 Report and the Synthesis Report) and that there are "opportunities to consider changes to the fishing subject area" in the stakeholder proposals.[6] We agree with this finding and urge the Council to utilize all of these products to inform the development of Phase 3 alternatives.

The main concerns expressed in the Phase 2 report appear to be the current lack of an assessment of the effectiveness of Amendment 19, the lack of a peer review of various Phase 1 (e.g., the Synthesis report) and Phase 2 (e.g., the stakeholder proposals) products, the lack of a problem

[4] Pew previously described several core tenets of EFH protection and identification, as drawn from the EFH Guidelines issued by NOAA Fisheries, in a letter to the PFMC in November 2013. See PFMC, November 2013 Council Meeting Briefing Book, Agenda Item H.7.d Supplemental Public Comment packet #2, pages 8-12.
[5] See PFMC, Review of Pacific Coast Groundfish Essential Fish Habitat: Phase 2 report to the Pacific Fishery Management Council (EFHRC Phase 2 Report), March 2014, Page 16, available at http://www.pcouncil.org/wp-content/uploads/D2b_EFHRC_RPT_PHASE2_MAR2014BB.pdf
[6] Ibid, pages 14-15 and page 16

statement, and the attendant fear that the Council is therefore making decisions prematurely.[7] However, these are all manageable issues.

First, the Council has already initiated an Amendment 19 evaluation, and the EFHRC report contains a good preliminary set of criteria for this effort (see below). Second, independent peer review of any and all Phase 3 analyses or Phase 1 and 2 products can be incorporated into the process moving forward at the Council's discretion. At a minimum, the Council's standard Scientific and Statistical Committee (SSC) review of all FMP-related actions will take place, and SSC review typically meets the standards of a peer review.[8] External peer reviews were also incorporated into the Amendment 19 process, providing a potentially useful model for Council consideration.[9] Third, a problem statement can be developed as the Council begins to define the issues and scope of a plan amendment, currently scheduled for September 2014. We note that the minority statement in Section 3.4.3 (Appendix B) provides some preliminary suggestions for a Statement of Purpose and Need, which may provide a useful starting point for this September discussion.[10] In light of these existing activities and potential solutions, we suggest that the Council is not making premature decisions.

Continue with Phase 3 (development and analysis for FMP amendment)

The Council has significant new information at hand which warrants a regulatory update to groundfish EFH designations and protections. This information includes the Phase 1 Report, the EFH Synthesis Report, the EFHRC Phase 2 report, and the stakeholder proposals. Collectively this information is sufficient to support development, consideration and analysis of modifications to existing habitat closures and/or adding new ones, as well as other measures relating to major prey species, gear modification and enforcement.

Key next steps in Phase 3 include the ongoing evaluation of existing EFH provisions, analysis of stakeholder proposals, and development of alternatives for an FMP amendment. In the following sections we provide additional detail on these next steps.

Provide robust guidance to NOAA Fisheries on the evaluation of existing EFH provisions

In November 2013, the Council asked the NW/SWFSC to provide a potential approach to evaluating the effectiveness of the current EFH provisions in the Groundfish FMP.[11] At the March meeting the Council is scheduled to provide guidance on the evaluation criteria and approach.

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[7] Ibid, page 3

[8] See 78 Fed. Reg. 43066-43089, (July 19, 2013) (NMFS, Revised National Standard 2 Guidelines), page 43068, available at http://www.gpo.gov/fdsys/pkg/FR-2013-07-19/pdf/2013-17422.pdf

[9] See Amendment 19 Final EIS, page 1-12, available at http://www.westcoast.fisheries.noaa.gov/publications/nepa/groundfish/groundfish_efh_eis/front-pages-chapters-1-and-2.pdf

[10] See EFHRC Phase 2 Report, pages 58-59

[11] See PFMC, Situation Summary, Agenda Item D.2, March 2014 Briefing Book available at http://www.pcouncil.org/wp-content/uploads/D2_SITSUM_MAR2014BB.pdf

The preliminary list of nine questions and focus areas provided in the EHFRC Phase 2 Report (see "Recommended Guidance for NMFS Science Center Assessment of Amendment 19", EFHRC Phase 2 Report, Section 3.4.3, Appendix B, pages 59-60) are well thought-out and provide a useful starting point for Council guidance to the NW/SWFSC. With the understanding that the Council will also review an initial draft of potential scientific approaches prepared by the NW/SWFSC[12], we request that the Council include these nine evaluation criteria going forward.

In addition, we suggest the following additional questions and criteria for inclusion in the evaluation guidance to the NW/SWFSC:

1. ***Assess whether the adverse effects or potential adverse effects the action sought to mitigate were successfully mitigated.***

   The 1996 revision of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) included a requirement that NOAA Fisheries and the regional Councils identify EFH for all Council-managed species, and minimize adverse effects to that habitat caused by fishing to the extent practicable.[13] Amendment 19, adopted by the Council in 2005 and implemented by NOAA Fisheries in 2006, updated EFH designations and included a suite of EFH protections.[14] The purpose of Amendment 19 was as follows:

   > *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; second, to ensure that EFH is capable of sustaining groundfish stocks at levels that support sustainable fisheries; and third, that EFH is capable of sustaining enough groundfish to function as a healthy component of the ecosystem."*[15]

   Furthermore, the Amendment 19 action was initiated for several reasons including to "minimize to the extent practicable the adverse effects of fishing on EFH." [16] While NOAA Fisheries ultimately determined that data and analytical limitations precluded a definitive finding that adverse effects from fishing were extant, Amendment 19 did conclude that there was sufficient "potential for adverse effects" to justify mitigation (e.g., bottom trawl closures).[17] The evaluation criteria should include a careful analysis of whether and to what degree Amendment 19 provisions have successfully met these various Amendment 19 objectives, including EFH capable of sustaining the ecosystem-level role and services of both groundfish and groundfish habitat.

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[12] Agenda Item D.2.c, Supplemental NW/SWFSC Report, which is expected to provide an initial recommendation on potential approaches, is expected to be included in the Supplemental Briefing Book.
[13] See 16 U.S.C. § 1853 (a)(7)
[14] See Pacific Fishery Management Council, Final Amendment 19 to the Pacific Coast Groundfish Fishery Management Plan, November 2005
[15] See Amendment 19 Final EIS, page 1-3
[16] Ibid, page 1-3
[17] See Amendment 19 Record of Decision, page 11, available at http://www.westcoast.fisheries.noaa.gov/publications/nepa/groundfish/groundfish_efh_eis/efh_feis_rod_small.pdf and 71 Fed. Reg. 27408-27426 (May 11, 2006) Amendment 19 Final Rule, page 27400-27401 available at http://www.westcoast.fisheries.noaa.gov/publications/frn/2006/71fr27408.pdf

2. ***Assess whether there are remaining, new, and/or cumulative adverse effects to groundfish habitat, or the potential for such adverse effects, which must be mitigated to the extent practicable***

Any review of the Amendment 19 EFH regime, if it is to effectively inform the Council during Phase 3 and thereby assist the Council in meeting the requirements of the MSA, must also assess the Amendment 19 regime (i.e., the *status quo*) to determine if new information demonstrates that there are current adverse effects to habitat taking place, or the potential for adverse effects. These may be "carryover" adverse effects that were not successfully mitigated through Amendment 19, newly identified adverse effects, or cumulative impacts. For instance, the Council should examine all new information identified through Phases 1 and 2 of the 5-year review to determine whether adverse effects are present which must be mitigated to the extent practicable through a new FMP action. In essence, the Amendment 19 evaluation should be viewed as a stepping stone, one that helps build the foundational pieces of the Phase 3 analysis. To this end, the suggestions made by the EFHRC in Section 3.3 of its report (see bullets 4a-4c on page 16) are instructive and useful, and we are supportive of the Council pursuing those analytical approaches.

3. ***Assess the potential impacts of recent actions to re-open parts of the Rockfish Conservation Area***

On September 13, 2013 NOAA Fisheries issued a Proposed Rule for changes to portions of the boundary of the depth-based bottom trawl closure known as the Rockfish Conservation Area (RCA). If implemented, this action will re-open certain areas closed to bottom trawling since 2004, including areas that may have partially recovered from trawl impacts.[18] While the RCA closures were not established to serve as habitat protection (they were intended to address catch and bycatch of overfished stocks), they are nevertheless recognized for their "corollary mitigating effect on adverse impacts to EFH."[19] As such, it is important to consider and analyze the EFH-related effects of any RCA boundary changes in Phase 3 work going forward, including through the effectiveness evaluation of the Amendment 19 provisions.

4. ***Assess the degree to which existing EFH provisions are consistent with current NOAA Fisheries and Council priorities***

Since Amendment 19 was enacted in 2006, managers and scientists on the regional and national level have made great strides in recognizing the importance of habitat, including on an ecosystem level, and in setting ambitious priorities for its protection and restoration. At the same time, a growing awareness of the numerous threats to the oceans, most notably the wide-ranging and still not entirely understood effects of climate change, has led to the

[18] See 78 Fed. Reg. 56641-56645, (September 13, 2013), ("Rockfish Conservation Area Boundaries for Vessels Using Bottom Trawl Gear, Proposed Rule), page 56643, available at http://www.westcoast.fisheries.noaa.gov/publications/frn/2013/78fr56641.pdf

[19] See Pacific Fishery Management Council, Final Amendment 19 to the Pacific Coast Groundfish Fishery Management Plan, November 2005, page 73

adoption of precautionary policy goals that call for increased attention to protecting marine habitat as a way to build more resilience into the ecosystem.

On the regional level, the Council adopted a Fishery Ecosystem Plan (FEP) in April 2013.[20] This FEP devotes considerable attention to habitat, and to the potential effects of climate change.[21] The FEP includes the following statement describing Council priorities regarding habitat:

> *"While all fish habitat is of interest to the Council, some habitat types, the habitat needs of some species, and some types of habitat disturbance are of particular concern to the Council for their effects on the ecosystem as a whole, such as activities that:*
>
> *• Disturb or kills structure-forming invertebrates or vegetation in a manner that either prevents those species from recovering within the affected area within their mean generation times, or which reduces the known distribution of those species;*
>
> *• Alter the geological structure of the habitat such that the habitat cannot maintain or recover its functionality unaided;"*[22]

NOAA Fisheries has also called for increased protection of ocean habitat. The NOAA "Habitat Blueprint" includes a guiding principle that calls for managers to "Anticipate and address changes to coastal and ocean habitats due to environmental change; including development, climate, and other pressures."[23] Leading NOAA habitat scientists, in a briefing paper presented at the May 2013 Managing Our Nation's Fisheries conference, presented additional detail on a precautionary and ecosystem-based NOAA Fisheries vision for habitat protection that drew in part on this Habitat Blueprint:

> *"In 2005, the U.S. Commission on Ocean Policy recommended that NOAA Fisheries change the designation of essential fish habitat from a species-by-species to a multispecies approach and, ultimately, to an ecosystem-based approach that includes consideration of ecologically valuable species that are not necessarily commercially important. While there is a growing body of science-based analytical methods that could support such designations, we suggest that there is already scientific and societal consensus on the importance of certain habitat types based on their contributions as fish habitat, biodiversity and ecosystem services. These include tropical coral reefs, coastal wetlands, seagrass and kelp beds, and deep-sea coral communities. … While in most cases, the extent and quantity of habitat that is needed to contribute to increased productivity of a particular fisheries stock, or to a "healthy ecosystem" cannot be*

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[20] See PFMC, "Pacific Coast Fishery Ecosystem Plan for the U.S. Portion of the California Current Large Marine Ecosystem, Public Review Draft", April 2013 available at http://www.pcouncil.org/wp-content/uploads/FEP_February2013_Draft_for_web.pdf

[21] Ibid, at pages 152 to 153, pages 165 to169; see also FEP Appendix A, pages A-16 to A-17, and pages A-21 to A-22, available at http://www.pcouncil.org/wp-content/uploads/FEP_Initiatives_Appendix_for_web.pdf

[22] Ibid, at page 182

[23] See NOAA 2012, "NOAA Habitat Blueprint", fact sheet, available at http://www.habitat.noaa.gov/habitatblueprint/pdf/habitat_blueprint_factsheet.pdf

*determined exactly, suspected tipping points may be inferred, and prudent managers will set targets that are likely to avoid degradation."* [24]

And finally, inter-agency efforts have produced an ambitious, sensible and prudent "Climate Adaptation Strategy," to which NOAA is a party, with goals including "Conserve habitat to support healthy fish, wildlife, and plant populations and ecosystem functions in a changing climate" and "Reduce non-climate stressors to help fish, wildlife, plants, and ecosystems adapt to a changing climate."[25]

We recommend that as NOAA Fisheries and the Council begin to develop Phase 3 products in earnest, including the evaluation of the Amendment 19 regime currently in the design phase, that the aforementioned Council and agency goals be carefully considered and that the existing EFH provisions be assessed for consistency with those goals.

Maintain a broad range of potential alternatives for Phase 3

As the Council continues work on Phase 3, toward the development of a range of alternatives for an FMP amendment, we respectfully request that the Council keep a wide array of options open. It is early in the process, even to the point that foundational building blocks like the Amendment 19 evaluation are still in the design stage. As such, our specific suggestions at this time are to retain a coastwide scope for Phase 3, to keep all available options open regarding which MSA authority or authorities to utilize for deep-sea coral (DSC) designations and protections, and to keep all remaining stakeholder proposals eligible for inclusion in the range of alternatives.

We are concerned about a potential narrowing of the geographic scope of Phase 3 due to the EFHRC recommendation in Section 3.3 of the Phase 2 Report (see bullet #3 on page 16) stating that the Council "may reasonably choose to narrow the geographic scope of Phase 3)."[26] We would point out that this same recommendation also states that "there is insufficient baseline information to confirm that EFH is adequately protected."[27] We appreciate the caveats included by the EFHRC on this issue and suggest that maintaining a broad scope is appropriate at this time.

The EFHRC Phase 2 Report contains useful information supportive of considering Phase 3 protections for DSC through precautionary action under EFH authorities and/or through other, discretionary authorities such as MSA Section 303(b)(12), which allows for broad conservation

[24] See Sutter et. al, "Integrating Habitat in Ecosystem-Based Fishery Management", MONF III Session 2 speaker papers, Session 2.3 Integrating Habitat considerations, Sutter et. al. page 7, available at http://www.managingfisheries.org/2013%20documents/All_Session_2_papers.pdf

[25] See National Fish, Wildlife and Plants Climate Adaptation Partnership. 2012. National Fish, Wildlife and Plants Climate Adaptation Strategy, Association of Fish and Wildlife Agencies, Council on Environmental Quality, Great Lakes Indian Fish and Wildlife Commission, National Oceanic and Atmospheric Administration, and U.S. Fish and Wildlife Service. Washington, DC. Available at http://www.wildlifeadaptationstrategy.gov/pdf/NFWPCAS-Final.pdf

[26] See EFHRC Phase 2 Report, page 16

[27] Ibid

measures to protect non-target species and habitats.[28] We are supportive of this flexible approach wherein DSC could potentially be protected shoreward of 3500 meters (the current extent of Groundfish EFH based on known groundfish distribution) using EFH authorities, and protected seaward of 3500 meters utilizing other MSA authorities, yet accomplished in the same Phase 3 management action. As such, we request that the Council keep all available options open at this time.

Finally, we would reiterate two points previously made in our correspondence to the Council in November of 2013.[29] At that time we encouraged the Council to undertake a thorough analysis of all stakeholder proposals and their contents, and requested that all remain eligible for consideration in a range of alternatives for management action until such initial analysis is completed. Because this analysis has not yet been undertaken, we urge the Council to keep all available options open, due to the diverse and valuable ideas contained collectively in these thoughtful proposals.

<u>Use core tenets of EFH identification and protection and EBFM to guide analysis and consideration</u>

As the Council continues its development of Phase 3 analytical products and alternatives, we would like to again draw attention to five core tenets of EFH identification and protection, distilled from the EFH Guidelines, especially the importance of applying an ecosystem-based approach to EFH protection. We previously described these five key tenets in our November 2013 correspondence, where we provide additional detail, but briefly they are as follows: [30]

- Utilize an Ecosystem-Based Approach
- Seek to Improve on Current Protections
- Consider all Life Stages of Managed Species
- Develop and Utilize the Best Scientific Information Available
- Protect a Wide Array of Habitat Types

Select examples of next steps consistent with these tenets include:

- Application of the precautionary approach, for instance, as described in the EFHRC Phase 2 Report in Section 3.3, (Recommendation bullets 1 and 2 on page 16) and in Section 3.4.1, Appendix B.[31]
- Ensuring that all stakeholder proposals benefit from a full technical review in their entirety prior to narrowing the range of alternatives.
- Designing the Amendment 19 evaluation to ensure that a sufficiently broad analysis is completed, including analysis of whether there are adverse effects on EFH, remaining or newly identified, that should or must be addressed.

[28] Ibid
[29] See PFMC, November 2013 Council Meeting Briefing Book, Agenda Item H.7.d Supplemental Public Comment packet #2, pages 8-12.
[30] Ibid
[31] See EFHRC Phase 2 Report, page 16 and pages 51-55

The comprehensive conservation stakeholder proposal, submitted jointly by Oceana, the Natural Resources Defense Council, and Ocean Conservancy, captures the core tenets of EFH identification and protection and EBFM as described above very well. This proposal combines an emphasis on ecologically sensitive biogenic habitats, a risk-averse approach, a focus on protecting poorly understood, unfished areas before they undergo trawl impacts, innovative ideas for the designation of key groundfish prey species, and a coastwide scope, which are collectively very consistent with an ecosystem-based approach and the EFH Guidelines. Pew commends the authors of this proposal for their wide-ranging, ambitious, and collaborative approach.

In conclusion, we again thank the Council for its ongoing efforts to identify and protect EFH for groundfish species. As the MSA calls for the conservation and enhancement of habitat, managers should strive for improvement, and especially in the context of new information, must act to enhance the amount and quality of EFH, not just prevent further degradation. The Council deserves credit for undertaking a robust, inclusive and proactive five-year review, a process that has synthesized a great deal of new information and provided the Council with a wide array of stakeholder-driven options for updated designations and protections. As the Council proceeds with the first key step in Phase 3, the evaluation of its existing EFH provisions relative to new information, we have tried to offer constructive suggestions for the scope and criteria of this review. Most importantly, we urge the Council to structure the evaluation such that it asks more than "how much habitat protection is enough?" The real question, when presented with compelling new information such as that in the Phase 1 reports and the stakeholder proposals, is "how much is practicable?" If there are opportunities to enhance EFH, and new information to support these steps, with moderate, minimal or no impact on the fishing industry, the Council should pursue those opportunities.

Sincerely,

Tom Rudolph
Officer, U.S. Oceans
The Pew Charitable Trusts
trudolph@pewtrusts.org

THE OCEAN FOUNDATION

February 28, 2014

Ms. Dorothy Lowman, Chair
Pacific Fishery Management Council
1100 NE Ambassador Place, Suite 101
Portland, OR 97220

RE: *Agenda Item D.2, Groundfish Essential Fish Habitat*

Dear Chair Lowman and Council Members,

Thank you for this opportunity to submit comments on behalf of The Ocean Foundation's Coastal Coordination Program. As you know, the Pacific Fishery Management Council has an important opportunity right now to update Essential Fish Habitat (EFH) for groundfish across the entire Pacific coast.

I urge the Council to continue moving ahead with Phase 3 of the ongoing five-year review process by taking key preparatory steps at your March meeting. These steps should support subsequent development of a full range of alternatives for a Groundfish Fishery Management Plan amendment to revise and enhance EFH designations and protections. I urge you to approve the Phase 2 report of the Essential Fish Habitat Review Committee, including the minority statements, and to proceed with the Council-requested evaluation of the existing EFH regulatory regime. Regarding this evaluation, the Council should provide guidance to the NMFS Science Centers that will ensure a comprehensive review which carefully considers whether there are any adverse effects to habitat that can be mitigated to the extent practicable through further Council action. Such adverse effects may be longstanding or new, and may be definitively known or potential. I also urge the Council to request that NMFS make a technical analysis of the stakeholder proposals an intrinsic part of the evaluation, so that the Council has that information at its disposal when the range of alternatives is defined later this year. Until that point in time, no proposals or elements of proposals should be eliminated from consideration. I also ask that the Council make sure that the alternatives protect additional habitat that is vital to a well-functioning marine ecosystem, including deep-sea corals and deepwater areas known to harbor corals.

West Coast residents all benefit from a healthy ocean ecosystem, and because we know that our ocean waters are becoming warmer and more acidic with a changing climate, the work of the Council is particularly important at this time. The implications of ocean acidification are alarming for the people who earn their living from sustainable fishing, as well as for all West Coast citizens who fish for recreation and those who enjoy local seafood. The Council should logically consider all of the proposals before you to enhance Essential Fish Habitat and move to undertake appropriate steps to build ecosystem resilience in the face of an altered climate. The Council deserves credit for a new Fishery Ecosystem Plan that explicitly recognizes the danger of certain fishing practices that "disturb or kill structure-forming invertebrates or vegetation." From the federal government's point of view, the U.S. Commission on Ocean Policy and the Obama administration's Climate Adaptation Strategy both call out the importance of improving habitat protection as a strategy for reducing ecological stress created by climate change.

The Council has received compelling new information through the technical information (including new data) on habitat compiled by NMFS, from the proposals you've received, and as a result of the review undertaken by the Essential Fish Habitat Review Committee, and should now move ahead toward crafting a full range of alternatives to designate and protect ecologically sensitive habitat coastwide.

Thank you for your ongoing efforts on behalf of our marine ecosystems and fisheries.

Sincerely,

Richard Charter
Coastal Coordination Program
Senior Fellow
The Ocean Foundation

GREENPEACE

1661 Mission Street, San Francisco, CA 94103
Tel: 415-255-00-326-0959 • www.greenpeaceusa.org

March 2, 2013

Dorothy Lowman, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

RE: Agenda Item D.2, Groundfish Essential Fish Habitat 5-Year Review

Dear Chair Lowman:

Thank you for the opportunity to comment and follow up on our Groundfish Essential Fish Habitat (EFH) proposal, submitted on July 31, 2013. As you know, Greenpeace's EFH proposal focuses on protecting major submarine features off the U.S. West Coast, particularly deep-sea canyons.

**The Basis for Greenpeace's EFH Proposal**

Submarine canyons play a critical role in ocean circulation and often encompass areas of upwelling and enhanced physical dynamics, which are associated with high biological productivity. Deep sea canyons are known to host a significant quantity and diversity of habitats which are inhabited by diverse assemblages of benthic and pelagic fauna that, in turn, support healthy fisheries.

NOAA has and continues to focus considerable resources to study submarine canyons throughout the US. They seek to better understand how ecological processes and biological communities are influenced by the physical and environmental characteristics of submarine canyons. Researchers are working to answer more questions about the ways biological communities associate with deep-sea corals and a variety of substrate types found in canyons. The importance of canyons as essential fish habitat and their role in associated fishery productivity has yet to be fully unveiled.

What we do know is that coral and sponge communities provide essential habitat for numerous species at various life stages, including many that are commercially important and many more that are integral parts of the ecosystem. Coral habitats are particularly important for juvenile fish, and provide places for fish and invertebrates to spawn and lay their eggs. Deep sea corals and sponges are often long-lived, extremely slow to recover, and highly vulnerable to bottom tending fishing gear. Recovery times for deep sea corals disturbed by fishing activities can be 50 to 100 years, if they recover at all, making it virtually impossible to replace their lost value to the ecosystem.

Studies have shown that chronic trawling reduces structural complexity and diversity of benthic species (McConnaughey et al. 2000), and a single pass of bottom trawl gear over structurally complex seabed habitats comprised of deep-sea corals and sponges can inflict extensive and long-lasting damage (Freese et al. 1999, Krieger 2001, Andrews et al. 2002, Stone and Shotwell 2007, Heifetz et al. 2009). A recent

study of deep sea canyons in the Bering Sea validated the important habitat function of benthic organisms for fish and crab species (Miller et al. 2012). While we still have much to learn about the intricacies of ecosystem functions in deep sea canyons, and relationships between benthic and pelagic species, we should take a precautionary management approach that can ensure the integrity of such productive ecosystems upon which we all depend.

Finally, it is worth noting that other Regional Fishery Management Councils are taking proactive steps to safeguard important submarine canyons within their jurisdictions, including the Pribilof and Zhemchug Canyons in the North Pacific, and numerous canyons and seamounts off the Mid-Atlantic and Southern New England coast. The Pacific Council, normally a leader in habitat protection, should take this opportunity to catch up with its fellow councils, and Greenpeace's EFH proposal provides a way to do so.

**The Contents of Our EFH Proposal**

The Greenpeace EFH proposal contains three main parts. First, we propose nine discrete area closures to protect specific undersea features from the impacts of fishing: Quinault Canyon, Astoria and Willapa Canyon Complex, Heceta Bank Canyon Complex, Rogue Canyon, Eel River Canyon, Delgada Canyon Complex, Pioneer Canyon and Farallon Escarpment, Ascension and Ano Nuevo Canyons, and the Lopez to La Cruz Canyon Complex.

Our proposal requests that these areas be designated for full EFH protection. There are myriad connections in the complex ecosystem that supports productive fisheries in the Pacific. Much remains poorly understood, though, about the relationships between benthic and pelagic species, and how complex ecosystem components interact to support a resilient and healthy ecosystem along the West Coast.

Upon announcing its new EFH program in 1997 NOAA's press release carried this header: NOAA Begins Essential Habitat Program to Enhance Nation's Living Marine Resources; Releases National Habitat Plan. Then Department of Commerce under secretary for oceans and atmosphere and administrator of NOAA, D. James Baker pledged: "The fisheries service will be working closely with the regional fishery management councils, coastal states, and other partners to protect and enhance the habitat essential to the fisheries and other marine resources under our stewardship."

A thorough analysis of management measures that can effectively meet NOAA's commitment to protect and enhance essential fish habitat should include fully protected areas, as we have proposed. The major undersea features identified in our proposal have high ecological value, and they should be protected from the damage inflicted by bottom fishing, especially bottom trawling. Enhancement of EFH would, presumably, include measures that go beyond reducing impacts on vulnerable habitat such as gear modifications or restrictions. With the increasing impacts of climate change and ocean acidification, as well as the cumulative degradation of seafloor habitat by bottom contact gear, creating a buffer against uncertainty makes sense from an economic perspective as well as an ecological one.

The second portion of our EFH proposal requests that the Council freeze the footprint of fishing in the groundfish fishery. Specifically, this means creating a spatial closure to trawling (a No Bottom Trawl Zone) that encompasses all areas outside the active trawl footprint. The Council already has an identified

maximum extent of the trawl fishery, in the Phase 1 Report and EFH Data Catalog, and we request that the Council put this data layer to use by prohibiting any expansion of the trawl footprint.

The Council should note that our request to freeze the footprint of the fishery inherently includes closing the deepwater portion of the Exclusive Economic Zone off California (deeper than 3500m), which the Council voted to do in Amendment 19 but NMFS avoided carrying out at that time. Numerous sources of authority are available to accomplish this goal, and the Council should take this opportunity to complete its policy of freezing the footprint.

Third, our EFH proposal requests that the Council begin a process to phase out unnecessarily unselective and destructive fishing gear types off the West Coast. We wish to clarify that this request should be read narrowly as only applying to gear used in the groundfish fishery (the reference to drift gillnets was simply illustrative of an unnecessarily unselective gear type, and was not intended to imply that drift gillnets are being used in the groundfish fishery). In particular, we ask that the Council establish specific deadlines and goals for gear modifications in the groundfish fishery, such that within a finite time period all gear used in the fishery must be demonstrated to have negligible impacts on benthic habitat, including corals and sponges.

**The Law Requires Habitat Impacts To Be Minimized to the Extent Practicable**

The Magnuson-Stevens Act requires the Council and NMFS to "minimize to the extent practicable adverse effects on [EFH] caused by fishing." 16 U.S.C. § 1853(a)(7). This includes corals and sponges, which in many instances off the West Coast have been demonstrated to have Level 1 association with managed groundfish FMP species. 67 Fed. Reg. 2343, 2352 (Jan. 17, 2002) ("[I]n most cases the best available scientific information is fish distribution (Level 1) or relative abundance (Level 2) data. Additional guidance linking EFH to habitat function, beyond the clarification mentioned above, is not necessary at this time . . . ."). Corals and sponges are also subject to the parallel requirement to minimize bycatch to the extent practicable, which appears in National Standard 9. 16 U.S.C. § 1851(a)(9).

**The Council Has Conducted No Analysis of the Proposals**

At this point the Council has no analysis before it, on the impact reduction that would be caused by each EFH proposal, or the proposals' practicability. In order to make a non-arbitrary decision on each proposal, the Council must ask whether and to what degree the proposal will reduce the impacts of fishing on EFH off the West Coast, and how practicable the proposal is. Deciding to pursue some proposals but not others, without answering these fundamental questions, would amount to arbitrary and capricious decision-making.

The EFH Review Committee, despite its intended role as an analyzing body, conducted no substantive analysis. The Committee used a "Bayesian" survey tool that gathered the subjective impressions of a range of stakeholders (the so-called "Bayesian" aspects of the tool were not used). None of the data gathered by the Committee in the Phase 1 Report or the NMFS Synthesis was used to analyze proposals, although this could have easily been done. Instead, personal preferences of the Committee members were

polled, and the results of this popularity contest were provided in quantitative form, making it appear as if analysis had been conducted.

Greenpeace wishes to stress that the EFH Review Committee's exercise in no way constituted a substantive analysis of the proposals, and should not be used as an excuse to cut proposals at this stage. Real analysis would involve comparing proposals to the data gathered in Phase 1—such as the locations of hard substrate, trawl effort data, and coral-sponge records—and calculating certain metrics like coverage of habitat types by bioregion, displaced fishing effort, and so forth. By wholly ignoring the data gathered in Phase 1, the EFH Review Committee has made clear that its "recommendations" are nothing more than the subjective views of its members—which of course would be expected to diverge, given the diverse backgrounds of Committee members.

**The Council Should Move Forward and Analyze All the Proposals**

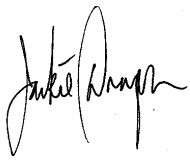
Because the Council has no substantive information on whether each proposal would be effective at mitigating the impacts of fishing on EFH, or on the practicability of each proposal, it would be premature to cut any proposals at this time. Instead, the Council should move forward and instruct NMFS and Council staff to conduct a brief, high-level analysis of the proposals based on these criteria—reduction of impacts and practicability—in order to make a legally-relevant decision at the September meeting.

The fact that our proposal did not rank at the top of the EFH Review Committee's popularity contest does not constitute a demonstration of its impracticability, nor of its ineffectiveness at mitigating the impacts of fishing on EFH. In order to make a non-arbitrary decision on which proposals to move forward to a FMP amendment and NEPA process, the Council must conduct actual analysis of each proposal, addressing both the extent to which the proposal reduces impacts on EFH, and its practicability.

Finally, we wish to reiterate that as members of the public, Greenpeace had an expectation based on the COP 22 and the Council's RFP that our proposal—which met all elements of the RFP—would be afforded legitimate analysis before any decision was made on it. It appears NMFS and some members of the Council are prepared to break this expectation and act prematurely, without even examining whether our proposal would improve the status of EFH off the West Coast, or whether it is practicable. We urge the Council to avoid this path, as it would be both misguided and contrary to good public process.

Thank you for your attention to this important matter, and we look forward to watching the Council's informed decision-making at the March meeting.

Sincerely,



Jackie Dragon
Senior Oceans Campaigner
Greenpeace US

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# ***The Northwest Guides and Anglers Association***

***To protect, enhance, and promote healthy sportfisheries and the ecosystems they depend on in the Pacific Northwest.***

Ms. Dorothy M. Lowman, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

Re: Agenda Item D.2: EFH Evaluation Criteria and Phase 2 Report

Dear Chair Lowman and council members:

The NW Guides and Anglers Association is made up of over 30 guides and charters also representing thousands of sport anglers that participate in NW sportfishing. Our mission is to protect, enhance and promote healthy sportfisheries and the ecosystems they depend on in the Pacific Northwest. It is for this reason that we are writing to you to urge you to continue moving ahead toward the protection of additional essential fish habitat, based on the new information brought to light in your recent 5-year review. I support the Council's intent to conduct, in collaboration with NOAA Fisheries, an evaluation of the existing protections put in place in 2006 through Amendment 19.

The Council should work to develop robust criteria for this review that adequately consider the Council's duty to improve upon existing protections and take a broad, precautionary, ecosystem-centered approach to EFH protection. The Council and NMFS should make certain to ask the right questions, including whether the Amendment 19 protections have met the goals of Amendment 19 to mitigate certain adverse impacts of fishing, and the separate question of whether there are other, newer adverse impacts that can and should be mitigated now. These steps are critical to ensuring that we are doing all we can to protect ecologically important areas that are susceptible to damage caused by bottom trawling and other fishing practices.

As a concerned citizen and business owner that depends on healthy fish populations, I encourage the council to build upon the work done through the current review process by considering a rigorous review process that both protects important habitat areas and provides an opportunity for continued sustainable fishing.

Thank you for the opportunity to comment.

Sincerely,

Bob Rees, President
Northwest Guides and Anglers Association

Chuck Tracy - NOAA Affiliate <chuck.tracy@noaa.gov>

# Fwd: EFH Evaluation Criteria and Phase 2 Report

1 message

**PFMC Comments - NOAA Service Account** <pfmc.comments@noaa.gov> Mon, Mar 3, 2014 at 8:07 AM
To: Kerry Griffin - NOAA Affiliate <Kerry.Griffin@noaa.gov>
Cc: Chuck Tracy - NOAA Affiliate <chuck.tracy@noaa.gov>

------ Forwarded message ------
From: **Kevin Scribner** <scribfish@gmail.com>
Date: Sun, Mar 2, 2014 at 8:37 PM
Subject: EFH Evaluation Criteria and Phase 2 Report
To: pfmc.comments@noaa.gov

Ms. Dorothy M. Lowman, Chair

Pacific Fishery Management Council

7700 NE Ambassador Place, Suite 101

Portland, Oregon 97220-1384

Re: Agenda Item D.2: EFH Evaluation Criteria and Phase 2 Report

Dear Chair Lowman and council members:

I have enjoyed the opportunity to provide comment in person to the Council, an experience that is a testimony to how well the Council welcomes input from our region's residents. I commend you and all the Council members for this. And now, some additional input urging you to continue moving ahead toward the protection of additional essential fish habitat, based on the new information brought to light in your recent 5-year review. The Council's intent to conduct, in collaboration with NOAA Fisheries, an evaluation of the existing protections put in place in 2006 through Amendment 19 has my full support.

As well, I urge the Council to develop robust criteria for this review that adequately consider the Council's duty to improve upon existing protections and take a broad, precautionary, ecosystem-centered approach to EFH protection. Our region can model this approach for the other regional Management Councils. The Council and NMFS should make certain to ask the right questions, including whether the Amendment 19 protections have met the goals of Amendment 19 to mitigate certain adverse impacts of fishing, and the separate question keyed

to anticipating any other, newer adverse impacts that can and should be mitigated now. These steps are critical to ensuring that we are doing all we can to protect ecologically important areas that are susceptible to damage caused by bottom trawling and other fishing practices.

As a former commercial fisherman, current seafood marketer, and concerned citizen who has a love affair with the ocean, I encourage the council to build upon the work already accomplished through the current review process by considering a rigorous review process that both protects important habitat areas and provides an opportunity for continued sustainable fishing.

Thank you for your stewardship of our marine resources.

Sincerely,

Kevin Scribner, Kooskooskie Fish

PO Box 40729, Portland, OR 97240

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Arctic Storm Management Group
2727 Alaskan Way, Pier 69
Seattle, WA 98121

Dorothy Lowman, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

February 28, 2014

RE: Agenda Item: D2 EFH

Dear Ms. Lowman,

At this meeting the Council is scheduled to provide guidance on the process to consider changes to groundfish Essential Fish Habitat (EFH), including the Science Center's recommendations on how to determine the effectiveness of current EFH closures, evaluation criteria for consideration of proposals in Phase 3, the process for considering changes to EFH and finalizing of the EFH Review Committee's Phase 2 Report. Arctic Storm has several recommendations on these issues as well as a general comment on the problematic recommendation that the MSA deep sea coral provision be incorporated into EFH actions.

Effectiveness of current EFH closures: Unfortunately, the Science Center has not yet made available its' recommendations on how to determine the effectiveness of current EFH closures. However, the EFHRC report has determined that there is no new information that would allow us to understand the performance of habitat closures implemented by Amendment 19. For this reason, the Council should proceed cautiously in expanding EFH closures.

Evaluation criteria: Unfortunately, the Science Center has not yet made available its' recommendations on evaluation criteria for consideration of new proposals. There are several criteria that might be considered in the evaluation of Phase 3 proposals.

1) Linkage to FMP species: EFH guidelines require that actions taken must be linked to protection of FMP species. Such a link should be established and evaluated in each proposal. Because we currently lack information to judge the performance level of EFH closures, such a link will provide a tool to judge efficacy in the future by assessing specie specific population trends in or around the designated areas.

2) Gear impact: Each proposal should provide enough information for the analysis to determine if fishing gear is negatively impacting FMP specie habitat in ways that are "*more than minimal and not temporary in nature*" as required by the EFH final rule.

3) New Data: The Council has given priority to the review of new data. Evaluation criteria might also give higher priority to proposals using new data that was unavailable during the last EFH review.

4) Specific geographic scope: The EFHRC recommended that the Council might want to consider narrowing the geographic scope of considered proposals.

5) Stakeholder involvement: The EFHRC also recommended giving highest priority to local initiatives that have been well vetted by stakeholders.

Process for considering changes to EFH: The EFHRC has done its job and evaluation of proposals now seems headed toward peer and public review. In preparing the proposals for further review, each specific proposal should be separated from bundled proposals for individual evaluation. For instance, some organizations such as Oceana have submitted several proposals in a single bundle which was evaluated as a package by the EFHRC. The proposals should now be evaluated as *stand alone* proposals.

Finalizing the EFHRC Phase 2 Report: The EFHRC has worked hard to produce this report. However, the report's recommendations seem muddied by controversy articulated in the various minority reports. The minority reports might, instead, better contribute to the dialogue as public comment. However, if the Council determines that the minority reports make a valuable contribution to the overall EFHRC report, *all* the minority reports should be included in the EFHRC instead of only those selected for inclusion.

Deep Sea Coral as EFH: Deep Sea Coral are not FMP species and their protection should not be included in the EFH review process unless it can be demonstrated that they protect an FMP species . Section 303 (b)(2)(B) provides Councils discretionary authority to develop protection zones for Deep Sea Corals. This section is not embedded in the EFH provisions because Deep Sea Corals are not FMP species. Further, EFH was crafted to protect FMP species when fishing gear impacts were shown to be *more than minimal and not temporary in nature* in damaging their essential habitat. The Council has discretionary authority to protect deep sea corals but, unless these corals are shown to provide fish habitat essential to the sustainability of FMP species *and* there is evidence that damage by fishing gear to that habitat is more than minimal and more than temporary, inclusion under an EFH action seems inappropriate and a dangerous precedent.

Thank you for consideration of our comments.

Sincerely,

Donna Parker
Director, Government Affairs

# BAROTRAUMA DEVICE MORTALITY RATES

Rockfish that are brought up quickly from deeper depths suffer barotrauma caused by expansion of gasses, which may cause tissue damage and subsequent mortality. In June 2012, the Council discussed methods that can be employed to increase survival of rockfish released in recreational fisheries. The Council was briefed on improved survival of released rockfish by the use of descending devices that enable fish to be released at deeper depths. This allows recompression of expanded gasses that cause barotrauma in fish species that cannot quickly acclimate to the change in depth. Studies have shown there is both short and long-term survival of some of these fish when they are released at deeper depths using descending devices.

In April 2013, the Council adopted mortality rates for cowcod, canary rockfish, and yelloweye rockfish using descending devices; a decision informed by an analysis prepared by the Groundfish Management Team (GMT) (see Agenda Item D.5.b, GMT Report, April 2013). The Council adopted depth-based mortality rates when descending devices are used for these species based on the upper 90% confidence intervals (CIs) calculated in their report.

The GMT has provided a revised analysis of depth-based mortality rates using descending devices for these three species in Agenda Item D.3.b, GMT Report. They conferred with some members of the SSC on properly accounting for more of the uncertainty in calculating the CIs. They also provided alternative mortality rates for cowcod using the same methods presented in April 2013 with the addition of another year of research observations. Finally, they addressed the SSC concern that some of the mortality rates originally provided last year showed lower mortality rates associated with catch from deeper depths.

The Council task at this meeting is to consider adoption of new bycatch mortality rates associated with barotrauma reduction devices in recreational groundfish fisheries for cowcod, canary rockfish, and yelloweye rockfish. The Council should consider the advice of the SSC on the science that informs this issue and GMT, Groundfish Advisory Subpanel, and public advice on issues associated with refining recreational fishery discard mortality rates for these three species.

**Council Action:**

1. **Consider whether to adopt estimates and methods different than those adopted in April 2013.**
2. **Confirm or alter the decision to utilize the 90% confidence interval estimates.**

Reference Materials:

1. Agenda Item D.3.b, GMT Report: Groundfish Management Team Report on Proposed Discard Mortality for Cowcod, Canary Rockfish, and Yelloweye Rockfish Released Using Descending Devices in the Recreational Fishery.

Agenda Order:

a. Agenda Item Overview — John DeVore
b. Reports and Comments of Advisory Bodies and Management Entities
c. Public Comment
d. **Council Action:** Approve Bycatch Mortality Rates Associated with Barotrauma Reduction Devices in Groundfish Fisheries

PFMC
02/14/14

# GROUNDFISH MANAGEMENT TEAM REPORT ON PROPOSED DISCARD MORTALITY FOR COWCOD, CANARY ROCKFISH, AND YELLOWEYE ROCKFISH RELEASED USING DESCENDING DEVICES IN THE RECREATIONAL FISHERY

**Introduction:** At the April 2013 Council meeting, rockfish mortality estimates reflecting the use of descending devices in the recreational fisheries were adopted for use in management in 2013 and thereafter. These estimates were based on the 90% upper confidence interval estimate of short-term mortality, with additional buffers to account for long-term mortality and uncertainty associated with the methods. The Scientific and Statistical Committee (SSC) noted that alternative methods could be used for calculating the confidence intervals (CI) of the short-term mortality to account for variance in estimates between species and sampling methods used to generate proxy estimates in each depth bin (Agenda Item D.5.b, Revised Supplemental SSC Report, April 2013). The SSC's concerns expressed with the estimation methods previously employed are provided below along with the steps that were taken to address them:

1. Point estimates should logically reflect a declining trend in survival with depth, though mortality in the 50-100 fm bin informed by results of acoustic tagging were lower than those for the 30-50 fm bin informed by data from a cage studies in the original estimates from published data. The revised point estimates derived from raw data provided by authors no longer reflect the logical inconsistency of decreasing mortality with depth between depth bins, resolving the issue.
2. Potential biases related to use of proxy species and uncertainty in the representativeness of estimates generated when few observations of individuals of the species to which estimates are provided are available. The comments focused on the availability of data from cowcod. Additional data for cowcod and bocaccio from recent acoustic tagging increased the sample size in the 50-100 fm depth bin to improve the precision of estimates and representation of cowcod in the data se. The results are provided for comparison in the updated estimates for the 50-100 fm depth interval (i.e., point estimates are shown with and without the additional data).
3. Concerns that the estimates of confidence intervals do not reflect the full variance in the estimates based on data from multiple proxy species. This report provides estimates that reflect application of revised confidence interval estimation methods that account for the variance in results between proxy species and studies contributing data, to address issues raised by the SSC.

In addition, this document is intended to present the Council with guidance relative to decision points still remaining regarding the use of resulting mortality estimates in management.

**Methods:** Data from three studies (Table 1) informing the original estimates were compiled in a common format for further analysis. The data from cage studies by Hannah et al. (2012)/ODFW unpublished data, as well as Jarvis and Lowe (2008) provided species, date of sampling, depth of capture, number of days the fish were held and whether the fish lived or died. The acoustic tagging data from Wegner et al. (in prep), included data provided in 2013 as well as additional

data collected since the preceding estimates were reviewed by the Council and SSC in April of 2013. These additional data were collected using the same methods as the previously collected data, except the array was larger, increasing the chances that a tagged fish would remain within the array long enough to provide usable data. The new data includes results from 24 additional fish (12 cowcod and 12 bocaccio), nearly doubling the sample size in the most poorly informed 50-100 fm depth bin.

At present a 10 percent buffer for uncertainty is applied to mortality estimates from the Wegner et al. (in prep) study to account for uncertainty from the acoustic-tagging results, while a 5 percent buffer is applied to estimates from cage studies (i.e., data from Hannah et al. 2012 and Jarvis and Lowe 2008). For each individual, the acoustic tagging researchers provided species, date and depth of capture, as well as whether the fish was alive, dead or out of the acoustic array at 2 days and 10 days post release. Point estimates of mortality and upper 90 percent CI estimates of two-day mortality for cage studies from less than 50 fm and 10 day mortality for the acoustic tagging study from 50 to 100 fm were derived in two ways, described below. These estimates were provided for both the raw data set available in April 2013 corresponding to estimates previously approved by the Council, as well as those resulting from a larger sample size now available from further acoustic tagging research conducted since the initial estimates. In addition, a long-term mortality estimate of 15% reflecting mortality of fish between day 3 and day 10 in the acoustic tagging study is applied to the two day mortality estimates, while the 10 day estimate is considered all inclusive.

While our intent was to keep the original point estimates that were provided to the Council in April of 2013, the methods used to provide confidence intervals reflecting the variance between species and studies resulted in point estimates that deviated from those original mortality estimates. In addition the point estimates calculated from the raw data for this analysis differ slightly from those derived from the summary data that were available to us for the April, 2013 analysis. The result is slightly different point estimates than presented to the Council in April 2013.

Two statistical methods were analyzed to provide estimates of confidence intervals. The first is a Bayesian Hierarchical modeling method integrating data across species within a depth bin, providing revised point estimates and confidence intervals. This method explicitly models variability within each species and variability between species. For species that were sampled within a depth bin, a species-specific point estimate can be obtained that differs from the observed mortality rate for the group as a whole. The hierarchical method can also be used to estimate expected mortality and confidence intervals for an unobserved species based on the distribution of the species that were observed within the bin. One consideration relative to the hierarchical method is that the lack of mortality in the 10-30 fm bin necessitated inducing mortality of one individual of each species in order for the algorithm to provide an estimate of the confidence interval. This increased the point estimate slightly from zero, but allowed confidence intervals in this depth bin to be approximated. Additional details on the methods employed in the Hierarchical Bayesian analysis are provided in Appendix A.

The other method did not explicitly model variability within species, but instead accounted for the correlation between samples from each species and uncertainty associated with using proxy species by reducing the sample size. The results presented here are based on a sample size of N/5 where N is the total number of fish sampled within a bin, and will hereafter be referred to as

the "N/5 method". Confidence intervals are based on the Agresti-Coull binomial confidence interval (Agresti and Coull, 1998). The choice of 1/5 as the multiplier for the sample size was made based on a comparison of the confidence intervals for the Bayesian Hierarchical model results for the 50 to 100 fm depth bin. This method could be revised to include separate sample size adjustments for each depth bin, but that additional complexity was not included at this time. This method did not result in changes to the point estimates (aside from those due to minor differences in the raw data compared to the summary data previously considered), while the other method does.

Additional methods for calculating confidence intervals and/or point estimates were explored, including the use of GLMs and regression with quasi-binomial likelihoods but found to work less well with the data available and the needs of this analysis.

**Results:** The nature of the data and the choice of proxy species that are used in estimating discard mortality have not changed since April 2013 and are described in Table 1. Point estimate of short-term mortality derived by the Bayesian Hierarchical Model are provided in Table 2, along with long-term and precautionary buffer mortality estimates. The estimates of the upper 60 percent, 75 percent, 90 percent, and 95 percent confidence intervals corresponding to each mortality estimate in Table 2 are included in Table 3 for each species. The final estimate of total mortality reflecting the use of descending devices, includes long-term mortality, the associated 5% or 10% buffer, in addition to the respective upper confidence intervals, are provided in Table 4 for further consideration by the Council. These results reflect the first method employing the Bayesian Hierarchical Model. The results for the analogous analyses using the N/5 method are provided Tables 5 through 7. The total mortality estimates reflecting the use of descending devices with point estimate and each upper confidence interval with both previously available data and newly available data for the acoustic tagging study are provided for canary rockfish, yelloweye rockfish, and cowcod are compared to the surface mortality in Figures 1, Figure 2 and Figure 3, respectively for each method to provide a basis for comparison.

**Discussion:** The Council based its preferred mortality estimate on the upper 90 percent confidence interval, calculated from observations in mortality studies and the binomial distribution. The intent was to reflect a conservative estimate of the degree to which use of descending devices reduce mortality relative to surface release and provide a buffer acknowledging uncertainty. Uncertainties associated with the estimates have been discussed in previous documents (Agenda Item D.5.b GMT Report April 2013). These uncertainties have been addressed in part through application of a 5 percent additional mortality buffer to account for potential biases resulting from uncertainties for cage studies and a 10 percent increase for acoustic study results. The upper confidence intervals were added to provide an additional buffer for uncertainty related to the degree of comfort the Council has with the estimates and to acknowledge the limited sample size in contributing studies.

The SSC also expressed concern with the simple method used to calculate the confidence intervals and suspected that the intervals underrepresented the uncertainty. The efforts to calculate the confidence intervals described in this report were focused on addressing the SSC's concerns. To the extent that the new confidence interval estimation methods change the level of uncertainty, the Council may consider revisiting the choice of the 90$^{th}$ percentile. In case the Council wishes to revisit the specific choice, the GMT provides the Council with a range of upper confidence interval estimates reflecting the revised methods and additional data.

The Council may want to consider whether to adopt the estimated mortality from data available at the April 2013 Council meeting, with minimal modifications described above, or those reflecting additional data made available between April 2013 and February 2014 for the acoustic tagging study, depending on the SSC's guidance. The additional data substantially increases the sample sizes in the deepest depth bin. The methods used to collect these additional data did not change relative to earlier sampling periods. The GMT recommends that the Council consider whether to use the additional data for mortality estimates taking into account the recommendations of the SSC.

**References**

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Jarvis, E. T. and C. G. Lowe. 2008. The effects of barotrauma on the catch-and-release survival of southern California nearshore and shelf rockfish (*Scorpaenidae*, *Sebastes* spp.). Canadian Journal of Fisheries and Aquatic Sciences 65(7):1286-1296.

**Table 1. Data providing the basis for estimate of mortality estimates reflecting the use of a descending device for yelloweye rockfish, canary rockfish and cowcod.**

| Species | Depth (fm) | Source of Short Term Mortality Data |
|---|---|---|
| Canary Rockfish | 0-10 | Surface Release Mortality (PFMC 2009) or 10-30 fm |
| | 10-30 | Canary, yelloweye, copper and quillback rockfish (Hannah et al 2012) |
| | 30-50 | Bocaccio, flag and vermilion rockfish (Jarvis and Lowe 2008) / yelloweye and canary rockfish (ODFW unpublished data) |
| | >50 | Cowcod, bocaccio, bank, sunset (Wegner et al. in prep) |
| Yelloweye Rockfish | 0-10 | Surface Release Mortality (PFMC 2009) or 10-30 fm |
| | 10-30 | Canary, yelloweye, copper and quillback rockfish (Hannah et al 2012) |
| | 30-50 | Yelloweye (Hannah et al. 2012, ODFW, unpublished data) |
| | >50 | Cowcod, bocaccio, bank, sunset rockfish (Wegner et al. in prep) |
| Cowcod | 0-10 | Surface Release Mortality (PFMC 2009) or 10-30 fm |
| | 10-30 | Bocaccio, flag and vermilion rockfish 30-50 fm (Jarvis and Lowe 2008) |
| | 30-50 | Flag, vermilion and bocaccio (Jarvis and Lowe 2008) |
| | >50 | Cowcod, bocaccio, bank, sunset rockfish (Wegner et al. in prep) |

**Table 2. Bayesian Hierarchical Method: Point estimate of short-term, long-term and precautionary buffer mortality estimates for each depth bin resulting from application of data provided in April 2013. Estimates in parentheses result from additional data made available since then from the acoustic tagging study.**

| Species | Depth (fm) | Short-Term Mortality | Long-Term Mortality | Additional Unaccounted for Mortality | Cumulative Mortality |
|---|---|---|---|---|---|
| Canary Rockfish | 0-10 | NA | NA | NA | NA |
| | 10-30 | 3% | 15% | 5% | 22%[1] |
| | 30-50 | 22% | 15% | 5% | 37%[1] |
| | >50 | 30% (32%) | NA | 10% | 37% (39%) [2] |
| Yelloweye Rockfish | 0-10 | NA | NA | NA | NA |
| | 10-30 | 3% | 15% | 5% | 22%[1] |
| | 30-50 | 5% | 15% | 5% | 23%[1] |
| | >50 | 30% (32%) | NA | 10% | 37% (39%) [2] |
| Cowcod | 0-10 | NA | NA | NA | NA |
| | 10-30 | 24% | 15% | 5% | 39%[1] |
| | 30-50 | 24% | 15% | 5% | 39%[1] |
| | >50 | 31% (33%) | NA | 10% | 38% (40%) [2] |

[1.] M =1 – (1–Short-Term Mortality) * (1–Long-Term Mortality)* (1-Unaccounted for Mortality )
[2.] M =1 – (1- 0.23 Wegner All RF 10+ Days) * (1-Unaccouted for Mortality))

**Table 3. Bayesian Hierarchical Method: Estimates of total mortality reflecting point estimates of short-term mortality associated with the use of descending devices in the release of cowcod, canary and yelloweye rockfish and precautionary estimates using the 60, 75, 90 and 95 percent confidence interval for short-term mortality in less than 50 fathoms and 10+ day mortality in greater than 50 fathom using data available April 2013. Estimates in parentheses result from additional data made available since then from the acoustic tagging study.**

| Species | Depth (fm) | Mortality Estimate | Upper 60% CI | Upper 75% CI | Upper 90% CI | Upper 95% CI |
|---|---|---|---|---|---|---|
| Canary Rockfish | 0-10 | NA | NA | NA | NA | NA |
| | 10-30 | 3% | 4% | 5% | 7% | 8% |
| | 30-50 | 22% | 24% | 29% | 36% | 40% |
| | >50 | 30% (32%) | 35% (36%) | 43% (44%) | 58% (57%) | 67% (66%) |
| Yelloweye Rockfish | 0-10 | NA | NA | NA | NA | NA |
| | 10-30 | 3% | 4% | 6% | 8% | 10% |
| | 30-50 | 5% | 6% | 7% | 10% | 11% |
| | >50 | 30% (32%) | 35% (36%) | 43% (44%) | 58% (57%) | 67% (66%) |
| Cowcod | 0-10 | NA | NA | NA | NA | NA |
| | 10-30 | 24% | 28% | 35% | 47% | 56% |
| | 30-50 | 24% | 28% | 35% | 47% | 56% |
| | >50 | 38% (40%) | 35% (36%) | 42% (41%) | 53% (48%) | 59% (53%) |

**Table 4. Bayesian Hierarchical Method: Total discard mortality (%) estimates by depth bin for cowcod, canary and yelloweye rockfish at the surface, and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty. Estimates in parentheses result from additional data made available since April 2013 from the acoustic tagging study.**

| Species | Depth (fm) | Current Surface Mortality | Mortality w/ Descending Devices | Estimate with 60% CI | Estimate with 75% CI | Estimate with 90% CI | Estimate with 95% CI |
|---|---|---|---|---|---|---|---|
| Canary Rockfish | 0-10 | 21% | 21%[2] | 21%[2] | 21%[2] | 21%[2] | 21%[2] |
| | 10-20 | 37% | 22% | 22% | 23% | 25% | 26% |
| | 20-30 | 53% | 22% | 22% | 23% | 25% | 26% |
| | 30-50 | 100% | 37% | 39% | 43% | 48% | 52% |
| | >50 | 100% | 37% (39%) | 42% (42%) | 49% (50%) | 62% (61%) | 70% (69%) |
| Yelloweye Rockfish | 0-10 | 22% | 22%[1] | 22%[1] | 22%[1] | 22%[1] | 22%[1] |
| | 10-20 | 39% | 22% | 23% | 24% | 26% | 27% |
| | 20-30 | 56% | 22% | 23% | 24% | 26% | 27% |
| | 30-50 | 100% | 23% | 24% | 25% | 27% | 28% |
| | >50 | 100% | 37% (39%) | 42% (42%) | 49% (50%) | 62% (61%) | 70% (69%) |
| Cowcod | 0-10 | 21% | 21%[2] | 21%[2] | 21%[2] | 21%[2] | 21%[2] |
| | 10-20 | 35% | 35%[2] | 35%[2] | 35%[2] | 35%[2] | 35%[2] |
| | 20-30 | 52% | 39% | 42% | 48% | 52%[2] | 52%[2] |
| | 30-50 | 100% | 39% | 42% | 48% | 57% | 64% |
| | >50 | 100% | 38% (40%) | 42% (42%) | 49% (50%) | 62% (61%) | 70% (69%) |

[1]The value reflects mortality estimates from the 10-20 fathom bin since mortality estimates are expected to be lower in shallower depths and less than surface mortality.
[2]The value reflects surface mortality since mortality estimates for descending devices are not expected to exceed surface release.

**Table 5. N/5 Method: Point estimate of short-term, long-term and precautionary buffer mortality estimates for each depth bin resulting from application of data provided in April 2013. Estimates in parentheses result from additional data made available since then from the acoustic tagging study.**

| Species | Depth (fm) | Short-Term Mortality | Long-Term Mortality | Additional Unaccounted for Mortality | Cumulative Mortality |
|---|---|---|---|---|---|
| Canary Rockfish | 0-10 | NA | NA | NA | NA |
| | 10-30 | 0% | 15% | 5% | 19%[1] |
| | 30-50 | 19% | 15% | 5% | 34%[1] |
| | >50 | 27% (29%) | NA | 10% | 35% (36%) [2] |
| Yelloweye Rockfish | 0-10 | NA | NA | NA | NA |
| | 10-30 | 0% | 15% | 5% | 19%[1] |
| | 30-50 | 3% | 15% | 5% | 22%[1] |
| | >50 | 27% (29%) | NA | 10% | 35% (36%) [2] |
| Cowcod | 0-10 | NA | NA | NA | NA |
| | 10-30 | 24% | 15% | 5% | 39%[1] |
| | 30-50 | 24% | 15% | 5% | 39%[1] |
| | >50 | 27% (29%) | NA | 10% | 35% (36%) [2] |

[1.] M =1 – (1–Short-Term Mortality) * (1–Long-Term Mortality)* (1-Unaccounted for Mortality )
[2.] M =1 – (1- 0.23 Wegner All RF 10+ Days) * (1-Unaccouted for Mortality))

**Table 6. N/5 Method: Estimates of total mortality reflecting point estimates of short-term mortality associated with the use of descending devices in the release of cowcod, canary and yelloweye rockfish and precautionary estimates using the 60, 75, 90 and 95 percent confidence interval for short-term mortality in less than 50 fathoms and 10+ day mortality in greater than 50 fathom using data available April 2013. Estimates in parentheses result from additional data made available since then from the acoustic tagging study.**

| Species | Depth (fm) | Mortality Estimate | Upper 60% CI | Upper 75% CI | Upper 90% CI | Upper 95% CI |
|---|---|---|---|---|---|---|
| Canary Rockfish | 0-10 | NA | NA | NA | NA | NA |
| | 10-30 | 0% | 0% | 2% | 8% | 12% |
| | 30-50 | 19% | 20% | 23% | 27% | 30% |
| | >50 | 27% (29%) | 33% (34%) | 43% (42%) | 58% (54%) | 66% (61%) |
| Yelloweye Rockfish | 0-10 | NA | NA | NA | NA | NA |
| | 10-30 | 0% | 0% | 2% | 8% | 12% |
| | 30-50 | 3% | 5% | 9% | 18% | 25% |
| | >50 | 27% (29%) | 33% (34%) | 43% (42%) | 58% (54%) | 66% (61%) |
| Cowcod | 0-10 | NA | NA | NA | NA | NA |
| | 10-30 | 24% | 26% | 29% | 35% | 38% |
| | 30-50 | 24% | 26% | 29% | 35% | 38% |
| | >50 | 27% (29%) | 33% (34%) | 43% (42%) | 58% (54%) | 66% (61%) |

**Table 7. N/5 Method: Total discard mortality (%) estimates by depth bin for cowcod, canary and yelloweye rockfish at the surface, and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty. Estimates in parentheses result from additional data made available since April 2013 from the acoustic tagging study.**

| Species | Depth (fm) | Current Surface Mortality | Mortality w/ Descending Devices | Estimate with 60% CI | Estimate with 75% CI | Estimate with 90% CI | Estimate with 95% CI |
|---|---|---|---|---|---|---|---|
| Canary Rockfish | 0-10 | 21% | 19%[1] | 20%[1] | 21%[2] | 21%[2] | 21%[2] |
| | 10-20 | 37% | 19% | 20% | 21% | 25% | 29% |
| | 20-30 | 53% | 19% | 20% | 21% | 25% | 29% |
| | 30-50 | 100% | 34% | 35% | 38% | 41% | 43% |
| | >50 | 100% | 35% (36%) | 46% (47%) | 49% (48%) | 62% (59%) | 69% (65%) |
| Yelloweye Rockfish | 0-10 | 22% | 19%[1] | 20%[1] | 21%[1] | 22%[2] | 22%[2] |
| | 10-20 | 39% | 19% | 20% | 21% | 25% | 29% |
| | 20-30 | 56% | 19% | 20% | 21% | 25% | 29% |
| | 30-50 | 100% | 22% | 23% | 26% | 34% | 39% |
| | >50 | 100% | 35% (36%) | 46% (47%) | 49% (48%) | 62% (59%) | 69% (65%) |
| Cowcod | 0-10 | 21% | 21%[2] | 21%[2] | 21%[2] | 21%[2] | 21%[2] |
| | 10-20 | 35% | 35%[2] | 35%[2] | 35%[2] | 35%[2] | 35%[2] |
| | 20-30 | 52% | 39% | 40% | 43% | 47% | 50% |
| | 30-50 | 100% | 39% | 40% | 43% | 47% | 50% |
| | >50 | 100% | 35% (36%) | 46% (47%) | 49% (48%) | 62% (59%) | 69% (65%) |

[1]The value reflects mortality estimates from the 10-20 fathom bin since mortality estimates are expected to be lower in shallower depths and less than surface mortality.

[2]The value reflects surface mortality since mortality estimates for descending devices are not expected to exceed surface release.

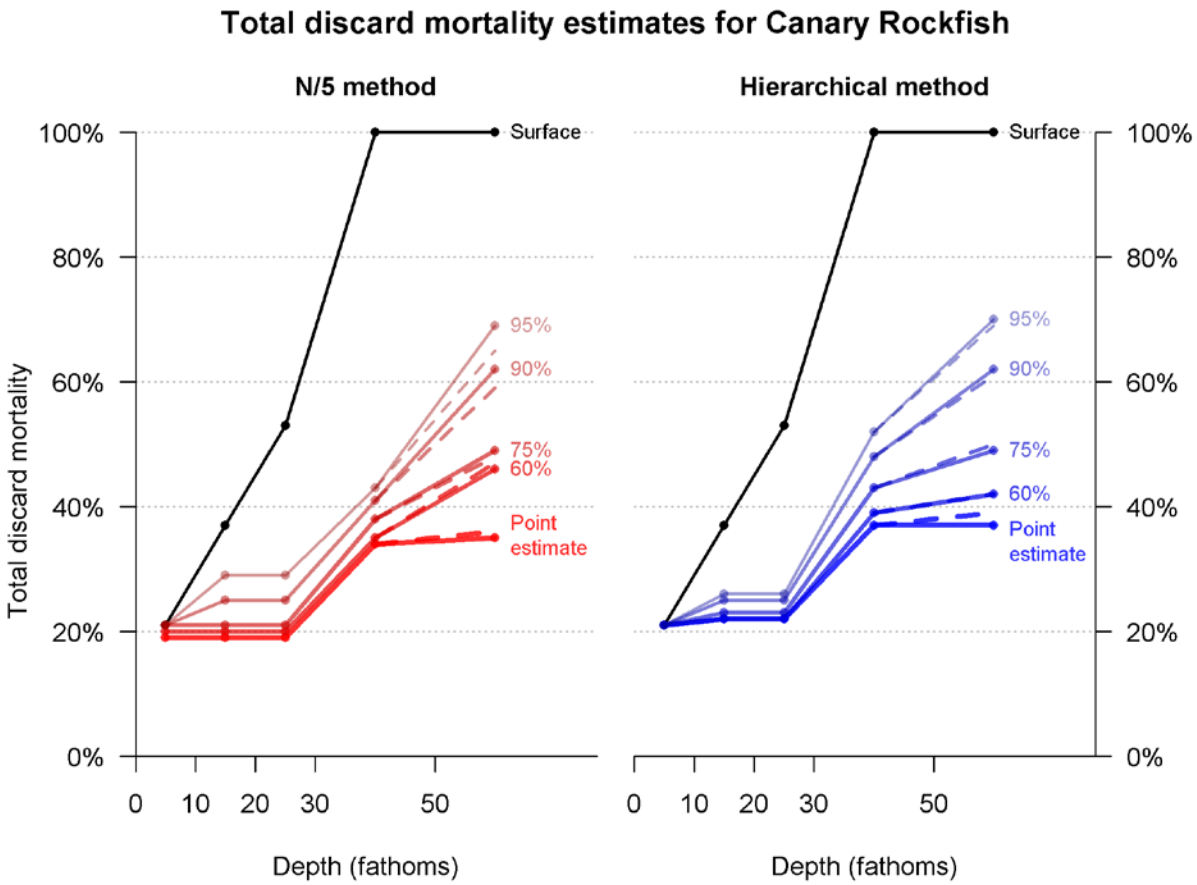


**Figure 1. Total discard mortality (%) estimates by depth bin for canary rockfish at the surface and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty. Short-term mortality estimates are calculated by both the N/5 method (left panel) and the hierarchical method (right panel) Dashed lines reflect estimates from additional data made available since April 2013 from the acoustic tagging study.**

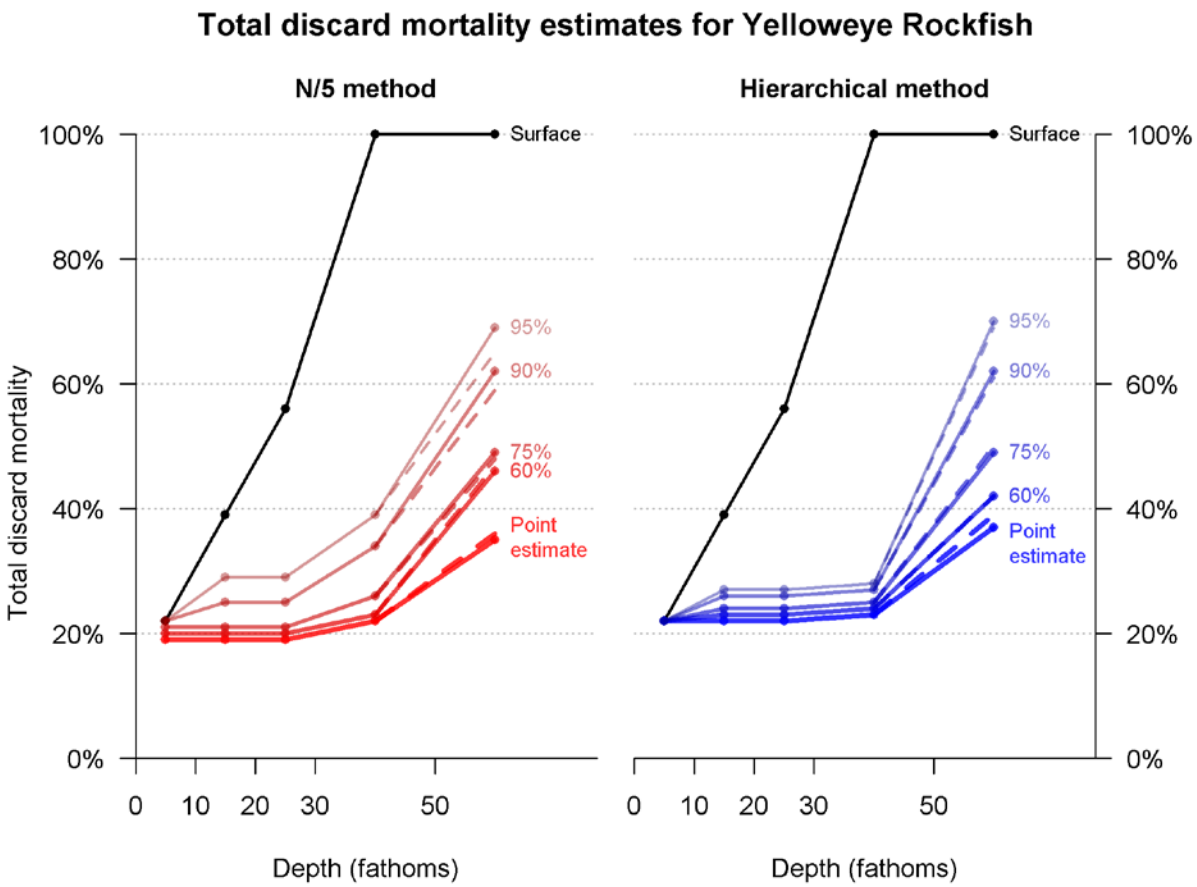


**Figure 2. Total discard mortality (%) estimates by depth bin for yelloweye rockfish at the surface and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty. Short-term mortality estimates are calculated by both the N/5 method (left panel) and the hierarchical method (right panel) Dashed lines reflect estimates from additional data made available since April 2013 from the acoustic tagging study.**

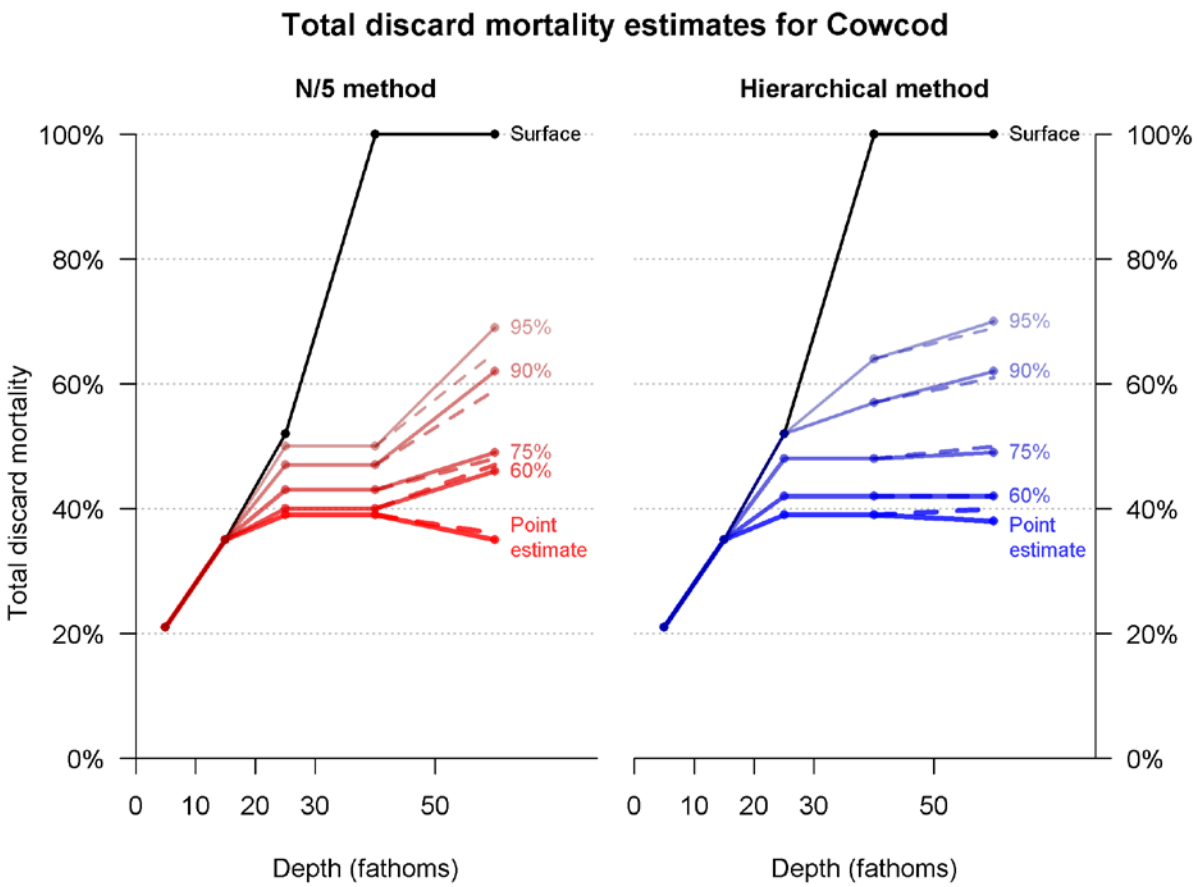


**Figure 3. Total discard mortality (%) estimates by depth bin for cowcod at the surface and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty. Short-term mortality estimates are calculated by both the N/5 method (left panel) and the hierarchical method (right panel) Dashed lines reflect estimates from additional data made available since April 2013 from the acoustic tagging study.**

## Appendix A: Description of Bayesian Hierarchical Model for Estimating Mortality

Bayesian Hierarchical Models can be used to account for differences between groups within a larger set of data while allowing all data to provide some information about the overall distribution. They have been applied in fisheries context to account for inter-species differences in stock-recruit parameters (Dorn, 2002) and spatial-differences in maturity (Punt et al., 2006).

The hierarchical model described here was used to account for inter-species differences in mortality estimates within each depth bin for the set of proxy species shown in Table 1. The model could be extended to include links between depth bins, but that additional complexity has not been included at this time. The equations below have not been subscripted by depth bin as the applications to each bin were independent.

For each species *s* included with a collection of proxy species, the number of fish observed dead, $D_s$, out of a total sample of $N_s$ for a given species is assumed to have a binomial distribution with a short-term mortality probability of $p_s$,

$$D_s \sim Binomial(N_s, p_s)$$

where the probabilities $p_s$ for each species are assumed to have a prior probability given by a beta distribution,

$$p_s \sim Beta(\alpha, \beta)$$

The beta distribution is parameterized as proposed by (Mäntyniemi et al., 2005) in terms of an expected value $p_{total}$ and a scale parameter, $\eta$,

$$\alpha = p_{total}\eta$$

$$\beta = (1 - p_{total})\eta$$

These parameters have hyper-prior distributions given by

$$p_{total} \sim Uniform(0, 1)$$

$$\eta \sim Gamma(1, 0.1)$$

Posterior distributions were estimated using MCMC sampling in software JAGS (Plummer, 2003). The combination of these priors in the absence of data are represented by the post-model-pre-data distributions shown in Figure 1 with a comparison to the posterior distributions for each quantity when applying the hierarchical analysis to two sets of parameters corresponding to the 30–50 fathom bin (with 6 species included) and the 50+ fathom bin (with 2013 data included). This comparison indicated that in general, the priors were relatively uninformative and were being updated by the data.

The hierarchical approach model provides estimates for all proxy species considered in a set as well as an estimate for an unsampled species which may be used to get estimates for species not sampled within a particular depth bin. The estimated posterior distributions for each combination of species and depth bins are shown in Figures A.2–A.6.

For the 10–30 fathom depth bin, there were 0 dead fish observed out of 119 samples. In this case the hierarchical model was not able to produce estimates without a modification to the data. To achieve convergence, 1 fish within each of the 4 species in this group was assumed dead).

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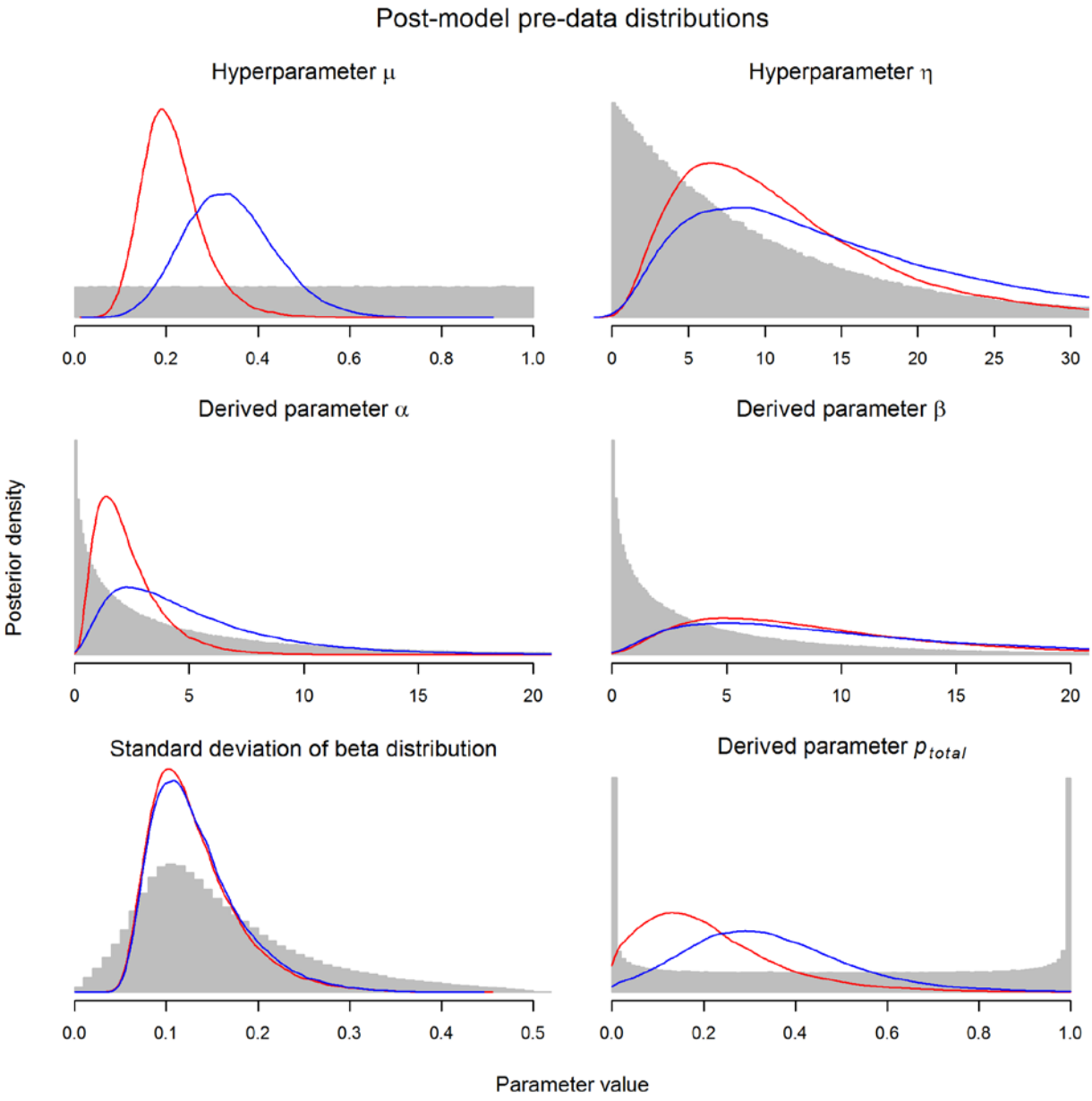


**Figure A.1. Post-model-pre-data distributions for quantities associated with the hierarchical model (grey) shown in comparison to the associated posterior distributions from two analyses with the data included (30–50 fathoms with 6-species in red and 50+ fathoms including 2013 data in blue).**

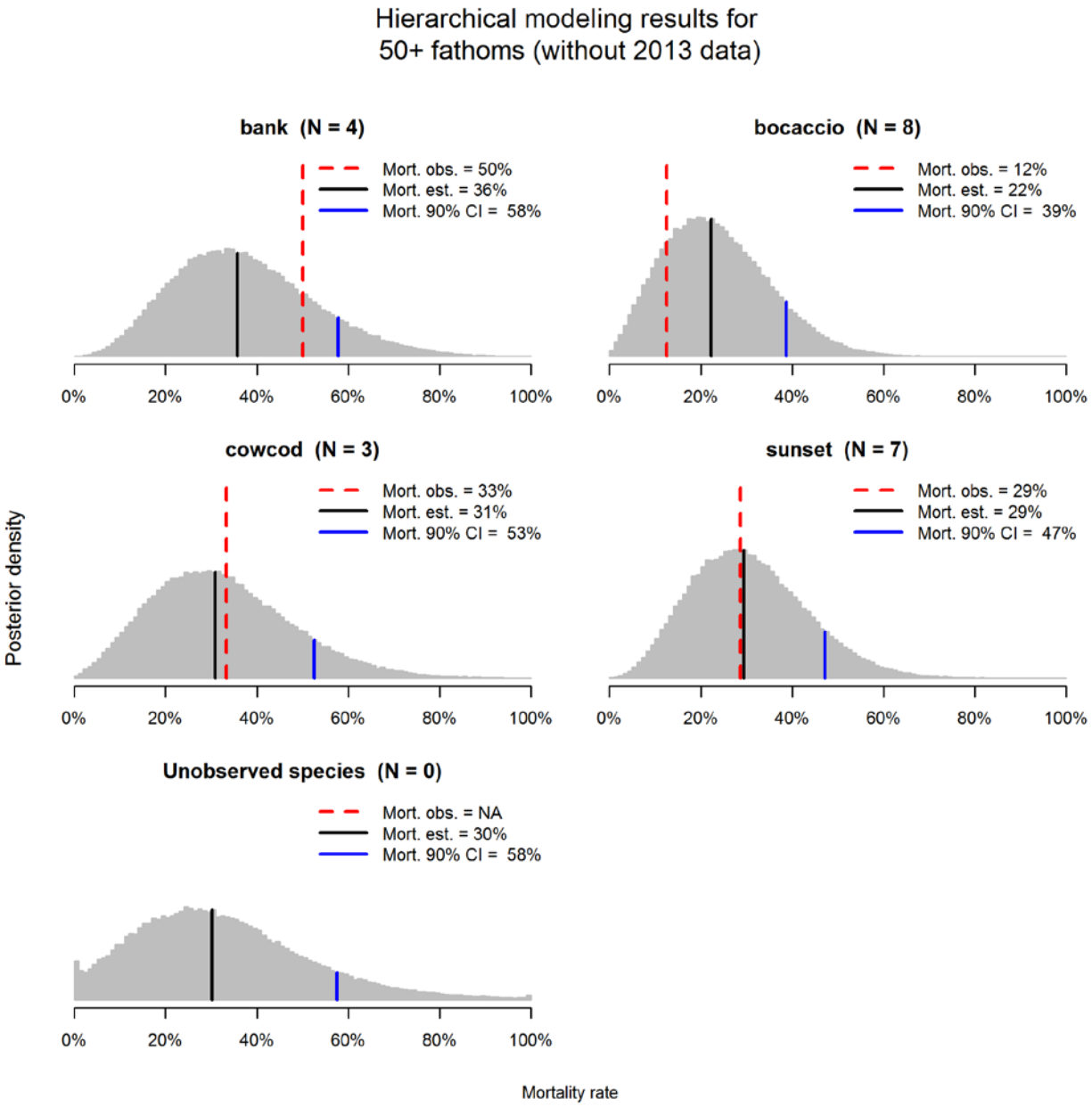


**Figure A.2. Posterior distributions of mortality estimates for the 50+ fathom depth bin from the hierarchical model. Median mortality estimates are shown by the black line with the upper 90% confidence interval shown in blue. The observed mortality fraction is shown by the red line.**

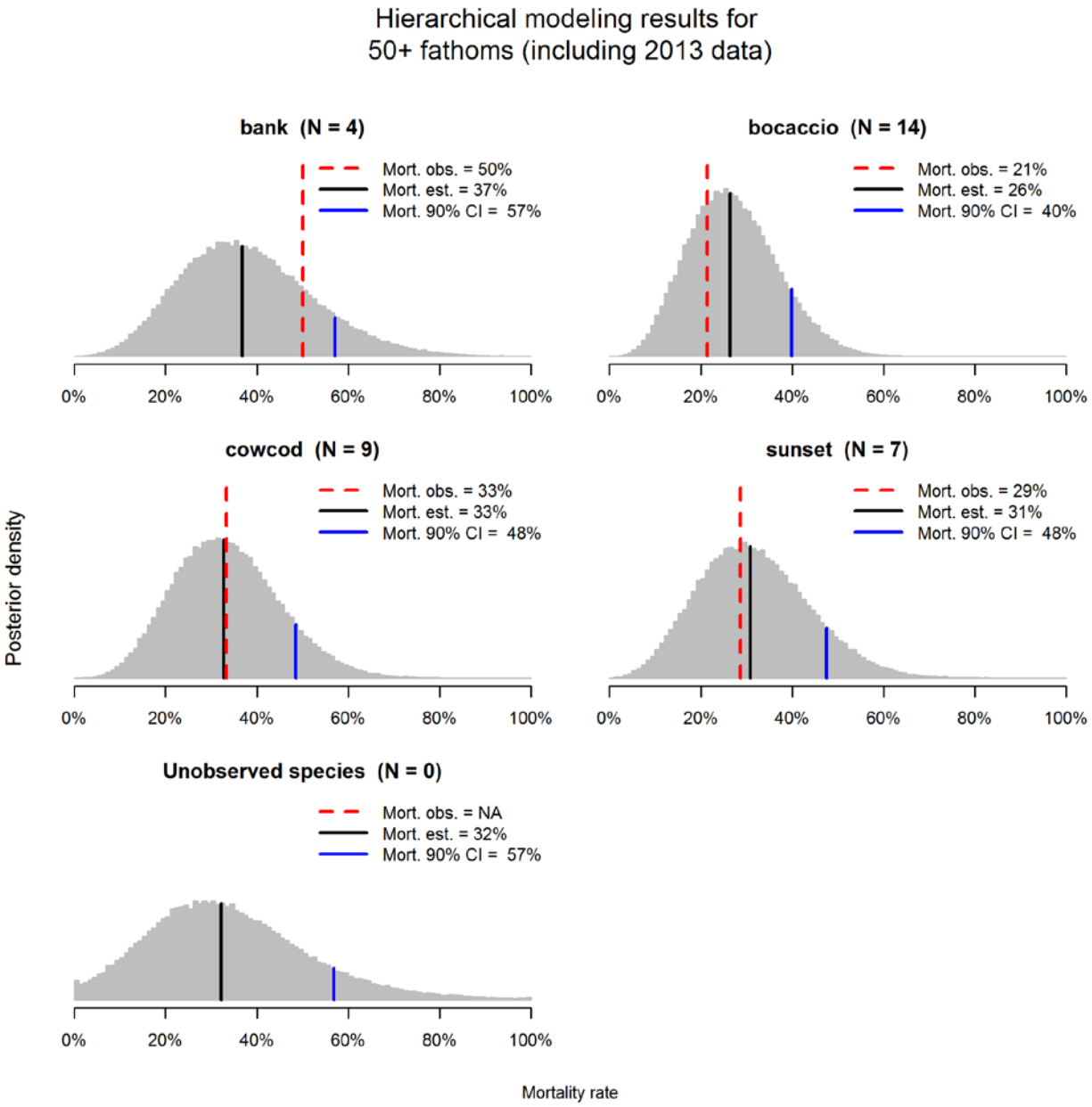


**Figure A.3. Posterior distributions of mortality estimates for the 50+ fathom depth bin with additional samples from 2013 included. Median mortality estimates are shown by the black line with the upper 90% confidence interval shown in blue. The observed mortality fraction is shown by the red line.**

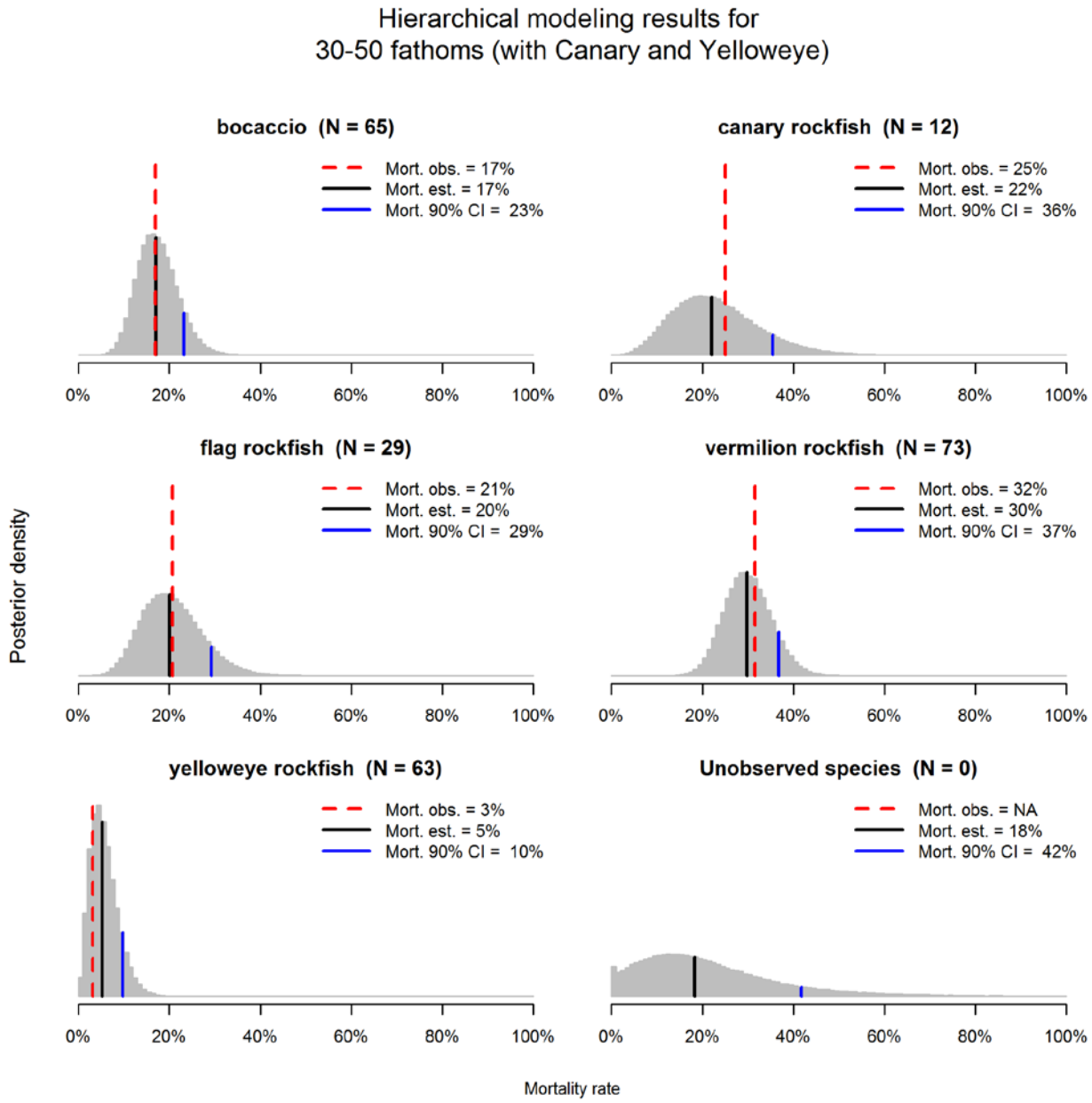


**Figure A.4. Posterior distributions of mortality estimates for the 30–50 fathom depth bin for the set of species used as proxies for Canary Rockfish and Yelloweye Rockfish. Median mortality estimates are shown by the black line with the upper 90% confidence interval shown in blue. The observed mortality fraction is shown by the red line.**

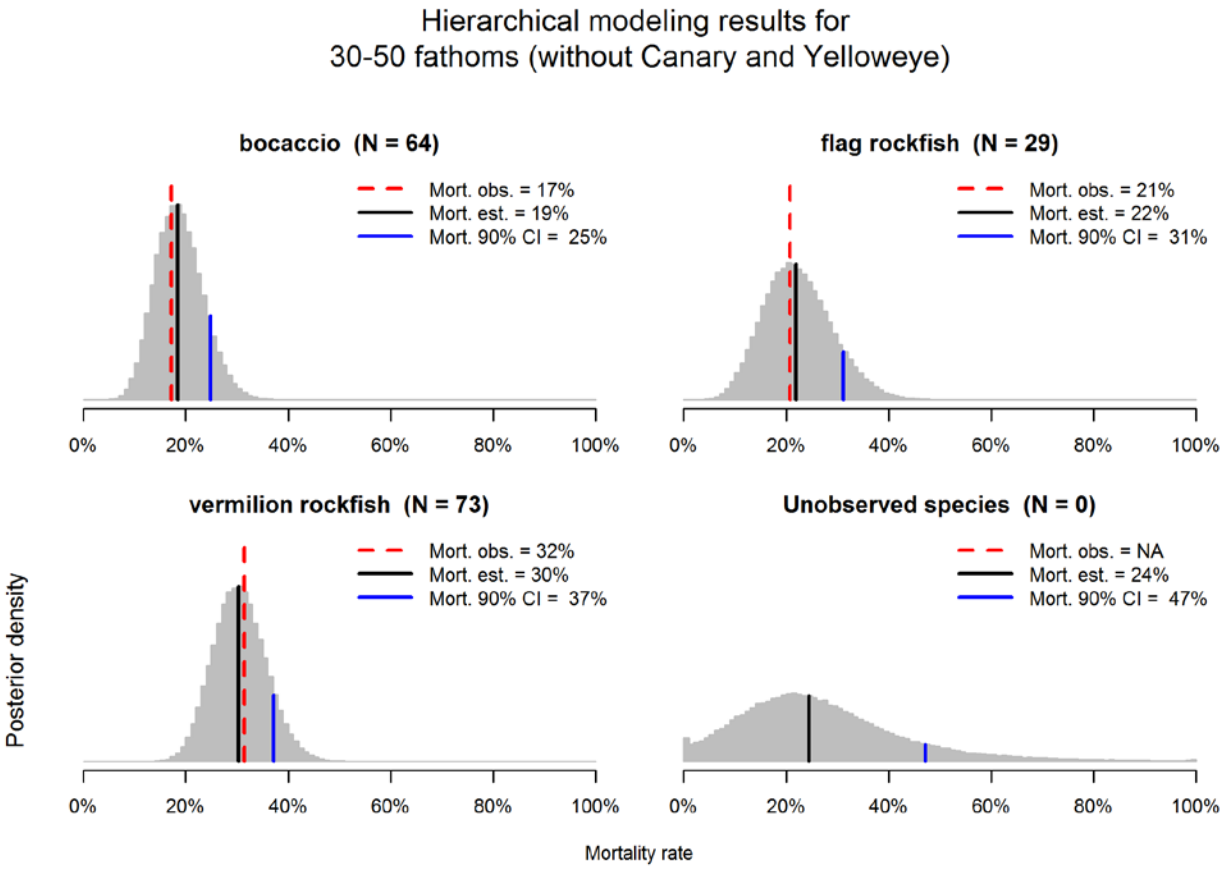


**Figure A.5. Posterior distributions of mortality estimates for the 30–50 fathom depth bin for the set of species used as proxies for Cowcod. Median mortality estimates are shown by the black line with the upper 90% confidence interval shown in blue. The observed mortality fraction is shown by the red line.**

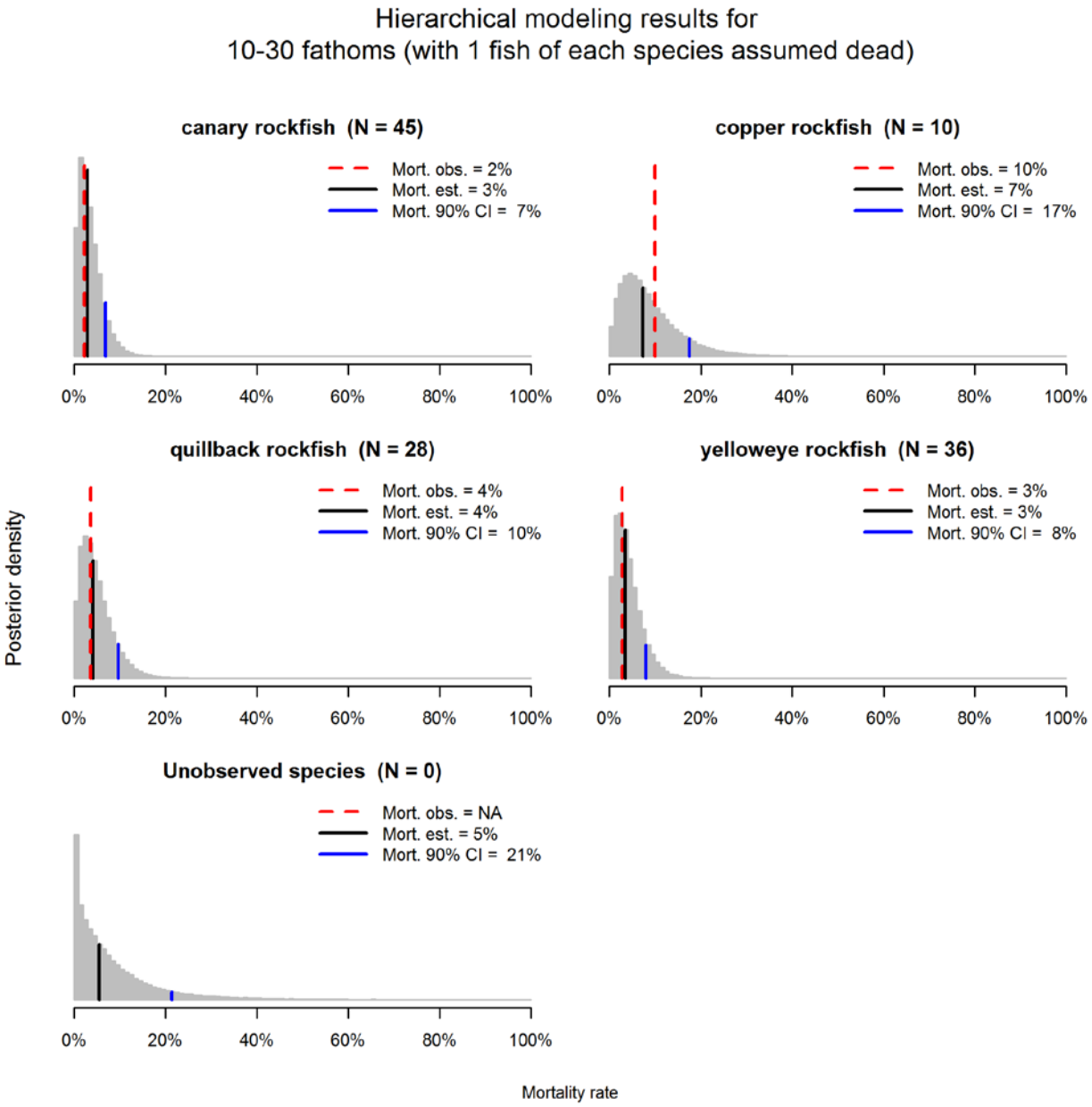


**Figure A.6. Posterior distributions of mortality estimates for the 50+ fathom depth bin from the hierarchical model. Median mortality estimates are shown by the black line with the upper 90% confidence interval shown in blue. The observed mortality fraction (adjusted to include 1 dead fish of each species) is shown by the red line.**

PFMC
02/14/14

# GROUNDFISH ADVISORY SUBPANEL REPORT ON BAROTRAUMA DEVICE MORTALITY RATES

Mr. John Budrick of the California Department of Fish and Wildlife (CDFW) addressed the Groundfish Advisory Subpanel (GAP) regarding barotrauma device mortality rates. He presented data and recommendations from the Groundfish Management Team (GMT) as well as information from the Scientific and Statistical Committee (SSC). The SSC favors the use of the Bayesian Hierarchical Method to analyze the data. The GAP concurs. The data continues to be supportive of the use of descending devices.

The inclusion of the newer data from the National Marine Fisheries Service Southwest Fisheries Science Center Hyde/Wegner studies further improves the data set for deeper water depth bins.

The GAP supports use of descending devices and, relative to mortality credits, agrees with the approach detailed by the GMT and the SSC.

The GAP is looking forward to seeing results from the Recreational Fishery Information Network Tech review and the application of credits for successful release in determining future management actions. The GAP had a short discussion about the use of these descending devices to facilitate recompression of live discards in hook-and-line commercial fisheries. However, there may be enforcement concerns with the use and standardization of these devices.

The GAP continues to encourage a moderate and progressive approach to confidence levels, reflecting existing favorable data. The consistent use of conservative buffers in the GMT analysis assures that the risk of underestimating mortality will remain low. There are buffers for short-term mortality, long-term mortality, and unaccounted-for mortality. The 10 percent buffer for uncertainty is applied to mortality estimates from the Hyde/Wegner study to account for uncertainty from the acoustic tagging results, while a 5 percent buffer is applied to estimates from cage studies. There is also a GMT revised confidence interval estimation method to account for the variance in results between proxy species and studied species. A long-term mortality estimate of 15 percent, reflecting mortality of fish between day 3 and day 10 in the Hyde/Wegner study, is applied to the two-day mortality estimates. The new confidence interval estimation methods appear to change the level of certainty.

Taking into consideration the above mentioned mortality buffers, the GAP favors the use of a 75 percent confidence level.

The GAP would like to comment that, as multiple buffers to minimize risk accumulate, there is the risk that resultant mortality rates would become so high that the value of using descending devices are minimized. If that occurs, it will be difficult to encourage anglers to see the value of using these devices.

PFMC
03/09/14

# GROUNDFISH MANAGEMENT TEAM REPORT ON PROPOSED DISCARD MORTALITY FOR COWCOD, CANARY ROCKFISH, AND YELLOWEYE ROCKFISH RELEASED USING DESCENDING DEVICES IN THE RECREATIONAL FISHERY

The Groundfish Management Team (GMT) presented two statistical methods used to calculate confidence intervals around the mortality rate point estimates reflecting the use of descending devices. We greatly appreciate the input provided by the Scientific and Statistical Committee (SSC) in their review of these methods. Point estimates and upper confidence intervals derived using the SSC-recommended Bayesian Hierarchical Model method and additional acoustic tagging data for 2013 are presented in Table 1 and Figure 1. These estimates reflect a correction to the input data causing the results for cowcod in the 50-100 fm depth bin to deviate from those provided in the GMT report provided in the March briefing book (Agenda Item D.3.b., GMT Report, March 2014).

In applying the preferred methods, the mortality estimates for cowcod in 50-100 fm (point estimate = 32 percent) were lower than the preceding 30-50 fm (point estimate = 39 percent) depth bin in part due to the application of the long-term mortality rate, presenting a logical inconsistency. A similar inconsistency is seen with confidence interval estimates where the upper 90 percent confidence interval estimate is 44 percent in the 50-100 fm bin and 57 percent for the 30-50 fm depth bin. While mortality estimates in shallower depths are provided by species other than cowcod, and cowcod are now better represented in the 50-100 fm depth bin, sample sizes remain lower than for shallower-depth bins. Consequently, the SSC recommended that the mortality rates from the 30-50 fm depth bin for cowcod be applied to the 50-100 fm depth bin to address the inconsistency in a precautionary fashion. No sample data were available for depths greater than 100 fm; therefore, mortality is assumed to be 100 percent at those depths. In the future, additional data should be incorporated, and methods for estimating point estimates and confidence intervals should be re-evaluated. The timing of future evaluation may fit well in off-year science as substantial additional data becomes available and workload allows.

In addition, the GMT discussed the next steps in review of the methods of applying the mortality rates to catch estimates. Each state provided descriptions of the methods they plan to pursue and the data available for estimating frequency of use in the private and party (or charter) boat fleets (Agenda Item D.5.b, Supplemental Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife and California Department of Fish and Wildlife State Reports, April 2013). The Recreational Fisheries Information Network (RecFIN) Technical Committee (RecTech) is scheduled to meet at the end of March and has reserved time on their agenda to review methods for applying the final discard mortality rate reflecting use of descending devices in producing estimates of mortality to be used in management. The GMT understands that the SSC is recommending that the RecTech and RecFIN statistical committees will initially review each state's sampling program and implementation plans as a first step. Reviews of state sampling programs and any reports of the RecFIN statistical committee can be provided for consideration by the SSC to provide their comments at a later Council meeting.

**Recommendations**

1. Consider adopting updated estimates reflecting the revised statistical methods and additional data.
2. Confirm direction provided to the RecFIN Technical Committee to review implementation methods for applying mortality rates brought forward by each state.
3. Confirm the intent to begin accounting for use of descending devices in estimates retrospectively for 2013 and 2014 and forward, as decided by the Council in April 2013.

**Table 1. Bayesian Hierarchical Method: Total discard mortality (%) estimates by depth bin for cowcod, canary and yelloweye rockfish at the surface, and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty.**

| Species | Depth (fm) | Current Surface Mortality | Mortality w/ Descending Devices | Estimate with 60% CI | Estimate with 75% CI | Estimate with 90% CI | Estimate with 95% CI |
|---|---|---|---|---|---|---|---|
| Canary Rockfish | 0-10 | 21% | 21%[1] | 21%[1] | 21%[1] | 21%[1] | 21%[1] |
| | 10-20 | 37% | 22% | 22% | 23% | 25% | 26% |
| | 20-30 | 53% | 22% | 22% | 23% | 25% | 26% |
| | 30-50 | 100% | 37% | 39% | 43% | 48% | 52% |
| | 50-100 | 100% | 37% | 39% | 45% | 57% | 65% |
| | >100 | 100% | 100% | 100% | 100% | 100% | 100% |
| Yelloweye Rockfish | 0-10 | 22% | 22%[1] | 22%[1] | 22%[1] | 22%[1] | 22%[1] |
| | 10-20 | 39% | 22% | 23% | 24% | 26% | 27% |
| | 20-30 | 56% | 22% | 23% | 24% | 26% | 27% |
| | 30-50 | 100% | 23% | 24% | 25% | 27% | 28% |
| | 50-100 | 100% | 35% | 39% | 45% | 57% | 65% |
| | >100 | 100% | 100% | 100% | 100% | 100% | 100% |
| Cowcod | 0-10 | 21% | 21%[1] | 21%[1] | 21%[1] | 21%[1] | 21%[1] |
| | 10-20 | 35% | 35% | 35%[1] | 35%[1] | 35%[1] | 35%[1] |
| | 20-30 | 52% | 39% | 42% | 48% | 52%[1] | 52%[1`] |
| | 30-50 | 100% | 39% | 42% | 48% | 57% | 64% |
| | 50-100 | 100% | 39%[2] | 42%[2] | 48%[2] | 57%[2] | 64%[2] |
| | >100 | 100% | 100% | 100% | 100% | 100% | 100% |

[1]The value reflects surface mortality since mortality estimates for descending devices are not expected to exceed surface release.

[2]The value reflects mortality from the next shallower depth bin since mortality estimates are not expected to decrease at deeper depths.

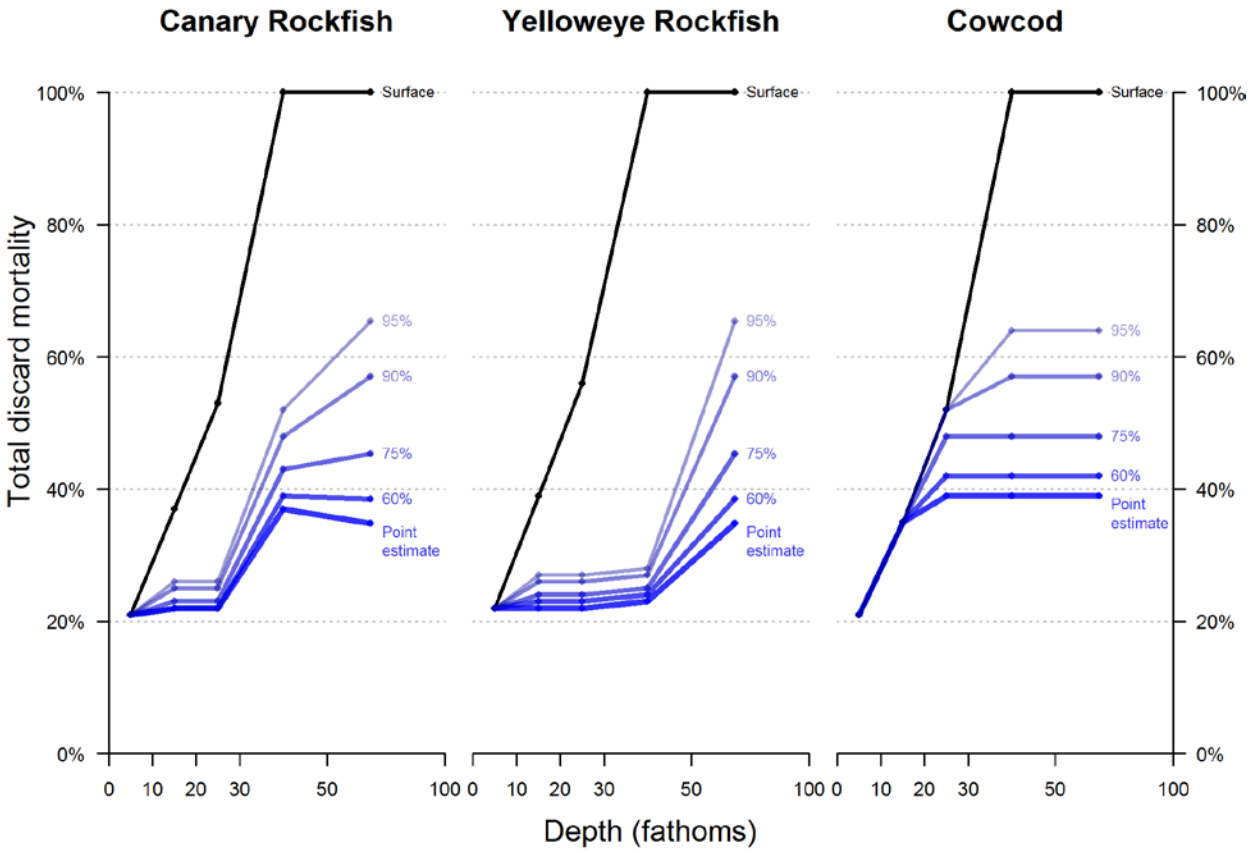


**Figure 1. Total discard mortality (%) estimates by depth bin for canary rockfish at the surface and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty.**

PFMC
03/09/14

Agenda Item D.3.b
Supplemental SSC Report
March 2014

# SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON BAROTRAUMA DEVICE MORTALITY RATES

The Scientific and Statistical Committee (SSC) reviewed the revised report on "Proposed discard mortality for cowcod, canary rockfish, and yelloweye rockfish released using descending devices in the recreational fishery" by the Groundfish Management Team (GMT). The revision was in response to SSC's comments made in April 2013. Dr. Ian Taylor of the GMT briefed the SSC on two modeling approaches for estimating confidence intervals for discard mortality rates. The SSC recommends using the Bayesian hierarchical method and incorporating the 2013 data in the analysis. In cases where mortality values decrease with depth, the SSC recommends extending the higher mortality rate values in shallower depth strata to deeper depth strata. This is a conservative approach which allows moving forward, while the modeling approach can be further refined in the future to avoid this issue. The SSC endorses the approach outlined above as the best available science for use in management. The mortality rate values should be revisited as additional data become available.

PFMC
03/09/14

Agenda Item D.4
Situation Summary
March 2014

# INSEASON ADJUSTMENTS, INCLUDING CARRYOVER

Management measures for groundfish are set by the Council with the general understanding these measures will likely need to be adjusted within the biennium to attain, but not exceed, the annual catch limits. This agenda item will consider inseason adjustments to ongoing 2014 fisheries. Potential inseason adjustments include adjustments to rockfish conservation area boundaries and adjustments to commercial and recreational fishery catch limits. Adjustments are, in part, based on catch estimate updates and the latest information from the West Coast Groundfish Observer Program.

Under this agenda item, the Council is expected to provide a recommendation to the National Marine Fisheries Service regarding the issuance of 2013 surplus carryover quota pounds (QP) into the 2014 individual fishing quota fishery. The surplus carryover provision allows up to 10 percent of the QP surplus in a vessel account to be carried over from one year to the next (see regulations at 660.140(e)(5)). The Groundfish Management Team is expected to provide a report on fishery performance in 2013 and projections for 2014 to inform decision-making. If a concern is identified, the Council can recommend reducing the carryover percentage or eliminating the provision for the species in question for the year.

**Council Action:**

1. **Consider information on the status of 2014 fisheries and adopt inseason adjustments, as necessary.**
2. **Consider data on surplus carryover QPs and fishery performance. Recommend the amount of surplus carryover that should be issued.**

Reference Materials:

None.

Agenda Order:

a. Agenda Item Overview — Kelly Ames
b. Reports and Comments of Advisory Bodies and Management Entities
c. Public Comment
d. **Council Action:** Adopt Recommendations for Adjustments to 2014 Groundfish Fisheries, Including Carryover

PFMC
02/12/14

# GROUNDFISH ADVISORY SUBPANEL REPORT ON INSEASON ADJUSTMENTS, INCLUDING CARRYOVER

The Groundfish Advisory Subpanel (GAP) met with the Groundfish Management Team (GMT) to discuss possible inseason adjustments, including carryover for the 2014 season. The GMT discussion was led by Mr. Bob Leos. The GAP offers the following recommendations and comments on proposed inseason adjustments to ongoing groundfish fisheries.

## Surplus Carryover in the Limited Entry Trawl Individual Fishing Quota (IFQ) Fishery

The GMT provided a detailed report on the IFQ fishery performance in 2013 along with projections for the 2014 fishing season. The GAP recommends the full issuance of carryover quota for all IFQ species including petrale sole and sablefish North of 36° N Latitude for 2014. The GAP requests distribution of that quota as soon as possible.

PFMC
03/09/14

# GROUNDFISH MANAGEMENT TEAM REPORT ON INSEASON ADJUSTMENTS

## Summary

### *Action Items*

Eligible Surplus Carryover:
The Groundfish Management Team (GMT) provided preliminary estimates of sablefish north of 36° N. lat. and petrale sole catch in 2013, and projections for catch in 2014 with varying amounts of carryover issued. These analyses using preliminary data indicate that eligible surplus carryover could potentially be allowed for all non-whiting individual fishing quota (IFQ) species for 2014, including sablefish north of 36° N. lat. and petrale sole, while maintaining catches below the annual catch limits (ACLs) and overfishing levels (OFLs). The GMT estimates that sablefish north of 36° N. lat. and petrale sole will both attain 92 percent of their respective ACLs without issuance of surplus carryover and 94 percent of their ACLs with full issuance. **Therefore, the GMT recommends issuance of surplus carryover for all non-whiting IFQ species.** The GMT stresses that data are preliminary, and results could change. The Council may wish to provide guidance to National Marine Fisheries Service (NMFS) on their risk tolerance in the event final data indicate higher petrale sole or sablefish attainment. The Council can a) issue carryover up to 10 percent, b) reduce the eligible carryover percent, or c) forego carryover.

### *Informational Items*

Recreational:
An update is given on opening dates and early catch expectations.

Research:
The International Pacific Halibut Commission (IPHC) will be expanding their survey into Northern California in 2014. Considerations for catch of rebuilding species are discussed.

Primary Sablefish Fishery (north of Pt. Chehalis) and Pacific Halibut:
The Council will be adopting final Pacific halibut limits for incidental retention in the primary sablefish fishery (north of Pt. Chehalis) at this meeting.

Scorecard:
An updated version of the scorecard is presented and discussed.

## Introduction

The GMT considered the most recent information on the status of ongoing fisheries, research, and requests from industry, and provides the following recommendations for 2014 inseason adjustments.

**2014 Action Items**

**Short-term Surplus Carryover (from 2013 to 2014)**

The Council requested the GMT provide a report on 2013 fishery performance, and projections for 2014 to inform decision-making regarding issuance of eligible surplus carryover from the 2013 IFQ fishery to 2014. We were provided guidance and preliminary information from the NMFS West Coast Region (WCR) regarding eligible surplus carryover quota pounds (QP) from the 2013 fishery. The 2013 data are preliminary, so the projected catch estimates (both with and without surplus carryover) are draft. Results may change once final numbers are processed and any decisions should reflect that possibility. The Council may wish to discuss the acceptable level of uncertainty in the estimates provided herein when making any recommendations regarding surplus carryover.

The GMT recommends discussing in greater detail whether to issue carryover for only two species: sablefish north of 36° N. lat. ("sablefish N.") and petrale sole, for which we provide analysis herein. The probability is low that the remaining non-whiting IFQ species (which all have attainment rates that are substantially lower than 80 percent) will reach their respective trawl allocations or annual catch limits (ACLs) in 2014, based on preliminary 2013 catch data, and performance in 2011 and 2012.

The GMT previously discussed the larger issue of carryover in June 2012 (Agenda Item D.8.b, Supplemental GMT Report) and September 2012 (Agenda Item H.5.b, Supplemental GMT Report). These discussions included the basis for allowing eligible sablefish surplus carryover from 2011 to 2012 (September 2012 statement), and discussions regarding long-term solutions to carryover provisions (September and June 2012 statements) and meaning (or consequences) of exceeding ACLs relative to exceeding OFLs (June statement). Long-term considerations for IFQ carryover and supporting analysis will be discussed as part of the 2015-16 harvest specifications, beginning with the April 2014 meeting.

*2013 Catch of Sablefish N. of 36° N. lat. and Petrale Sole*

Sablefish Catch in 2013

Table 1 shows the GMT's best estimates of sablefish mortality north of 36° N. lat. for 2013, compared to each of the sector allocations, set-asides, and the ACL. The attainment rate of the IFQ allocation for sablefish N. is currently estimated at 101 percent for 2013. Note that 116 mt surplus carryover was allowed for sablefish from 2012 to 2013, and catch did not exceed the total available pounds for IFQ in 2013; attainment of total available pounds was 95 percent (total available includes surplus carryover pounds). Attainment of the 2013 ACL for sablefish north of 36° N. lat. is currently estimated at 89 percent.

In order to make sablefish and petrale sole estimates for 2013, IFQ catch data were queried from the NMFS IFQ Program, Vessel Accounts (VA) Database on February 11, 2014. Discard data are anticipated to be final in the VA database sometime in April, when these estimates may change slightly. Sablefish primary and daily trip limit (DTL) landings were taken from the Quota Species Monitoring (QSM) Best Estimate Report with estimates for December 31, 2013, and discard mortality used for 2013 in the 2013-14 harvest specifications and management measures Environmental Impact Statement was applied. Preliminary research estimates and exempted

fishing permit catch estimates were provided from the NMFS West Coast Region, the incidental open access (OA) estimate was queried from PacFIN, with observer discard rate applied from 2012. Tribal catch of sablefish was reported from the Northwest Indian Fisheries Commission (NWIFC), catch in the at-sea fisheries was taken from the at-sea whiting summary (NORPAC via PacFIN).

**Table 1. The GMT's best estimates for sablefish mortality north of 36° N. lat. in 2013, sector allocations, set-asides, and comparison to the ACL (all in mt). See above text for data sources.**

| Sector | 2013 Estimate a/ | 2013 Allocations b/ | 2013 | ACL | % of ACL |
|---|---|---|---|---|---|
| EFP | 0.0 | 4.0 | 0% | | |
| IOA | 4.9 | 35.0 | 14% | | |
| Tribal | 357.2 | 401.0 | 89% | | |
| Research | 20.0 | 26.0 | 77% | | |
| Recreational | 1.0 | 6.1 | 16% | | |
| LE DTL | 181.5 | 204.0 | 89% | | |
| LE Primary | 1,007.8 | 1,156.0 | 87% | | |
| OA | 153.6 | 301.0 | 51% | | |
| IFQ | 1,850.8 | 1,828.0 | 101% | | |
| At-Sea whiting | 12.7 | 50.0 | 25% | | |
| **Totals** | 3,589.4 | 4,011.1 | 89% | **4,012** | **89%** |

a/ Commercial fishery catch estimates include landings and discard mortality.
b/ Commercial fishery shares and set-asides, as shown here include landings and discard mortality.

Petrale Sole Catch in 2013

Table 2 displays the GMT's best estimates of petrale sole mortality for 2013 compared to the sector allocations, set-asides, and ACL. The percent attainment of the IFQ allocation of petrale sole is estimated at 92 percent. Attainment of the 2013 ACL for petrale sole is currently estimated at 89 percent.

**Table 2. The GMT's best estimates for petrale sole mortality in 2013, sector allocations, set-asides, and comparison to the ACL and OFL (all in mt). See text above for data sources.**

| Sector | 2013 Estimate a/ | 2013 Allocation b/ | Sector Attainment | ACL | % ACL | OFL | % OFL |
|---|---|---|---|---|---|---|---|
| EFP | 0.0 | 0.0 | -- | | | | |
| Research | 11.6 | 11.6 | 100% | | | | |
| Recreational | 1.0 | 0.0 | -- | | | | |
| Incidental OA | 0.0 | 2.4 | 0% | | | | |
| Tribal | 173.6 | 220.0 | 79% | | | | |
| IFQ | 2,130.0 | 2,318.0 | 92% | | | | |
| At-Sea whiting | 0.0 | 5.0 | 0% | | | | |
| Non-Trawl, non-IFQ | 2.2 | 35.0 | 6% | | | | |
| Other c/ | 10.5 | NA | | | | | |
| **Totals** | **2,318.5** | **2,592.0** | | **2,592** | **89%** | **2,711** | **86%** |

a/ Commercial fishery estimates include landings and discard mortality.
b/ Commercial fishery shares and set-asides include landings and discard mortality.
c/ Other = non-fixed gear directed open access, exempted trawl, and misc.

*Projected Catch of Sablefish North of 36° N. Latitude and Petrale Sole During 2014*

Projected Catch of Sablefish North for 2013 and Eligible Surplus Carryover for 2014

Table 3 shows 2013 total catch, allocations, total available metric tons including eligible surplus, and corresponding attainment rates used to inform 2014 IFQ projections for sablefish N. and petrale sole catch.

**Table 3.** IFQ total catch, allocations, total available including eligible surplus, and corresponding attainment rates (2013) used to inform projections for catch in 2014 with and without issuance of surplus carryover for sablefish north of 36° N. lat. and petrale sole (all in mt).

| Species/Area Category | 2013 Total | 2013 Allocation | 2013 Attain. | Eligible Surplus 2012 to 2013 | 2013 Total Available | 2013 Attain. Total Avail. | Eligible Surplus 2013 to 2014 a/ |
|---|---|---|---|---|---|---|---|
| Sablefish North of 36° N. | 1,851 | 1,828 | 101% | 116 | 1,944 | 95% | 64 |
| Petrale Sole | 2,130 | 2,318 | 92% | 0 | 2,318 | 92% | 76 |

a/ Eligible surplus carryover is calculated per regulations at 660.140(e)(5), and is calculated based on the quota pounds that remain in vessel accounts at the end of the year, minus transfers and carryover from the previous year.

Projected Catch of Sablefish North for 2014

Table 4 shows a summary of GMT projections for all-sector attainment of the sablefish N. ACL and the coastwide sablefish OFL in 2014 under three scenarios: full issuance of eligible surplus

carryover, 50 percent issuance of carryover, and zero carryover from 2013 to 2014. Sablefish S. is assumed to have full eligible carryover issued, since attainment was low in 2013. Without issuance of carryover, the GMT's best estimate for attainment of the 2014 sablefish N. ACL is 92 percent; with full issuance of eligible surplus carryover for sablefish N. the projection increases to 94 percent of the ACL.

The GMT acknowledges there are many variables that could influence projected attainment of the shorebased IFQ allocations (for example market conditions, weather, etc.), and there is uncertainty in the estimates. Our projections for 2014 IFQ catch assume the same attainment level of the total available (includes the allocation and surplus carryover that was issued) as in 2013.

**Table 3. Summary of GMT projections for all-sector attainment of the sablefish N. ACL and coastwide sablefish OFL in 2014 under three scenarios: full issuance of eligible surplus carryover, 50% issuance of carryover, and zero carryover from 2013 to 2014. Sablefish S. is assumed to have full eligible carryover issued, since attainment was low in 2013. All values reported in mt.**

| Species | Amount Carryover Issued | IFQ Total Availabl e | 2013 IFQ Attain. Total Avail. | 2014 All Sectors Projectio n | 2014 ACL | % 2014 ACL | 2014 Sum Coastwid e Proj. Catch | 2014 OFL | % 2014 OFL |
|---|---|---|---|---|---|---|---|---|---|
| Sablefish N. | All eligible | 2,052.3 | 95% | 4,069.5 | 4,34 9 | 94 % | 4,990.9 | 7,15 8 | 68 % |
| | Half of eligible | 2,020.2 | | 4,038.9 | | 93 % | 4,870.3 | | 68 % |
| | Zero | 1,988.0 | | 4,008.3 | | 92 % | 4,839.7 | | 68 % |
| Sablefish S. | All eligible | 711.1 | 14% | 831.4 | 1,56 0 | 53 % | NA | | NA |

Projected Catch of Petrale Sole for 2014

Table 5 shows a summary of GMT projections for all-sector attainment of the petrale sole ACL and OFL in 2014 under three scenarios: full issuance of eligible surplus carryover, 50 percent issuance of carryover, and zero carryover from 2013 to 2014. Without issuance of carryover, the GMT's best estimate for attainment of the 2014 petrale sole ACL is 92 percent; with full issuance of eligible surplus carryover for petrale sole, the projection increases to 94 percent of the ACL. Without carryover, the projection for attainment of the OFL is 88 percent; with full issuance of eligible carryover, the projection rises to 90 percent of the OFL. Sector-specific projections match those of the current scorecard for this rebuilding species.

**Table 4. Summary of GMT projections for all-sector attainment of the petrale sole ACL and OFL in 2014 under three scenarios: full issuance of eligible surplus carryover, 50% issuance of carryover, and zero carryover from 2013 to 2014.**

| Species | Carryover Issued? | IFQ Total Available | 2013 IFQ Attain. Total Avail. | 2014 All Sectors Projection | ACL | % ACL | OFL | % OFL |
|---|---|---|---|---|---|---|---|---|
| Petrale sole | All eligible | 2,453.8 | 92% | 2,498.7 | 2,652 | 94% | 2,774 | 90% |
| | 50% eligible | 2,415.4 | | 2,463.4 | | 93% | | 89% |
| | Zero | 2,378.0 | | 2,429.0 | | 92% | | 88% |

The NMFS report from June 2012 indicated that issuance of surplus carryover would be consistent with the conservation requirements of the Magnuson-Stevens Act as long as projected catches were not expected to exceed the ACL (Agenda Item D.8.b, NMFS Report, June 2012). The GMT notes that the preliminary projected impacts are not expected to exceed ACL or OFL for either species.

Based on the 2014 preliminary projections relative to ACLs and OFLs for sablefish and petrale sole (Tables 4 and 5), the GMT recommends preliminarily considering sablefish and petrale sole surplus carryover for 2014, in addition to the remaining non-whiting IFQ species.

As a reminder, some on the GMT think that this annual evaluation of carryover creates disproportionate workload and is contrary to the biological rationale and management incentives around which the carryover program was originally designed. In the original view, the carryover could be run automatically with low chance of any increased risk of overfishing. Indicators based on multi-year performance of catch could flag situations where increased risk might arise — which we would expect in situations where net deficit carryover occurred in consecutive years— with much less workload. We hope to include some analysis of the multi-year approach in the April Briefing Book.

**GMT Recommendation**

- **The GMT recommends considering issuance of surplus carryover in the Shorebased IFQ Program, from 2013 to 2014 based on the preliminary data, for all non-whiting IFQ species including sablefish N. of 36° N. lat. and petrale sole.**

**Informational Items**

**2013 Catch in the Pacific Coast Groundfish, Shorebased IFQ Program**

Catch

According to preliminary 2013 data, non-whiting sector catch was up approximately 3.5 million pounds in 2013, compared with 2012, and non-whiting sector attainment of the allocations was up seven percent (not counting bycatch of whiting by the non-whiting sector, Table 6). Although

catch and attainment were both up, part of the increase in aggregate non-whiting attainment was due to large reductions in allocations for some species in 2013 versus 2012 (e.g., arrowtooth flounder, English sole). Shorebased whiting sector attainment of the Pacific whiting allocation was up three percent.

Discard/retention

Retention rates remained high, and although there were some changes among a few species (i.e., arrowtooth retention was down 10 percent, while English sole retention was up 11 percent; northern minor shelf rockfish retention was down seven percent, but southern shortspine thornyhead retention was up seven percent), retention in aggregate was relatively unchanged (down 0.1 percent) from 2012 to 2013 (Table 7).

Effort and participation

Monthly and annual catch and effort metrics for non-whiting trips between 2011 and 2013 are reported and include average catch per trip and its standard deviation, as well as monthly trip count (Table 8 and Figure 1). Patterns of monthly catch have been similar among the three years, except the spring catch spike in 2013 was more pronounced and came a month earlier than in 2012 (March rather than April). This spike in catch accompanied a peak in effort (number of trips counted here as fish tickets), and was spread across many groundfish species including flatfish, lingcod, Dover sole thornyheads and sablefish (DTS complex), as well as slope rockfish. The December spike in catch seen in 2011 was not present in 2012 or 2013; December catch in the two most recent years was at approximately the monthly average.

Overall fishery participation has dropped slightly each year of the IFQ program, in terms of the number of vessels fishing. The total number of vessels with recorded catch was 108 in 2011, 105 in 2012, and 103 in 2013. The number of vessels making non-whiting trips in 2011 is estimated at 96, 91 in 2012, and 88 in 2013. The number of vessels making shorebased whiting trips in 2011 is estimated at 26, followed by 25 in 2012 and 24 in 2013.

**Table 6. Non-whiting and whiting catch, and aggregate IFQ fishery attainment for 2012 and 2013, by species/area categories. Source: NMFS Shorebased IFQ Program, Vessel Accounts Database, February 11, 2014.**

| Species Category | 2012 NW | 2012 W | 2012 Total | 2012 Allocation | 2012 Attain. | Attain dif. % | 2013 NW | 2013 W | 2013 Total | 2013 Allocation | 2013 Attain. | Attain dif. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arrowtooth flounder | 5,442,616 | 54,616 | 5,497,232 | 20,861,131 | 26% | 6% | 5,353,810 | 12,036 | 5,365,846 | 8,479,264 | 63% | 37% |
| Bocaccio rockfish South of 40°10' N. | 19,461 | | 19,461 | 132,277 | 15% | 6% | 28,332 | | 28,332 | 165,126 | 17% | 2% |
| Canary rockfish | 13,774 | 2,168 | 15,942 | 57,761 | 28% | 13% | 18,538 | 3,988 | 22,526 | 87,964 | 26% | -2% |
| Chilipepper rockfish South of 40°10' N. | 642,329 | | 642,329 | 2,934,904 | 22% | 1% | 870,774 | | 870,774 | 2,423,983 | 36% | 14% |
| Cowcod South of 40°10' N. | 204 | | 204 | 3,968 | 5% | 4% | 486 | | 486 | 2,205 | 22% | 17% |
| Darkblotched rockfish | 188,435 | 9,483 | 197,918 | 548,808 | 36% | 0% | 249,287 | 7,198 | 256,485 | 587,976 | 44% | 8% |
| Dover sole | 16,061,843 | 1,319 | 16,063,162 | 49,018,682 | 33% | -2% | 17,583,740 | 276 | 17,584,016 | 49,018,682 | 36% | 3% |
| English sole | 324,239 | 52 | 324,291 | 21,037,611 | 2% | 1% | 486,239 | 34 | 486,273 | 14,032,486 | 3% | 2% |
| Lingcod | 831,449 | 8,060 | 839,509 | 3,991,800 | 21% | 5% | 770,029 | 16,740 | 786,769 | 3,785,298 | 21% | 0% |
| Longspine thornyheads North of 34°27' N. | 2,010,488 | 116 | 2,010,604 | 4,219,648 | 48% | -1% | 2,400,808 | | 2,400,808 | 4,100,267 | 59% | 11% |
| Minor shelf rockfish North of 40°10' N. | 86,520 | 1,701 | 88,221 | 1,150,813 | 8% | 5% | 63,023 | 2,663 | 65,686 | 1,119,948 | 6% | -2% |
| Minor shelf rockfish South of 40°10' N. | 28,522 | | 28,522 | 189,598 | 15% | 12% | 44,443 | | 44,443 | 178,574 | 25% | 10% |
| Minor slope rockfish North of 40°10' N. | 327,532 | 158,556 | 486,088 | 1,828,779 | 27% | 9% | 408,995 | 22,249 | 431,244 | 1,712,835 | 25% | -1% |
| Minor slope rockfish South of 40°10' N. | 271,674 | | 271,674 | 831,958 | 33% | 19% | 258,778 | | 258,778 | 829,181 | 31% | -1% |
| Other flatfish | 1,504,529 | 9,673 | 1,514,202 | 9,253,683 | 16% | 0% | 1,766,458 | 1,010 | 1,767,468 | 9,236,501 | 19% | 3% |
| Pacific cod | 873,604 | 94 | 873,698 | 2,502,247 | 35% | 13% | 339,572 | 85 | 339,657 | 2,480,830 | 14% | -21% |
| Pacific halibut (IBQ) North of 40°10' N. | 99,274 | 1,373 | 100,647 | 232,856 | 43% | 16% | 69,884 | 2,823 | 72,707 | 236,660 | 31% | -13% |
| Pacific ocean perch North of 40°10' N. | 90,970 | 27,176 | 118,146 | 263,441 | 45% | 6% | 92,519 | 15,543 | 108,062 | 241,241 | 45% | 0% |
| Pacific whiting | 566,526 | 144,192,498 | 144,759,024 | 151,373,798 | 96% | -3% | 706,758 | 214,511,471 | 215,218,229 | 216,707,790 | 99% | 4% |
| Petrale sole | 2,332,198 | 1 | 2,332,199 | 2,324,995 | 100% | 7% | 4,695,922 | 2 | 4,695,924 | 5,110,315 | 92% | -8% |
| Sablefish North of 36° N. | 4,824,068 | 104,082 | 4,928,150 | 5,438,797 | 91% | -4% | 4,078,867 | 1,451 | 4,080,318 | 4,030,050 | 101% | 11% |
| Sablefish South of 36° N. | 503,511 | | 503,511 | 1,133,352 | 44% | -42% | 200,064 | | 200,064 | 1,327,800 | 15% | -29% |
| Shortspine thornyheads North of 34°27' N. | 1,552,673 | 18,364 | 1,571,037 | 3,120,533 | 50% | 0% | 1,818,456 | 7,276 | 1,825,732 | 3,054,183 | 60% | 9% |
| Shortspine thornyheads South of 34,°27' N. | 803 | | 803 | 110,231 | 1% | -16% | 8,150 | | 8,150 | 110,231 | 7% | 7% |
| Splitnose rockfish South of 40°10' N. | 130,462 | | 130,462 | 3,206,513 | 4% | 1% | 101,757 | | 101,757 | 3,346,838 | 3% | -1% |
| Starry flounder | 18,404 | | 18,404 | 1,480,404 | 1% | -1% | 7,705 | | 7,705 | 1,656,774 | 0% | -1% |
| Widow rockfish | 115,746 | 224,474 | 340,220 | 755,352 | 45% | 5% | 587,145 | 320,368 | 907,513 | 2,191,016 | 41% | -4% |
| Yelloweye rockfish | 76 | | 76 | 1,323 | 6% | -4% | 139 | | 139 | 2,205 | 6% | 1% |
| Yellowtail rockfish North of 40°10' N. | 1,729,448 | 464,691 | 2,194,139 | 6,850,556 | 32% | 8% | 1,338,140 | 247,615 | 1,585,755 | 5,809,905 | 27% | -5% |
| Total | 40,591,378 | 145,278,497 | 185,869,875 | 294,855,819 | 63% | -2% | 44,348,818 | 215,172,828 | 259,521,646 | 342,066,128 | 76% | 13% |
| Non-whiting trips, not counting whiting | 40,024,852 | NA | NA | 143,482,021 | 28% | 4% | 43,642,060 | NA | NA | 125,358,338 | 35% | 7% |

**Table 7. Catch, landings, discards, retention rates, and differences, for the IFQ fishery in 2011 through 2013. Source: NMFS Shorebased IFQ Program, Vessel Accounts Database, February 11, 2014.**

| Species category | 2011 Total catch | 2011 Landed | 2011 Discarded | 2011 Retn. | 2012 Total catch | 2012 Landed | 2012 Discarded | 2012 Retn. | 2011-12 Retn. dif. | 2013 Total catch | 2013 Landed | 2013 Discarded | 2013 Retn. | 2012-13 Ret. dif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arrowtooth flounder | 5,576,000 | 5,028,511 | 547,489 | 90% | 5,497,232 | 5,028,835 | 468,397 | 91% | 1% | 5,365,846 | 4,367,126 | 998,720 | 81% | -10% |
| Bocaccio rockfish South of 40°10' N. | 11,715 | 11,695 | 20 | 100% | 19,461 | 19,433 | 28 | 100% | 0% | 28,332 | 28,317 | 15 | 100% | 0% |
| Canary rockfish | 8,125 | 7,809 | 316 | 96% | 15,942 | 15,849 | 93 | 99% | 3% | 22,526 | 22,367 | 159 | 99% | 0% |
| Chilipepper rockfish South of 40°10' N. | 688,187 | 633,063 | 55,124 | 92% | 642,329 | 525,422 | 116,907 | 82% | -10% | 870,774 | 709,392 | 161,382 | 81% | 0% |
| Cowcod South of 40°10' N. | 39 | 32 | 7 | 82% | 204 | 184 | 20 | 90% | 8% | 486 | 480 | 6 | 99% | 9% |
| Darkblotched rockfish | 200,264 | 196,530 | 3,734 | 98% | 197,918 | 192,073 | 5,845 | 97% | -1% | 256,485 | 250,607 | 5,878 | 98% | 1% |
| Dover sole | 17,269,411 | 16,921,445 | 347,966 | 98% | 16,063,162 | 15,893,570 | 169,592 | 99% | 1% | 17,584,016 | 17,355,354 | 228,662 | 99% | 0% |
| English sole | 302,936 | 238,484 | 64,452 | 79% | 324,291 | 254,653 | 69,638 | 79% | 0% | 486,273 | 434,574 | 51,699 | 89% | 11% |
| Lingcod | 639,244 | 549,482 | 89,762 | 86% | 839,509 | 772,917 | 66,592 | 92% | 6% | 786,769 | 733,432 | 53,337 | 93% | 1% |
| Longspine thornyheads North of 34°27' N. | 2,119,804 | 2,007,704 | 112,100 | 95% | 2,010,604 | 1,920,886 | 89,718 | 96% | 1% | 2,400,808 | 2,323,805 | 77,003 | 97% | 1% |
| Minor shelf rockfish North of 40°10' N. | 34,225 | 27,737 | 6,488 | 81% | 88,221 | 73,872 | 14,349 | 84% | 3% | 65,686 | 50,629 | 15,057 | 77% | -7% |
| Minor shelf rockfish South of 40°10' N. | 6,633 | 361 | 6,272 | 5% | 28,522 | 1,177 | 27,345 | 4% | -1% | 44,443 | 5,330 | 39,113 | 12% | 8% |
| Minor slope rockfish North of 40°10' N. | 319,938 | 288,269 | 31,669 | 90% | 486,088 | 443,700 | 42,388 | 91% | 1% | 431,244 | 373,519 | 57,725 | 87% | -5% |
| Minor slope rockfish South of 40°10' N. | 113,337 | 110,681 | 2,656 | 98% | 271,674 | 262,332 | 9,342 | 97% | -1% | 258,778 | 248,890 | 9,888 | 96% | 0% |
| Other flatfish | 1,527,767 | 1,257,341 | 270,426 | 82% | 1,514,202 | 1,292,219 | 221,983 | 85% | 3% | 1,767,468 | 1,539,671 | 227,797 | 87% | 2% |
| Pacific cod | 556,691 | 556,663 | 28 | 100% | 873,698 | 872,172 | 1,526 | 100% | 0% | 339,657 | 338,701 | 956 | 100% | 0% |
| Pacific halibut (IBQ) North of 40°10' N. | 70,839 | 774 | 70,065 | 1% | 100,647 | 1,522 | 99,125 | 2% | 0% | 72,707 | 3,154 | 69,553 | 4% | 3% |
| Pacific ocean perch North of 40°10' N. | 101,433 | 100,532 | 901 | 99% | 118,146 | 115,397 | 2,749 | 98% | -1% | 108,062 | 105,828 | 2,234 | 98% | 0% |
| Pacific whiting | 201,030,361 | 199,472,944 | 1,557,417 | 99% | 144,759,024 | 143,977,019 | 782,005 | 99% | 0% | 215,218,229 | 213,681,270 | 1,536,959 | 99% | 0% |
| Petrale sole | 1,789,627 | 1,753,538 | 36,089 | 98% | 2,332,199 | 2,305,905 | 26,294 | 99% | 1% | 4,695,924 | 4,648,987 | 46,937 | 99% | 0% |
| Sablefish North of 36° N. | 5,287,802 | 5,237,173 | 50,629 | 99% | 4,928,150 | 4,861,610 | 66,540 | 99% | 0% | 4,080,318 | 4,041,697 | 38,621 | 99% | 0% |
| Sablefish South of 36° N. | 1,009,286 | 995,446 | 13,840 | 99% | 503,511 | 495,781 | 7,730 | 98% | 0% | 200,064 | 191,228 | 8,836 | 96% | -3% |
| Shortspine thornyheads North of 34°27' N. | 1,574,518 | 1,560,610 | 13,908 | 99% | 1,571,037 | 1,554,790 | 16,247 | 99% | 0% | 1,825,732 | 1,806,707 | 19,025 | 99% | 0% |
| Shortspine thornyheads South of 34°27' N. | 18,653 | 18,165 | 488 | 97% | 803 | 732 | 71 | 91% | -6% | 8,150 | 8,038 | 112 | 99% | 7% |
| Splitnose rockfish South of 40°10' N. | 88,523 | 21,108 | 67,415 | 24% | 130,462 | 42,919 | 87,543 | 33% | 9% | 101,757 | 30,982 | 70,775 | 30% | -2% |
| Starry flounder | 25,936 | 24,391 | 1,545 | 94% | 18,404 | 17,781 | 623 | 97% | 3% | 7,705 | 7,070 | 635 | 92% | -5% |
| Widow rockfish | 303,703 | 277,506 | 26,197 | 91% | 340,220 | 340,081 | 139 | 100% | 9% | 907,513 | 900,146 | 7,367 | 99% | -1% |
| Yelloweye rockfish | 128 | 117 | 11 | 91% | 76 | 76 | 0 | 100% | 9% | 139 | 137 | 2 | 99% | -1% |
| Yellowtail rockfish North of 40°10' N. | 1,629,184 | 1,628,947 | 237 | 100% | 2,194,139 | 2,193,586 | 553 | 100% | 0% | 1,585,755 | 1,585,382 | 373 | 100% | 0% |
| Total | 242,304,309 | 238,927,058 | 3,377,251 | 98.6% | 185,869,875 | 183,476,493 | 2,393,382 | 98.7% | 0.1% | 259,521,646 | 255,792,820 | 3,728,826 | 98.6% | -0.1% |

**Table 8. Monthly non-whiting IFQ catch, number of trips, and CPUE as pounds per trip for years 2011 through 2013. Source: NMFS Shorebased IFQ Program, Vessel Accounts Database, February 11, 2014. Trips counted as fish tickets for this report, thus counts may be higher than the 2012 year-end report, which used vessel-days.**

| Month | 2011 catch/mo. | 2011 ave. catch/trip | 2011 std. dev. | 2011 trip count | 2012 catch/mo. | 2012 ave. catch/trip | 2012 std. dev. | 2012 trip count | 2013 catch/mo. | 2013 ave. catch/trip | 2013 std. dev. | 2013 trip count |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan | 1,391,286 | 34,782 | 21,861 | 40 | 1,539,024 | 29,038 | 17,426 | 53 | 2,233,710 | 30,185 | 22,423 | 74 |
| Feb | 2,507,351 | 30,955 | 19,563 | 81 | 2,200,166 | 28,950 | 18,758 | 76 | 3,027,955 | 31,216 | 23,579 | 97 |
| Mar | 3,354,758 | 39,938 | 21,015 | 84 | 3,335,055 | 27,114 | 20,965 | 123 | 5,761,019 | 34,915 | 27,268 | 165 |
| Apr | 3,853,779 | 33,222 | 21,219 | 116 | 5,323,364 | 40,949 | 28,148 | 130 | 4,693,929 | 35,293 | 24,992 | 133 |
| May | 3,767,669 | 32,762 | 27,712 | 115 | 4,390,770 | 36,590 | 27,177 | 120 | 3,644,764 | 33,438 | 25,181 | 109 |
| Jun | 4,201,535 | 26,592 | 23,985 | 158 | 3,084,371 | 28,559 | 23,826 | 108 | 2,832,450 | 27,769 | 22,164 | 102 |
| Jul | 3,301,089 | 23,579 | 22,140 | 140 | 3,123,430 | 24,213 | 23,225 | 129 | 3,431,817 | 27,676 | 21,251 | 124 |
| Aug | 3,744,548 | 21,037 | 20,319 | 178 | 3,849,798 | 23,332 | 22,714 | 165 | 3,723,788 | 25,505 | 18,648 | 146 |
| Sep | 3,400,229 | 17,896 | 18,407 | 190 | 3,921,447 | 21,546 | 20,735 | 182 | 3,259,778 | 24,327 | 19,668 | 134 |
| Oct | 3,692,915 | 18,373 | 17,878 | 201 | 3,767,890 | 21,655 | 21,360 | 174 | 4,891,487 | 30,194 | 25,882 | 162 |
| Nov | 2,477,049 | 20,304 | 18,545 | 122 | 3,029,196 | 22,948 | 19,734 | 132 | 3,528,466 | 38,774 | 23,210 | 91 |
| Dec | 4,753,226 | 34,196 | 29,356 | 139 | 3,032,579 | 30,026 | 25,848 | 101 | 3,336,108 | 37,484 | 23,307 | 89 |
| Sum | 40,445,434 | NA | NA | 1,564 | 40,597,090 | NA | NA | 1,493 | 44,365,271 | NA | 277,573 | 1,426 |

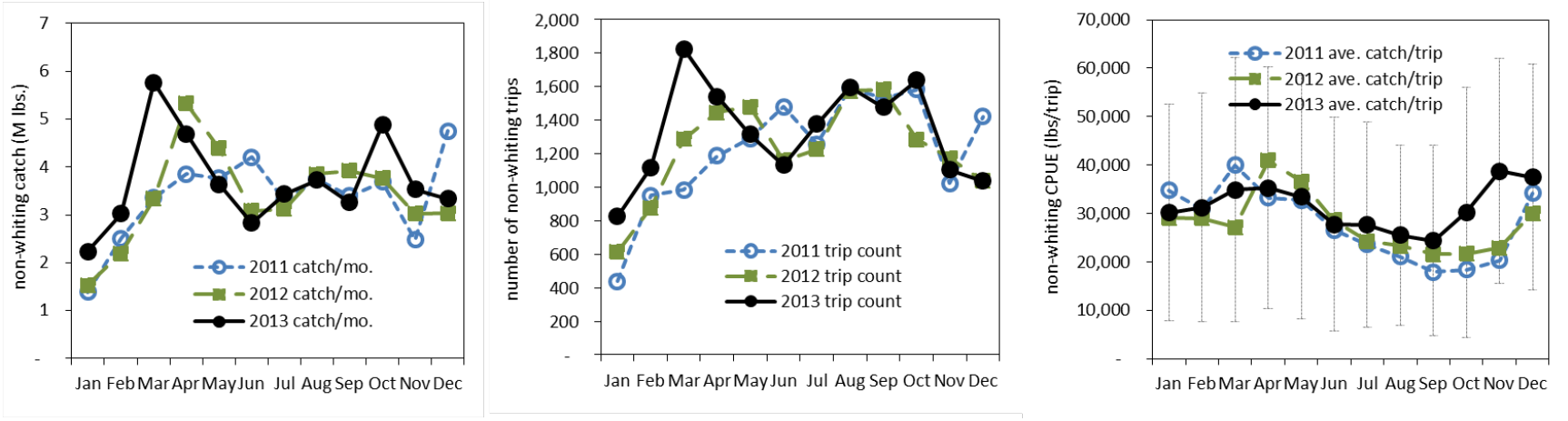


**Figure 1. Monthly non-whiting IFQ catch (left panel), number of trips (center panel), and CPUE as pounds per trip (right panel, whiskers equal ±1 standard deviation for 2013), for years 2011 through 2013. Source: NMFS Shorebased IFQ Program, Vessel Accounts Database, 2/11/14.**

## Informational Items

### Research

The GMT was informed that the International Pacific Halibut Commission (IPHC) will be doing the expanded survey into Northern California and Puget Sound in 2014. The team looked at the IPHC survey impacts over the last several years and the additional stations. The team believes the impacts to yelloweye rockfish will be within the research set asides and/or the residuals in the scorecard, even with the additional stations. As in previous years, the GMT will work with IPHC to track their catch of overfished species by trip during the course of their survey.

### Recreational Fisheries

Recreational fisheries in Washington and Oregon are open; however effort and overfished species impacts in January and February are relatively low during these months. The first California recreational fishery opened on March 1, in the southern management area. Areas north of Pt. Conception will not open until May 1, at the earliest.

### Primary Sablefish Fishery (north of Pt. Chehalis) and Pacific Halibut

The Council will be adopting final Pacific halibut limits for incidental retention in the primary sablefish fishery north of Pt. Chehalis under Agenda Item G.2. on Monday, March 10, 2014. Any changes to the landing limits will be done through a groundfish inseason rule.

### Scorecard updates

A scorecard for 2014 is presented (Attachment 1). This is based on allocations and projected overfished species mortalities for 2014 from the 2013-2014 Final Environmental Impact Statement, off the top set-asides, research, and updates to projected mortalities for the commercial and recreational fisheries.

**Attachment 1. Scorecard for the beginning of 2014. Allocations[a] and projected mortality impacts (mt) of overfished groundfish species for 2014.**

| Fishery | Bocaccio b/ | | Canary | | Cowcod b/ | | Dkbl | | Petrale | | POP | | Yelloweye | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Date*: 9 March 2014** | Allocation a/ | Projected Impacts | Allocation a/ | Projected Impacts | Allocation a/ | Projected Impacts | Allocation a/ | Projected Impacts | Allocation a/ | Projected Impacts | Allocation a/ | Projected Impacts | Allocation a/ | Projected Impacts |
| **Off the Top Deductions** | 8.4 | 9.3 | 17.5 | 18.1 | 0.1 | 0.2 | 20.8 | 17.7 | 234.0 | 234.0 | 16.5 | 20.6 | 5.8 | 5.8 |
| EFPc/ | 6.0 | 6.0 | 1.5 | 1.5 | 0.0 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Research d/ | 1.7 | 2.6 | 4.5 | 4.5 | 0.1 | 0.2 | 2.1 | 2.1 | 11.6 | 11.6 | 5.2 | 5.2 | 3.3 | 3.3 |
| Incidental OA e/ | 0.7 | 0.7 | 2.0 | 2.0 | -- | -- | 18.4 | 15.0 | 2.4 | 2.4 | 0.4 | 0.6 | 0.2 | 0.2 |
| Tribal f/ | | | 9.5 | 10.1 | | | 0.1 | 0.4 | 220.0 | 220.0 | 10.9 | 14.8 | 2.3 | 2.3 |
| **Trawl Allocations** | 79.0 | 79.0 | 54.1 | 54.1 | 1.0 | 1.0 | 293.7 | 293.7 | 2,383.0 | 2,383.0 | 129.7 | 129.7 | 1.0 | 1.0 |
| **-SB Trawl** | 79.0 | 79.0 | 41.1 | 41.1 | 1.0 | 1.0 | **278.4** | 278.4 | 2,378.0 | 2,378.0 | 112.3 | 112.3 | 1.0 | 1.0 |
| **-At-Sea Trawl** | | | 13.0 | 13.0 | | | 15.4 | 15.4 | 5.0 | 5.0 | 17.4 | 17.4 | | |
| **a) At-sea whiting MS** | | | 5.4 | 5.4 | | | **6.3** | 6.3 | | | 7.2 | 7.2 | | |
| **b) At-sea whiting CP** | | | 7.6 | 7.6 | | | 9.0 | 9.0 | | | 10.2 | 10.2 | | |
| **Non-Trawl Allocation** | 249.6 | 125.4 | 47.4 | 26.4 | 1.9 | 0.8 | **15.5** | 4.5 | 35.0 | 2.2 | **6.8** | 0.2 | 11.2 | 10.3 |
| Non-Nearshore | 76.2 | | 3.7 | | | | | | | | | | 1.1 | |
| LE FG | | | | **0.8** | | | | **3.6** | | | | 0.2 | | 0.4 |
| OA FG | | | | 0.1 | | | | **0.7** | | | | 0.0 | | **0.0** |
| Directed OA: Nearshore | 0.9 | **0.4** | 6.4 | **6.5** | | 0.0 | | 0.2 | | | | | 1.2 | 1.1 |
| Recreational Groundfish | | | | | | | | | | | | | | |
| WA | | | 3.2 | 0.9 | | | | -- | | -- | | -- | 2.9 | 2.9 |
| OR | | | 11.1 | 4.7 | | | | -- | | -- | | -- | 2.6 | 2.5 |
| CA | 172.5 | 125.0 | 23.0 | 13.4 | | 0.8 | | -- | | -- | | -- | 3.4 | 3.4 |
| **TOTAL** | 337.0 | **213.7** | 119.0 | **98.6** | 3.0 | 2.1 | 330.0 | **315.9** | 2,652.0 | 2,619.2 | 153.0 | 150.5 | 18.0 | **17.1** |
| **2014 Harvest Specification** | **337** | **337** | **119** | **119** | **3.0** | **3.0** | **330** | **330** | **2,652** | **2,652** | **153** | **153** | **18** | 18 |
| **Difference** | 0.0 | 123.3 | 0.0 | 20.4 | 0.0 | 0.9 | 0.0 | 14.1 | 0.0 | 32.8 | 0.0 | 2.5 | 0.0 | 0.9 |
| **Percent of ACL** | 100.0% | **63.4%** | 100.0% | **82.9%** | 100.0% | 68.7% | 100.0% | **95.7%** | 100.0% | 98.8% | 100.0% | 98.4% | 100.0% | **95.1%** |
| Key | | | = not applicable | | | | | | | | | | | |
| | -- | | = trace, less than 0.1 mt | | | | | | | | | | | |
| | | | = Fixed Values | | | | | | | | | | | |
| | | | = off the top deductions | | | | | | | | | | | |

a/ Formal allocations are represented in the black shaded cells and are specified in regulation in Tables 1b and 1e. The other values in the allocation columns are 1) off the top deductions, 2) set asides from the trawl allocation (at-sea petrale only) 3) ad-hoc allocations recommended in the 2013-14 EIS process, 4) HG for the recreational fisheries for canary and YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts set aside to accommodate anticipated applications. Values in this table represent the estimates from the 13-14 biennial cycle, which are currently specified in regulation.

d/ Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.

e/ The GMT's best estimate of impacts as analyzed in the 2013-2014 Environmental Impact Statement (Appendix B), which are currently specified in regulation.

f/ Tribal values in the allocation column represent the the values in regulation. Projected impacts are the tribes best estimate of catch.

# BIENNIAL HARVEST SPECIFICATIONS FOR 2015-2016 AND BEYOND GROUNDFISH FISHERIES

In September and November 2013, the Council adopted overfishing limits (OFLs) and other harvest specifications for most of the actively managed groundfish stocks and stock complexes. The Council further adopted Amendment 24 process alternatives and other 2015-2016 harvest specification and management measure alternatives for analysis. However, proposed OFLs for cowcod south of 40º10' N lat., the Washington substock of cabezon, and the Oregon and Washington substocks of kelp greenling were not available pending further analysis. These missing 2015 and 2016 harvest specifications are available at this meeting for review by the Scientific and Statistical Committee (SSC). Pending the SSC review and their recommendations, the Council is scheduled to adopt these remaining OFLs.

The Groundfish Subcommittee of the SSC met via webinar on December 11, 2013 and January 30, 2014 to review analyses of methods used to calculate these remaining OFLs. The proposed OFLs for the stocks under consideration at this meeting and recommended by the SSC's Groundfish Subcommittee are provided in Agenda Item D.5.a, Attachment 1. These analyses and the Subcommittee's reports will be reviewed by the full SSC at this meeting. The SSC's recommendations for 2015 and 2016 OFLs for these stocks will be provided in a supplemental report under this agenda item.

Council staff will also provide an overview of progress made in developing the Amendment 24/2015-2016 Harvest Specifications and Management Measures Environmental Impact Statement. Significant Council decision-making is scheduled for the next two Council meetings towards completing the 2015-16 specifications and management measures process.

The Council is tasked with adopting the remaining 2015 and 2016 OFLs based on SSC recommendations. The Council may also receive reports from other advisors and public comment under this agenda item for consideration in decisions made at this meeting and the next two meetings when final decisions on biennial harvest specifications and management measures are made.

**Council Action:**

1. **Adopt Overfishing Limits for Cowcod South of 40º10' N lat., the Oregon and Washington Substocks of Kelp Greenling, and the Washington Substock of Cabezon.**
2. **Receive Update on the Status of the 2015-16 Specifications and Management Measures Analytical Document.**

Reference Materials:

1. Agenda Item D.5.a, Attachment 1: Proposed Overfishing Limits for Cowcod South of 40º10' N lat., the Oregon and Washington Substocks of Kelp Greenling, and the Washington Substock of Cabezon.

Agenda Order:

a. Agenda Item Overview — John DeVore, Kelly Ames
b. Reports and Comments of Advisory Bodies and Management Entities
c. Public Comment
d. **Council Action:** Adopt Final Remaining Overfishing Limits and Receive Update on the Status of the NEPA Document

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# PROPOSED OVERFISHING LIMITS FOR COWCOD SOUTH OF 40º10' N LAT., THE OREGON AND WASHINGTON SUBSTOCKS OF KELP GREENLING, AND THE WASHINGTON SUBSTOCK OF CABEZON

The 2015 and 2016 overfishing limits (OFLs) for cowcod south of 40º10' N lat., kelp greenling in Oregon, kelp greenling in Washington, and cabezon in Washington were not provided in September and November of 2013 when the Scientific and Statistical Committee (SSC) and the Pacific Fishery Management Council (Council) were scheduled to decide the biennial specifications. The Council tasked the SSC with reviewing proposed methods for calculating OFLs for these stocks. The estimates in the following tables were derived by methods reviewed by the SSC Groundfish Subcommittee in webinars conducted on December 11, 2013 and January 30, 2014. The full SSC will review the Groundfish Subcommittee's reports and provide their recommendations on 2015 and 2016 OFLs for these stocks at this meeting.

## Cowcod South of 40º10' N lat.

The OFLs for the stock of cowcod south of 40º10' N lat. are based on estimates from the 2013 assessment, which covered the area from Pt. Conception south to the U.S.-Mexico border, and an OFL estimate based on depletion-based stock reduction analysis (DB-SRA) for the area from Pt. Conception north to 40º10' N lat. These OFL estimates and associated acceptable biological catches (ABCs) associated with overfishing probabilities (P*s) of 0.45 and 0.25 are provided in Table 1.

**Table 1. 2015 and 2016 Harvest Specifications (in mt) for Cowcod South of 40º10' N lat.**

| Stock | Cat. | 2015 OFL | 2015 ABC | | 2016 OFL | 2016 ABC | |
|---|---|---|---|---|---|---|---|
| | | | P* = 0.45 | P* = 0.25 | | P* = 0.45 | P* = 0.25 |
| COWCOD S. of 40$^0$10' N. lat. | | 66.6 | 59.9 | 38.2 | 66.1 | 59.4 | 37.8 |
| ***COWCOD (Conception)*** | ***2*** | ***55.0*** | ***50.2*** | ***33.8*** | ***54.1*** | ***49.4*** | ***33.3*** |
| *COWCOD (Monterey)* | *3* | *11.6* | *9.7* | *4.4* | *12.0* | *10.0* | *4.5* |

## Kelp Greenling in Oregon, Kelp Greenling in Washington, and Cabezon in Washington

The proposed OFLs for kelp greenling in Oregon, kelp greenling in Washington, and cabezon in Washington are based on DB-SRA. One issue to note is that the 2016 OFLs differ based on the choice of P* since the DB-SRA projections assume the 2015 ABC is removed in 2015. Therefore, a higher P* decided for the 2015 ABC specification will generate a relatively lower 2016 OFL since the projection model assumes more catch in 2015. Table 2 depicts the 2015 and 2016 OFLs and associated ABCs for these stocks relative to the choice of P*.

**Table 2. 2015 and 2016 Harvest Specifications (in mt) for Kelp Greenling in Oregon, Kelp Greenling in Washington, and Cabezon in Washington.**

**P* = 0.45**

| Stock | 2015 OFL | 2016 OFL |
|---|---|---|
| Kelp greenling (OR) | 14.0 | 15.5 |
| Kelp greenling (WA) | 31.4 | 27.7 |
| Cabezon (WA) | 4.0 | 4.4 |

**2015 ABCs**

| Stock | Cat. | Overfishing Probability (P*) | |
|---|---|---|---|
| | | 0.45 | 0.25 |
| Kelp greenling (OR) | 3 | 11.7 | 5.3 |
| Kelp greenling (WA) | 3 | 26.2 | 11.9 |
| Cabezon (WA) | 3 | 3.3 | 1.5 |

**2016 ABCs**

| Stock | Cat. | Overfishing Probability (P*) | |
|---|---|---|---|
| | | 0.45 | 0.25 |
| Kelp greenling (OR) | 3 | 12.9 | 5.9 |
| Kelp greenling (WA) | 3 | 23.1 | 10.5 |
| Cabezon (WA) | 3 | 3.7 | 1.7 |

**P* = 0.25**

| Stock | 2015 OFL | 2016 OFL |
|---|---|---|
| Kelp greenling (OR) | 14.0 | 16.6 |
| Kelp greenling (WA) | 31.4 | 30.0 |
| Cabezon (WA) | 4.0 | 4.7 |

**2015 ABCs**

| Stock | Cat. | Overfishing Probability (P*) | |
|---|---|---|---|
| | | 0.45 | 0.25 |
| Kelp greenling (OR) | 3 | 11.7 | 5.3 |
| Kelp greenling (WA) | 3 | 26.2 | 11.9 |
| Cabezon (WA) | 3 | 3.3 | 1.5 |

**2016 ABCs**

| Stock | Cat. | Overfishing Probability (P*) | |
|---|---|---|---|
| | | 0.45 | 0.25 |
| Kelp greenling (OR) | 3 | 13.8 | 6.3 |
| Kelp greenling (WA) | 3 | 25.0 | 11.4 |
| Cabezon (WA) | 3 | 3.9 | 1.8 |

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# ADOPTED SCHEDULE FOR DEVELOPING THE 2015-2016 AND BEYOND GROUNDFISH HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

Non-italicized font in the table below represents the proposed Council schedule for the activities associated with implementing the 2015-2016 and beyond harvest specifications and management measures. Bold font dates represent Council meeting dates.

Italicized font represents a draft schedule for the National Marine Fisheries Service (NMFS) review and implementation process, including procedures and public comment periods required by the National Environmental Policy Act (NEPA) and the Administrative Procedures Act (APA). This schedule is premised on the preparation of an environmental impact statement (EIS), which has statutorily defined minimum time periods for public comment. Note that, like the last cycle, the draft EIS (DEIS) would be circulated before the June 2014 Council meeting, when final action is scheduled. If the Council's final preferred alternative represents "substantial changes in the proposed action that are relevant to environmental concerns" (40 CFR 1502.9(c)) NMFS may have to recirculate the DEIS, delaying implementation.

| Start Date | End Date | Task |
|---|---|---|
| April 22, 2013 | April 26, 2013 | Data Moderate Stock Assessment Review (STAR) (Santa Cruz, CA): brown rockfish, China rockfish, copper rockfish, English sole, rex sole, sharpchin rockfish, stripetail rockfish, vermilion rockfish, and yellowtail rockfish. One GMT and GAP representative attended. |
| May 13, 2013 | May 17, 2013 | STAR Panel (Seattle, WA): Petrale sole and darkblotched rockfish. One GMT and GAP representative attended. |
| June 18, 2013 | June 18, 2013 | SSC Groundfish Subcommittee meets to review:<br>1. Data moderate stock assessments.<br>2. Petrale sole stock assessment.<br>3. Darkblotched rockfish stock assessment.<br>4. Bocaccio rockfish update.<br>5. Canary rockfish catch report.<br>6. Pacific ocean perch catch report.<br>7. Yelloweye rockfish catch report. |

| Start Date | End Date | Task |
|---|---|---|
| June 19, 2013 | June 20, 2013 | SSC meets to discuss and/or reach recommendations on:<br>1. Data moderate assessments recommended by the STAR Panel and the SSC Groundfish Subcommittee.<br>2. Bocaccio update and catch reports recommended by the SSC Groundfish Subcommittee.<br>3. Stock assessments for petrale sole and darkblotched rockfish recommended by the STAR Panel.<br>4. Impact projection models for use in the NEPA analysis.[1]<br>5. Proposed analytical framework for the NEPA document.<br>6. Recalculating sigmas for stock categories.<br>7. Alternatives for stock complex aggregations. |
| **June 20, 2013** | **June 25, 2013** | The Council meets and adopts:<br>1. A final schedule, process, and work plan for developing groundfish harvest specifications and management measures for 2015-2016 and beyond.<br>2. Data moderate assessments, as recommended by the SSC.<br>3. Updates and catch reports as recommended by the SSC.<br>4. Stock assessments for petrale sole and darkblotched rockfish recommended by the SSC.<br>5. Adopt the preliminary preferred alternatives (PPA) for stock complex aggregations.[2]<br>7. Projection models for use in the NEPA analysis.<br>8. Changes to the Council Operating Procedure 9 based on Council action in March 2013. |
| | *July-August 2013* | *Notice of Intent to prepare an EIS is published; 30-day public comment period. DEIS will address any comments received or, if no comments received, state so.* |

[1]The SSC Economic Subcommittee reviewed the following models: The Washington, Oregon, and California recreational impact projection models, the nearshore and non-nearshore impact projection models, the Landings Distribution model, and the Input-Output Model for Pacific Coast Fisheries (IOPAC).

[2]Stock complex alternatives are being analyzed in a separate NEPA document than the 2015-16 and beyond specifications EIS. The proposed stock complex decision-making schedule is necessary to align the 2015-2016 and beyond analysis and for timely implementation of new regulations on January 1, 2015.

| Start Date | End Date | Task |
|---|---|---|
| July 8, 2013 | July 12, 2013 | STAR Panel (Seattle, WA): Rougheye rockfish and aurora rockfish. One GMT and GAP representative to attend. |
| July 22, 2013 | July 26, 2013 | STAR Panel (Seattle, WA): Shortspine thornyheads and longspine thornyheads. One GMT and GAP representative to attend. |
| August 5, 2013 | August 9, 2013 | STAR Panel (Santa Cruz, CA): Cowcod and Pacific sanddabs. One GMT and GAP representative to attend. |
| September 11, 2013 | September 13, 2013 | SSC meets[3] to reach recommendations on:<br>1. OFLs.<br>2. Stock categories (i.e., categories 1, 2, and 3).<br>3. Sigma values.<br>4. Six full assessments, as recommended by the STAR panels.<br>5. Alternatives for stock complex aggregations.<br>6. Preliminary considerations for rebuilding plan revisions.<br>7. Elasmobranch $F_{MSY}$. |

[3]SSC meeting dates are estimated based on past meeting schedules.

| Start Date | End Date | Task |
|---|---|---|
| **September 12, 2013** | **September 17, 2013** | The Council meets and adopts:<br>1. Stock assessments for the six species subject to summer STAR panels.[4]<br>2. Adopt the final preferred alternatives (FPAs) for stock complex aggregations.<br>3. FPA for OFLs recommended by the SSC.<br>4. FPA sigma values recommended by the SSC.<br>5. A range of P* values, including PPA P* values, if applicable.<br>6. A range of acceptable biological catches (ABCs), including PPA ABCs levels, if applicable.<br>7. Preliminary policy for rebuilding plan revisions.<br>8. Preliminary range of new management measures to address conservation concerns for preliminary analysis.[5] |
| September 23, 2013 | September 27, 2013 | The SSC Groundfish Subcommittee meets to review rebuilding analyses prepared for overfished species as well as any stock assessments approved for further review by the Council (Seattle, WA). One GMT and GAP representative to attend. |
| September 30, 2013 | October 4, 2013 | The GMT meets to review new stock assessments and rebuilding analyses. The GMT, NMFS NWR, NOAA GC, and NMFS NEPA coordinator draft a recommended range of 2015-2016 harvest specifications and preliminary management measures for analysis (Seattle, WA or Portland, OR). |
| October 31, 2013 | November 1, 2013 | SSC meets[6] to reach recommendations on:<br>1. Rebuilding analyses.<br>2. Any stock assessments relegated to "mop-up" reconsiderations completed at the September 23-27 SSC Groundfish Subcommittee meeting.<br>3. Final considerations for rebuilding plan revisions. |
| **November 1, 2013** | **November 6, 2013** | The Council meets and adopts: |

[4]Council action could be postponed from September to November for any stock assessments recommended for further review by a 2013 STAR panel and/or the SSC (i.e., those assessments the Council authorizes to be sent to the September 23-27 mop-up panel).

[5]New management measures are those management measures that have not been analyzed or implemented in a previous cycle. In March 2013, the Council decided to focus on management measures necessary to achieve conservation purposes during normal biennial cycles.

[6]SSC meeting dates are estimated based on past meeting schedules.

| Start Date | End Date | Task |
|---|---|---|
| | | 1. Rebuilding analyses and any assessments sent to the mop-up panel and recommended by the SSC.<br>2. Final policy for rebuilding plan revisions.<br>3. PPA for default harvest control rules (Amendment 24).<br>4. FPA for P* values.<br>5. FPA for ABCs.<br>6. PPA for non-overfished species ACLs.<br>7. A range of overfished species ACLs, if necessary, and PPA ACLs.<br>8. A tentative range of two-year allocation alternatives.[7]<br>9. Final range of new management measures to address conservation concerns for detailed analysis.<br>10. Preliminary selection of exempted fishing permits for 2015-16. |
| November 7, 2013 | April 4, 2014 | Opportunity for state and tribal agencies to hold constituent meetings to obtain input on final harvest specifications and preliminary management measures in preparation for the April meeting. |
| November 7, 2013 | February 17, 2014[8] | The Council staff, GMT, and subject matter experts prepare the DEIS. |
| January 1, 2014 | February 15, 2014 | If necessary, convene the Ad-Hoc Groundfish Allocation Committee (GAC) for a one to two day meeting prior to the March Council meeting (i.e., the meeting will occur at some point between the start and end date). The GAC will consider the results of the analysis and generate recommendations for Council consideration. |
| *February 25, 2014* | *May 27, 2014* | *DEIS reviewed and cleared by:*<br>• *NMFS NWR*<br>• *NOAA GC*<br>• *PPI*<br>*EIS project team addresses comments to allow clearance* |

[7] Allocations to be reviewed for tentative adoption include both the trawl and non-trawl allocations as well as the within non-trawl sector apportionments and accountability measures (e.g., recreational harvest guidelines). Specifically, this includes two-year allocation alternatives for species not allocated under Amendment 21 (e.g., bocaccio, canary, cowcod, yelloweye and some non-overfished species (e.g., black rockfish in Oregon and California)).

[8] February 17, 2014 is the estimated briefing book deadline for the March 2014 Council meeting.

| Start Date | End Date | Task |
|---|---|---|
| **March 8, 2014** | **March 13, 2014** | At the March Council meeting, the Council and advisory bodies will receive an informational briefing on selected results and provide guidance or take action on emerging issues, as necessary. |
| | March 19, 2014[9] | Preliminary DEIS submitted for the April meeting advance briefing book for Council, advisory body, and public review. |
| **April 5, 2014** | **April 10, 2014** | The Council meets and adopts:<br>1. FPA for ACLs.<br>2. PPA for management measures from the range adopted at the November Council meeting.[10]<br>3. PPA for two-year allocations.<br>4. FPA for default harvest control rules (Amendment 24). |
| April 11, 2014 | May 26, 2014 | Council staff, GMT, and analytical team validate and refine analysis, consequent to the April Council meeting actions, as necessary. |
| *May 27, 2014* | *June 1, 2014* | • *Prepare DEIS*<br>• *File DEIS with Environmental Protection Agency* |
| | *June 6, 2014* | *EPA publishes Notice of Availability starting 45-day public comment period on DEIS.* |
| **June 20, 2014** | **June 25, 2014** | The Council meets and adopts:<br>1. Corrections to the FPA for harvest specifications, if needed.<br>2. Final exempted fishing permits for 2015-16.<br>3. FPA for allocations.<br>4. FPA for management measures.<br>5. A prioritized list of management measures to be analyzed outside of the harvest specifications and management measures process (i.e., those measures not directly related to conservation objectives). |
| July 7, 2014 | July 11, 2014 | The GMT meets to finalize analysis of the Council's FPA for the EIS, if necessary. |

[9]Estimated briefing book deadline for the April 2014 Council meeting.

[10]Additional management measures that require limited analysis could be added, if necessary; however, the January 1, 2015 fishery start date may be compromised.

| Start Date | End Date | Task |
|---|---|---|
| *July 9, 2014* | *August 5, 2014* | • *NWR initiates iterative process by sending draft regulations to Council staff and GMT for review.*<br>• *Council and NMFS staffs reach consensus on draft regulation language. Council staff & GMT send draft regulations comments to NWR.*<br>• *NWR provides Council staff with near complete regulations text for deeming.* |
| | *July 23, 2014* | *45-day NEPA public comment period on DEIS ends.* |
| *July 24, 2014* | | *Prepare FEIS:*<br>• *EIS project team organizes public comments and responses to comments, and revises DEIS based on public comments and final action by the Council, and prepares draft FEIS*<br>• *NWR SFD staff, Regional NEPA Coordinator, and GC conduct concurrent and expedited reviews of draft FEIS*<br>• *EIS project team addresses comments*<br>• *PPI review of draft FEIS*[11]<br>• *EIS project team addresses comments and prepares draft FEIS for public release*<br>• *NWR clearance of draft FEIS*<br>• *PPI clearance of draft* |
| *August 5, 2014* | *August 26, 2014* | • *NWR sends draft proposed rule package to GC, Issues Advisory to headquarters (HQ)*<br>• *NWR sends draft proposed rule to Edits Unit for review*<br>• *NWR makes Edits Unit changes and sends draft proposed rule and FMP amendment package (if necessary) to HQ* |
| | *August 24, 2014* | • *Council staff provides draft FMP language to NWR, if necessary*<br>• *GC & Sustainable Fisheries Division simultaneous review of FMP language*<br>• *NWR & Council staff reach consensus on rule and FMP language* |
| | *August 30, 2014* | *Council Executive Director transmits final FMP recommendation and final regulations deemed necessary and appropriate for 2013-14 groundfish fisheries.* |

[11]NMFS will have needed to secure expedited review and clearance processes agreement with PPI well in advance.

| Start Date | End Date | Task |
|---|---|---|
| | *September 7, 2014* | • *Prepare and send FEIS package to EPA (will need to overnight FEIS or request HQ to hand deliver FEIS)*<br>• *File FEIS with EPA* |
| *September 9, 2014* | *October 8, 2014* | *Proposed rule publishes, 30-day proposed rule public comment period required by APA ends.* |
| *September 19, 2014* | *October 19, 2014* | *FEIS 30-day public comment period.* |
| *October 2, 2014* | *November 16, 2014* | *Preparation of Final Rule under APA:*<br>• *SFD drafts final rule and sends package to GC for review*<br>• *GC completes review and sends to SFD*<br>• *SFD completes revisions and sends to Edits Unit*<br>• *SFD completes Edits Unit changes and sends package to HQ* |
| *October 19, 2014* | *November 27, 2014* | *NMFS prepares Record of Decision:*<br>• *Review any comments received during 30-day cooling off period and prepare draft record of decision (ROD).*<br>• *Finalize draft ROD*<br>• *NWR SFD staff, Regional NEPA Coordinator, and GC conduct concurrent and expedited reviews of draft ROD*<br>• *Project team addresses comments*<br>• *NWR clearance of draft ROD*<br>• *Draft ROD submitted to HQ for review*<br>• *HQ signs ROD (must be submitted with final rule package)* |
| | *December 2, 2014* | *Final Rule Publishes under the APA.* |
| | *January 1, 2015* | *30-day cooling off period required by APA ends; FMP amendment and regulations effective and groundfish fishery begins under new regulations.* |

**SEC. 306. STATE JURISDICTION** **16 U.S.C. 1856**

**97-453, 98-623**

(a) IN GENERAL.—

(1) Except as provided in subsection (b), nothing in this Act shall be construed as extending or diminishing the jurisdiction or authority of any State within its boundaries.

(2) For the purposes of this Act, except as provided in subsection (b), the jurisdiction and authority of a State shall extend

(A) to any pocket of waters that is adjacent to the State and totally enclosed by lines delimiting the territorial sea of the United States pursuant to the Geneva Convention on the Territorial Sea and Contiguous Zone or any successor convention to which the United States is a party;

(B) with respect to the body of water commonly known as Nantucket Sound, to the pocket of water west of the seventieth meridian west of Greenwich; and





(C) to the waters of southeastern Alaska (for the purpose of regulating fishing for other than any species of crab) that are—

(i) north of the line representing the international boundary at Dixon Entrance and the westward extension of that line; east of 138 degrees west longitude; and not more than three nautical miles seaward from the coast, from the lines extending from headland to headland across all bays, inlets, straits, passes, sounds, and entrances, and from any island or group of islands, including the islands of the Alexander Archipelago (except Forrester Island); or

(ii) between the islands referred to in clause (i) (except Forrester Island) and the mainland.

**104-297**

(3) A State may regulate a fishing vessel outside the boundaries of the State in the following circumstances:

(A) The fishing vessel is registered under the law of that State, and (i) there is no fishery management plan or other applicable Federal fishing regulations for the fishery in which the vessel is operating; or (ii) the State's laws and regulations are consistent with the fishery management plan and applicable Federal fishing regulations for the fishery in which the vessel is operating.

(B) The fishery management plan for the fishery in which the fishing vessel is operating delegates management of the fishery to a State and the State's laws and regulations are consistent with such fishery management plan. If at any time the Secretary determines that a State law or regulation applicable to a fishing vessel under this circumstance is not consistent with the fishery management plan, the Secretary shall promptly notify the State and the appropriate Council of such determination and provide an opportunity for the State to correct any inconsistencies identified in the notification. If, after notice and opportunity for corrective action, the State does not correct the inconsistencies identified by the Secretary, the authority

granted to the State under this subparagraph shall not apply until the Secretary and the appropriate Council find that the State has corrected the inconsistencies. For a fishery for which there was a fishery management plan in place on August 1, 1996 that did not delegate management of the fishery to a State as of that date, the authority provided by this subparagraph applies only if the Council approves the delegation of management of the fishery to the State by a three-quarters majority vote of the voting members of the Council.

(C) The fishing vessel is not registered under the law of the State of Alaska and is operating in a fishery in the exclusive economic zone off Alaska for which there was no fishery management plan in place on August 1, 1996, and the Secretary and the North Pacific Council find that there is a legitimate interest of the State of Alaska in the conservation and management of such fishery. The authority provided under this subparagraph shall terminate when a fishery management plan under this Act is approved and implemented for such fishery.





**99-659, 104-297**

(b) EXCEPTION.—

(1) If the Secretary finds, after notice and an opportunity for a hearing in accordance with section 554 of title 5, United States Code, that—

(A) the fishing in a fishery, which is covered by a fishery management plan implemented under this Act, is engaged in predominately within the exclusive economic zone and beyond such zone; and

(B) any State has taken any action, or omitted to take any action, the results of which will substantially and adversely affect the carrying out of such fishery management plan; the Secretary shall promptly notify such State and the appropriate Council of such finding and of his intention to regulate the applicable fishery within the boundaries of such State (other than its internal waters), pursuant to such fishery management plan and the regulations promulgated to implement such plan.

(2) If the Secretary, pursuant to this subsection, assumes responsibility for the regulation of any fishery, the State involved may at any time thereafter apply to the Secretary for reinstatement of its authority over such fishery. If the Secretary finds that the reasons for which he assumed such regulation no longer prevail, he shall promptly terminate such regulation.

(3) If the State involved requests that a hearing be held pursuant to paragraph (1), the Secretary shall conduct such hearing prior to taking any action under paragraph (1).

**97-191, 101-627**, **104-297**

(c) EXCEPTION REGARDING FOREIGN FISH PROCESSING IN INTERNAL WATERS.—

(1) A foreign fishing vessel may engage in fish processing within the internal waters of a State if, and only if—

(A) the vessel is qualified for purposes of this paragraph pursuant to paragraph (4)(C) or has received a permit under section 204(d);

(B) the owner or operator of the vessel applies to the Governor of the State for, and (subject to paragraph (2)) is granted, permission for the vessel to engage in such processing and the application specifies the species to be processed; and

(C) the owner or operator of the vessel submits reports on the tonnage of fish received from vessels of the United States and the locations from which such fish were harvested, in accordance with such procedures as the Secretary by regulation shall prescribe.

(2) The Governor of a State may not grant permission for a foreign fishing vessel to engage in fish processing under paragraph (1)—

(A) for a fishery which occurs in the waters of more than one State or in the exclusive economic zone, except after—

(i) consulting with the appropriate Council and Marine Fisheries Commission, and

(ii) considering any comments received from the Governor of any other State where the fishery occurs; and

(B) if the Governor determines that fish processors within the State have adequate capacity, and will utilize such capacity, to process all of the United States harvested fish from the fishery concerned that are landed in the State.

(3) Nothing in this subsection may be construed as relieving a foreign fishing vessel from the duty to comply with all applicable Federal and State laws while operating within the internal waters of a State incident to permission obtained under paragraph (1)(B).

(4) For purposes of this subsection—

(A) The term "fish processing" includes, in addition to processing, the performance of any other activity relating to fishing, including, but not limited to, preparation, supply, storage, refrigeration, or transportation.

(B) The phrase "internal waters of a State" means all waters within the boundaries of a State except those seaward of the baseline from which the territorial sea is measured.

(C) A foreign fishing vessel shall be treated as qualified for purposes of paragraph (1) if the foreign nation under which it is flagged will be a party to (i) a governing international fishery agreement or (ii) a treaty described in section 201(b) of this Act (16 U.S.C. 1821(b)) during the time the vessel will engage in the fish processing for which permission is sought under paragraph (1)(B).

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4. Any consensus harvest sharing agreement or negotiated settlement between the affected participants in the fishery.
5. Potential biological yield of any species or species complex affected by the allocation.
6. Consistency with the Magnuson-Stevens Act national standards.
7. Consistency with the goals and objectives of the FMP.

The modification of a direct allocation cannot be designated as routine unless the specific criteria for the modification have been established in the regulations.

### *6.3.2 Formal Allocations*

#### 6.3.2.1 Sector Allocations of Sablefish North of 36º N. Latitude

Fixed allocations of sablefish are based on the ACL specified for the area north of 36° N. latitude (to the U.S.-Canada border). Sablefish allocations north of 36° N. latitude are determined by first deducting the tribal share from the ACL specified for north of 36° N. latitude, then deducting the estimated total mortality of sablefish in research and non-groundfish fisheries (these deductions are decided in the biennial process for specifying harvest specifications and management measures based on the best available information at the time of the decision), then dividing the remaining yield (non-tribal share) between open access and LE fisheries, with the LE share divided between the trawl and fixed gear (longline and fishpot) sectors. The proportions of each of these divisions are indicated in Figure 6-1. The LE fixed gear share is then generally divided 85 percent to the primary fishery for LE fixed gear vessels with sablefish endorsements and 15 percent for the daily-trip-limit fishery, for such vessels with and without sablefish endorsements.

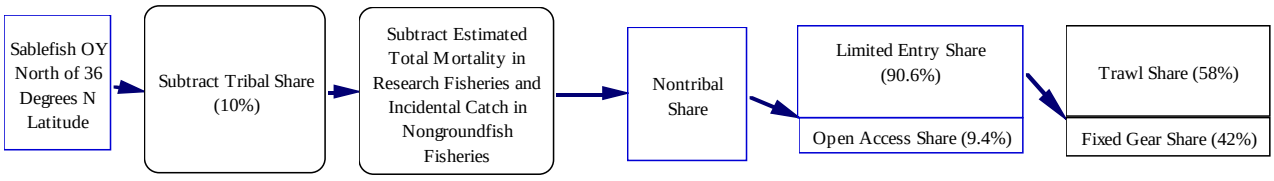



**Figure 6-1. Fixed intersector allocations of sablefish north of 36° N. latitude.**

#### 6.3.2.2 Sector allocations of Pacific Whiting

Projected total mortalities of Pacific whiting in recreational, research, and non-whiting fisheries are first set aside (these deductions are decided in the annual process for specifying Pacific whiting harvest specifications and management measures based on the best available information at the time of the decision), then a yield amount is set-aside to accommodate tribal whiting fisheries. In some years the whiting set-aside may be increased to accommodate other programs, such as EFPs. The nontribal commercial share of whiting is allocated to LE whiting trawl sectors as follows: 42 percent for the shoreside whiting sector, 24 percent for the at-sea mothership whiting sector, and 34 percent for the at-sea catcher-processor whiting sector. No more than five percent of the shoreside whiting sector's allocation may be taken and retained south of 42° N. latitude prior to the start of the shore-based whiting season north of 42° N. latitude (in waters off Oregon and Washington).

#### 6.3.2.3 Limited Entry Trawl Allocations for Amendment 21 Species

Formal allocations of species covered under Amendment 21 support Amendment 20 trawl rationalization measures. Annual OYs/ACLs are established for these species the same as for other groundfish species. The OYs/ACLs are then reduced by deducting the estimated total mortality of these species in research,

tribal, and non-groundfish fisheries, and the estimated exempted fishing permits set-asides. The remainder of the OYs/ACLs are then allocated according to the percentages in Table 6-1. The trawl percentage is for the non-treaty trawl fishery managed under Amendment 21. The non-treaty, non-trawl percentage is for the LE fixed gear fishery, the open access fishery, and the recreational fishery. Allocations to the directed non-trawl sectors (i.e., LE fixed gear, directed open access, and recreational) for the species allocated in Table 6-1 are decided, if needed, in the biennial harvest specifications and management measures process.

**Trawl/Nontrawl Allocations**

**Table 6-1. Allocation percentages for limited entry trawl and non-trawl sectors specified for FMP groundfish stocks and stock complexes under Amendment 21 (most percentages based on 2003-2005).**

| Stock or Complex | All Non-Treaty LE Trawl Sectors | All Non-Treaty Non-Trawl Sectors |
|---|---|---|
| Lingcod | 45.0% | 55.0% |
| Pacific Cod | 95.0% | 5.0% |
| Sablefish S. of 36° N. latitude | 42.0% | 58.0% |
| **PACIFIC OCEAN PERCH** | **95.0%** | **5.0%** |
| **WIDOW** | **91.0%** | **9.0%** |
| Chilipepper S. of 40°10' N. latitude | 75.0% | 25.0% |
| Splitnose S. of 40°10' N. latitude | 95.0% | 5.0% |
| Yellowtail N. of 40°10' N. latitude | 88.0% | 12.0% |
| Shortspine N. of 34°27' N. latitude | 95.0% | 5.0% |
| Shortspine S. of 34°27' N. latitude | 50 mt | Remaining Yield |
| Longspine N. of 34°27' N. latitude | 95.0% | 5.0% |
| **DARKBLOTCHED** | **95.0%** | **5.0%** |
| Minor Slope RF North of 40°10' N. latitude | 81.0% | 19.0% |
| Minor Slope RF South of 40°10' N. latitude | 63.0% | 37.0% |
| Dover Sole | 95.0% | 5.0% |
| English Sole | 95.0% | 5.0% |
| Petrale Sole | 95.0% | 5.0% |
| Arrowtooth Flounder | 95.0% | 5.0% |
| Starry Flounder | 50.0% | 50.0% |
| Other Flatfish | 90.0% | 10.0% |

**Shoreside Trawl Allocations for Initial Issuance**

Under Amendment 20 trawl rationalization, the two existing LE trawl sectors delivering groundfish to shoreside processing plants (i.e., shoreside whiting and shoreside non-whiting) are managed as one sector under a system of IFQs. However, before quota shares can be allocated to eligible LE trawl permit holders, an initial one-time allocation was made to the two shoreside sectors. All species subject to formal allocation, including sablefish north of 36° N. latitude and excluding the three trawl-dominant overfished species (i.e., darkblotched rockfish, Pacific ocean perch, and widow rockfish) and yellowtail rockfish are allocated to the shoreside whiting and shoreside non-whiting sectors based on 1995-2005 sector catch percentages (Table 6-2). An initial allocation of 300 mt of yellowtail rockfish was made to the shoreside whiting sector prior to allocation of Amendment 20 quota shares. The estimated fishing mortality of Amendment 21 species in the at-sea whiting fishery (i.e., total catch by catcher-processors and vessels delivering whiting to motherships) other than the three trawl-dominant overfished species is

set-aside from the LE trawl allocations specified in Table 6-1 prior to making the initial shoreside trawl sector allocations. While set-aside amounts for the at-sea whiting fishery (Mothership and Catcher/Processor sectors) were preliminarily decided under Amendment 21, the actual set-aside amounts will be based on the best available information on bycatch by these sectors in the biennial harvest specifications and management measures decision process.

**Table 6-2. Shoreside trawl sector catch percentages during 1995-2005 used to apportion the initial allocation of Amendment 21 species to LE trawl sectors delivering groundfish to shoreside processing plants (i.e., shoreside whiting and shoreside non-whiting).**

| Stock or Complex | 1995-2005 Sector Catch Percentage | |
|---|---|---|
| | Non-whiting | Whiting |
| Lingcod | 99.7% | 0.3% |
| Pacific Cod | 99.9% | 0.1% |
| Pacific Whiting | 0.1% | 99.9% |
| Sablefish N. of 36° N. latitude | 98.2% | 1.8% |
| Sablefish S. of 36° N. latitude | 100.0% | 0.0% |
| Chilipepper S. of 40°10' N. latitude | 100.0% | 0.0% |
| Splitnose S. of 40°10' N. latitude | 100.0% | 0.0% |
| Shortspine N. of 34°27' N. latitude | 99.9% | 0.1% |
| Shortspine S. of 34°27' N. latitude | 100.0% | 0.0% |
| Longspine N. of 34°27' N. latitude | 100.0% | 0.0% |
| Minor Slope RF North of $40^0$10’ N. latitude | 98.6% | 1.4% |
| Dover Sole | 100.0% | 0.0% |
| English Sole | 99.9% | 0.1% |
| Petrale Sole | 100.0% | 0.0% |
| Arrowtooth Flounder | 100.0% | 0.0% |
| Starry Flounder | 100.0% | 0.0% |
| Other Flatfish | 99.9% | 0.1% |

**Allocation of Trawl Dominant Overfished Species**

Under Amendment 20, the at-sea whiting sectors (i.e., catcher-processors and motherships) are managed in a system of sector-specific harvest cooperatives. Each at-sea whiting sector will manage their bycatch of canary rockfish, darkblotched rockfish, Pacific ocean perch, and widow rockfish using sector-specific total catch limits. An initial allocation of these four species needs to be made to the four existing LE trawl sectors before initial allocation of quota shares under Amendment 20. Initial sector allocation of canary rockfish would be decided in the biennial harvest specification and management measures process immediately preceding implementation of Amendments 20 and 21. The initial sector allocation of the trawl-dominant overfished species under Amendment 21 is as follows:

<u>Darkblotched Rockfish</u>

Allocate 9 percent or 25 mt, whichever is greater, of the total LE trawl allocation of darkblotched rockfish to the whiting fisheries (at-sea and shoreside combined). The distribution of the whiting trawl allocation

of darkblotched to individual whiting sectors will be done pro rata relative to the sectors' whiting allocation.

Pacific Ocean Perch

Allocate 17 percent or 30 mt, whichever is greater, of the total LE trawl allocation of Pacific ocean perch to the whiting fisheries (at-sea and shoreside combined). The distribution of the whiting trawl allocation of POP to individual whiting sectors will be done pro rata relative to the sectors' whiting allocation.

Widow Rockfish

Initially allocate 52 percent of the total LE trawl allocation of widow rockfish to the whiting sectors if the stock is under rebuilding or 10 percent of the total LE trawl allocation or 500 mt of the trawl allocation to the whiting sectors, whichever is greater, if the stock is rebuilt. If the stock is overfished when the initial allocation is implemented, the latter allocation scheme automatically kicks in when it is declared rebuilt. The distribution of the whiting trawl allocation of widow to individual whiting sectors will be done pro rata relative to the sectors' whiting allocation.

**Allocation of Pacific Halibut**

Pacific halibut is a prohibited species in the west coast LE trawl fishery. Under Amendment 20, Pacific halibut bycatch in the shoreside trawl fishery north of $40^0$10' N. latitude is managed using a system of individual bycatch quotas (IBQs). Under Amendment 21, an allocation of Pacific halibut was decided as follows:

The trawl mortality limit for legal and sublegal Pacific halibut is set at 15 percent of the Area 2A (i.e., waters off California, Oregon, and Washington) constant exploitation yield for legal size halibut, not to exceed 130,000 pounds for the first four years of trawl rationalization and not to exceed 100,000 pounds starting in the fifth year. This total bycatch limit may be adjusted downward or upward through the biennial specifications and management measures process. Part of the overall total catch limit is a set-aside of 10 mt of Pacific halibut to accommodate bycatch in the at-sea whiting fishery and bottom trawl bycatch south of 40°10' N. latitude. The set-aside amount of Pacific halibut to accommodate the incidental catch in the trawl fishery south of $40^0$10' N. latitude and in the at-sea whiting fishery may be adjusted in the biennial specifications and management measures process in future years as better information becomes available.

Under Amendment 21, it was decided that any formal allocations be specified in the FMP. Future consideration for a re-allocation of FMP species subject to a formal allocation will require an FMP amendment. The provision to temporarily suspend formal allocation if a species is declared overfished (see Section 4.6.1(5) of the FMP) is maintained under Amendment 21.

All intersector allocations will be formally reviewed along with the formal review of the trawl rationalization program five years after implementation of Amendments 20 and 21.

[Amendment 18, 21]

## 6.4 Standardized Total Catch Reporting and Compliance Monitoring Program

Fishery managers participating in the Council process need accurate estimates of total fishing mortality. Total fishing mortality data are needed to set accurate harvest specifications and management measures and to adjust management measures inseason so that ACLs/OYs may be achieved, but not exceeded.

Agenda Item D.5.a
Supplemental REVISED Attachment 4
March 2014

# Overview of the 2015 and Beyond Biennial Spex Process

## Progress to Date on the EIS and a Highlight of Select Management Issues

March 2014

# Progress to Date

- Some Delays in Getting Harvest Specifications; However, Most Have Been Provided and Reviewed. All Specifications Will be Available for the April Briefing Book
- 10-Year Projections Have Been Provided and are Being Modeled
- GMT Impact Analyses Have Been Provided and Socioeconomic Modeling is in Process
- Chapters 1-3 of EIS Have Undergone Review

# Key Issues for 2015-2016

- Management of Category 2 and 3 Stocks
- Management of Kelp Greenling and WA Cabezon
- Management of Nearshore Rockfish North of 40º10’ N lat. and Consideration for HGs
- Restructuring of Slope Rockfish Complexes
- Spiny Dogfish Management
- Cowcod Rebuilding Plan

# Management of Category 2 and 3 Stocks In or Out of a Complex?

- This is not a scientific question
- Whether to manage a stock in or out of a complex is a policy decision
  - Consideration for the Relative Uncertainty of Data Informing Specifications
  - Consideration for Level of Risk Tolerance for Negatively Impacting Stocks
  - Consideration for Fishery/Socioeconomic Effects

# Overfishing
# As Defined in NS1 Guidelines

- Overfishing (to overfish) occurs whenever a stock or stock complex is subjected to a level of fishing mortality or annual total catch that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis.
- Catch exceeds the OFL. Should the annual catch exceed the annual OFL for 1 year or more, the stock or stock complex is considered subject to overfishing.

# SSC Advice

Agenda Item I.3.b, Supplemental SSC Report, April 2012

- Since OFLs are set for stock complexes, rather than for individual stocks within a complex, the SSC recommends against using OFL contribution values to evaluate whether overfishing is occurring for component stocks.

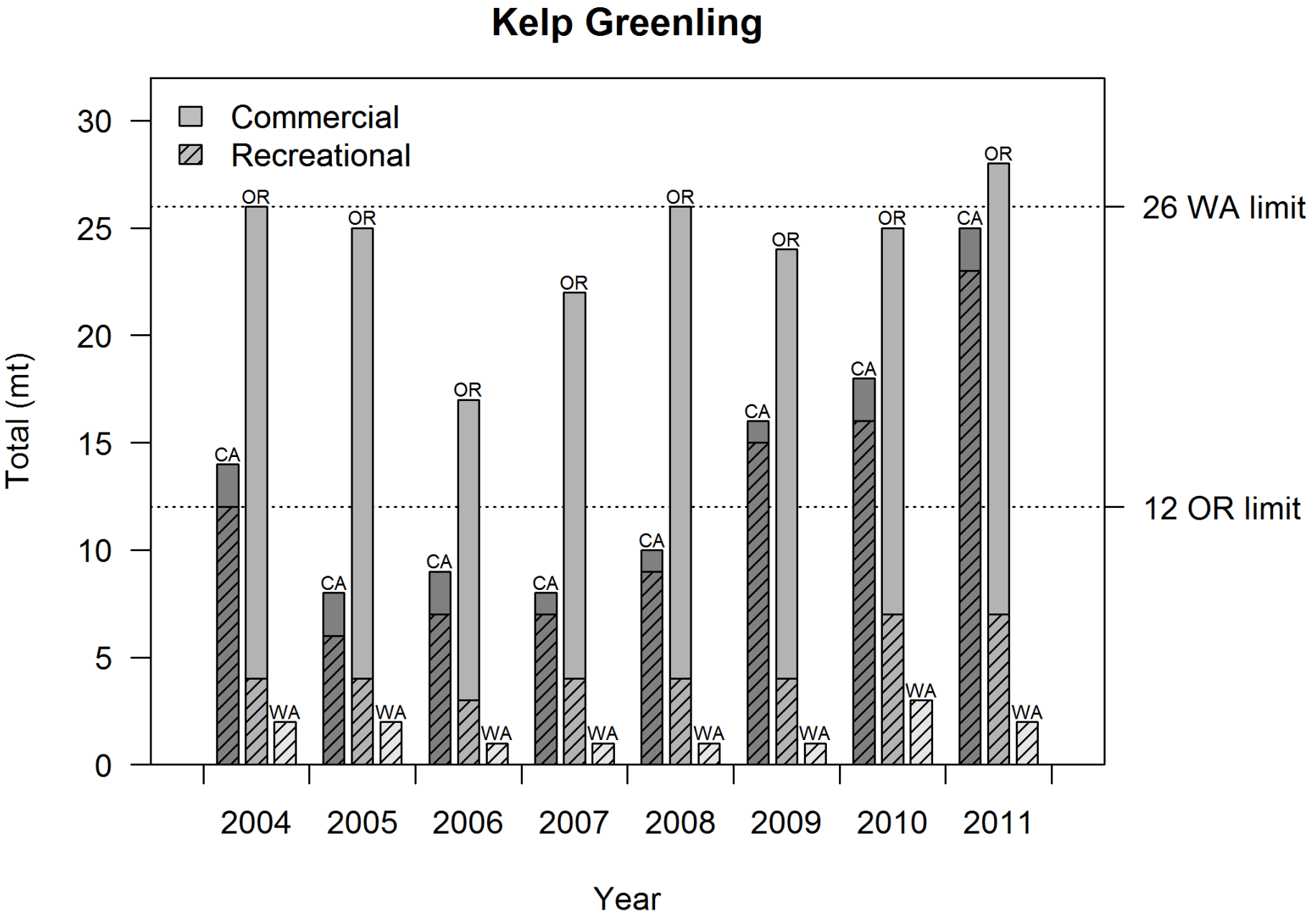
# SSC Advice

Agenda Item I.3.b, Supplemental SSC Report, April 2012

- The SSC recommends that for species with OFL contribution values, a comparison of recent catches with those values be used to identify whether stock complexes are working as they were intended. If catches regularly exceed OFL contribution values, this could indicate a problem with how the stock complexes are structured, and justify action in the next management cycle which could include removing the species concerned from the complex and prioritizing it for a full assessment.

# Cowcod, Kelp Greenling, and WA Cabezon

- SSC is Recommending the Proposed Cowcod and Kelp Greenling OFLs in Attachment 1.
- WA Cabezon OFL Change Based on SSC Methodology and Process.
- PPA to manage these stocks as well as leopard shark with stock-specific specifications.


Kelp Greenling
Commercial
Recreational
Total (mt)
30
25
20
15
10
5
0
26 WA limit
12 OR limit
CA
OR
WA
2004
2005
2006
2007
2008
2009
2010
2011
Year

# Nearshore Rockfish North Complex

- The PPA 2015 and 2016 ACL for near the Nearshore RF North complex is ~69 mt
- This compares to 94 mt in 2014 and will likely pose a management challenge
  - Changes Due to New Assessments for Brown, China, and Copper Rockfish; and Revised Blue Rockfish ACLs
- Council-Requested HG alternatives for China RF and for the complex may also pose a challenge for state nearshore management

# Cowcod South of 40º10’ N lat.

- OFLs have been proposed (Attachment 1). SSC will provide their recommendations at this meeting.
- SSC is recommending a change in how the Monterey-area ACL contribution is calculated.
  - The PPA ACL with the change in the ACL calculation is 10 mt
  - This decision is scheduled for April

# Slope Rockfish Complex Alternatives

- Is an FMP Amendment needed?
  - Council staff: any restructuring  requires an amendment to the Amendment 21 allocations
  - NMFS staff and NOAA GC believe an FMP amendment could be avoided

# Spiny Dogfish

- The PPA for managing spiny dogfish is to manage the stock with stock-specific harvest specifications
- Some of the possible management measures that can be used inseason to control catch were analyzed in the 2013-14 process and further considerations will be brought forward in this process
- There will still be catch uncertainty for some sectors
  - Inseason catch accounting will be more challenging and uncertain
  - Sector Allocations and/or Set-Asides May be Needed
  - Catch-based IFQ management, if considered, will be more challenging and/or complicated and will take more time than we have in this spex process

# Decisions in April and June

- Final harvest specifications (ACLs) are scheduled for a decision in April
- A decision on whether to restructure slope rockfish complexes and the appropriate timeline is scheduled for April
- Preliminary preferred management measures will be decided in April
- A PPA for Amendment 24 is recommended for April with a final decision in June
- All final 2015-16 spex decisions are scheduled for June

# WASHINGTON, OREGON, AND CALIFORNIA DEPARTMENTS OF FISH AND WILDLIFE REPORT ON THE 2015-2016 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

The Washington, Oregon, and California Departments of Fish and Wildlife have identified the need to change the direction the Pacific Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) are headed with regard to the management for our nearshore groundfish stocks, particularly minor nearshore rockfish and nearshore roundfish.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) clearly indicates that the states' jurisdiction and authority within its respective boundaries, to include state waters, is not diminished by the MSA (see Section 306. State Jurisdiction). In addition, the MSA allows for an FMP to delegate management of a fishery within federal waters to a state. There is a strong positive track record of the West Coast states' ability to manage species and fisheries within their control.

Nearshore rockfish and roundfish stocks (e.g., China, copper, and brown rockfish; cabezon; and kelp greenling) occur almost exclusively in state waters. There are no federal fishery-independent surveys of these nearshore stocks, and research conducted to examine life history characteristics and habitat associations in most cases is state-sponsored. The data collection programs that are responsible for collecting data used in assessments are run by the states.

Fisheries that intercept nearshore species are state-licensed or permitted fisheries that are regulated by the states. The states work with our respective stakeholders to develop and discuss conservation measures and regulatory changes to these fisheries. The states are the most knowledgeable about how the regulations for these nearshore fisheries have changed over time and how the data may be affected by these regulatory changes, rather than reflective of changes in abundance.

Nearshore rockfish and roundfish are included in federal stock assessment considerations. As part of the preparation for the 2015-2016 biennial groundfish management process, the Council received a presentation from the NMFS Northwest Fisheries Science Center (NWFSC) on proposed stock assessments to be conducted during the off-year. In that presentation, NWFSC referenced a national initiative to assess a greater number of stocks within the fishery management plan (FMP) with an acknowledgment that there were trade-offs associated with doing so—in essence, sacrificing quality for quantity.

NWFSC representatives worked with the Council's advisory bodies to develop a proposed list of stock assessments to be conducted during the off-year. There were many new stocks added to the list, including China, copper, and brown rockfish. These assessments were characterized as "data moderate" because they were developed using catch history and an index of abundance, rather than running a full model.

When this proposal was brought forward by NWFSC, the states' representatives on the Scientific and Statistical Committee (SSC), Groundfish Management Team (GMT), and the Council raised concerns, particularly about the lack of data for these stocks, implications for management, and questioned the benefits of doing "data moderate" assessments. The answer we received was basically, "we don't know unless we try." In other words, we don't know to what degree the assessment may or may not be "data moderate" and what concerns may arise from a management perspective by using these assessments until these assessments are developed. We were essentially told by the NWFSC to let them develop the assessments and see how they turn out; then, the Council can decide whether it is appropriate to use them for management—which is the definition of "results-based management."

In addition, as the Council restructured the stock complex for "Other Fish," there was a request to have "data poor" assessments (i.e., catch history and life history characteristics, without indices of abundance) for cabezon (Washington only) and kelp greenling (separately for Washington and Oregon), in order to meet status determination criteria in the MSA.

In September and November 2013, the results of these particular "data poor" and "data moderate" assessments were brought forward to the SSC, GMT, Groundfish Advisory Subpanel, and the Council. Again, state representatives on the SSC, GMT, and the Council raised concerns about the data that were not available; the data that are available, but were not considered; the selection of the indices of abundance; and the application of those indices, which were not consistently treated across these assessments, even when the assessments used the same data. All of these items could, however, be considered and addressed through a full assessment development and review process, which we think would be the appropriate step prior to using these assessments for management.

Given our ability and current state management of nearshore stocks, general concerns about the evolution of these "data moderate" and "data poor" stock assessments, and our specific concerns about how these nearshore assessments may be used for management, we request that the Council add the following alternatives for consideration under the 2015-2016 Biennial Harvest Specifications and Management Measures process:

1. Remove minor nearshore rockfish and nearshore roundfish (cabezon and kelp greenling) from the West Coast Groundfish FMP

2. Retain the nearshore stocks within the FMP and delegate the management of the nearshore fisheries to the individual states

For each of these alternatives, allow flexibility in geographic application. For example, either of these alternatives could apply to only one or two states. The intent would be to add these alternatives to the process, analyze them, and have them available for Council consideration at the June 2014 meeting.

# GROUNDFISH ADVISORY SUBPANEL REPORT ON BIENNIAL HARVEST SPECIFICATIONS FOR 2015-2016 AND BEYOND GROUNDFISH FISHERIES

The Groundfish Advisory Subpanel (GAP) heard a presentation by Mr. John DeVore regarding overfishing levels (OFLs) for cowcod, kelp greenling, and cabezon. He also provided the GAP with the most recent data regarding China, copper, and brown rockfish/nearshore complex and the rougheye/minor slope complex restructuring.

**Cowcod South of 40°10' N lat.**

The GAP recommends adopting the OFLs as put forth by the Scientific and Statistical Committee (SSC), noting the potential range of options for corresponding acceptable biological catches in Attachment 1 under this agenda item.

The GAP notes OFLs for cowcod are encouraging and looks forward to the availability of more fish for research and reducing the pressure on the fleets in California.

**Kelp greenling in Oregon, kelp greenling in Washington and cabezon in Washington**

Like cowcod, the GAP recommends adopting the OFLs as put forth by the SSC in Attachment 1 for kelp greenling and cabezon. Members acknowledge the differences in potential OFLs and ABCs depending on which P* is chosen, but anticipate delving into this issue in greater detail at the April meeting.

**Other issues: complexes**

The GAP spent considerable time discussing issues regarding two groundfish complexes: nearshore and minor slope rockfish in the north. Two species, China rockfish in the nearshore complex and rougheye in the minor slope complex in the north, are of particular concern. The GAP will provide detailed comments on this issue at the April meeting.

GAP members would like to remind the Council that the legal requirement to determine whether overfishing is occurring is not when a contribution OFL value for a component stock is exceeded, but when a *complex* OFL is exceeded. Managing to an OFL on individual species within a complex is a policy decision that the Council can make, but is not required. Determining OFLs for individual species within a complex and managing to those levels can result in no fishing activity whatsoever without any particular savings to overall complexes.

The National Standard 1 Guidelines envisioned the use of complexes; the Council has used complexes to effectively manage the groundfish fishery. Given this background, the GAP addresses issues relating to specific complexes below.

*Nearshore complex*

The GAP notes several issues regarding the nearshore complex, primarily with the status of China rockfish. The data-moderate stock assessment shows the species is caught primarily in state waters and resulting OFLs and annual catch limits will be prohibitively low. Therefore, China rockfish could be a very constraining stock in the open access fishery and, to an extent, limited entry fixed gear and sport fisheries.

At this point, the GAP recommends not worrying about an OFL for China rockfish and dealing solely with the nearshore complex during the 2015/16 harvest specifications cycle. It may be appropriate to recommend a full assessment of China rockfish in the next stock assessment cycle to better inform future decisions regarding this stock and the nearshore complex.

Alternatively, the GAP discussion also referenced the letter from all three states (Agenda Item D.5.b, Supplemental WDFW/ODFW/CDFW report), and may support the states' recommendation to remove from the fishery management plan (FMP) China rockfish and other nearshore species as may be appropriate in Oregon and Washington *only* with a target implementation date of 2016 (Note: The GAP suggests a change in the date of implementation to allow full analysis in a timely manner). The existing management relationship for these nearshore species between National Marine Fisheries Service/Council and California would remain the same.

The GAP believes the stock structure and management of China make it a reasonable candidate for removal from the Fishery Management Plan in the waters off Oregon and Washington.

*Rougheye out of minor slope north of 40°10'*

The issue presented to the GAP was how best to approach the removal of rougheye and shortraker rockfish from the minor slope rockfish category north of 40°10'. The need to make this change is a result of an earlier decision to set a separate OFL for rougheye based upon the recent stock assessment.

The GAP notes that removing rougheye rockfish from the complex will cause tremendous disruption to the commercial groundfish fleets. Rougheye rockfish is caught incidentally in the longline, whiting, and bottom trawl fisheries. Therefore, it would be necessary to provide an amount of rougheye rockfish to these fishery sectors in a way that is as least disruptive as possible. Unfortunately, there does not appear to be an easy solution to this situation.

For longline and whiting, area restrictions may reduce impacts, but would come at a very high cost of loss of fishing opportunity in those areas. For the trawl IFQ fishery, the amount that potentially could be allocated would likely be so low that rougheye rockfish would become a new constraining species in the fishery and cause a significant amount of harm, much like yelloweye and canary rockfish already have. For example, quota share allocations to individual fishermen would be too small to accommodate fishing opportunity.

These impacts are cumulative on the entire industry.

Moreover, constraining species in the traditional trawl fishery have largely already pushed trawlers off of the shelf to the slope. With rougheye becoming a new constraining species -- this time on the slope -- the only area left to fish will be in very deep water.

The GAP reviewed information in the rougheye stock assessment that indicates the stock is currently above the population target and, under status quo harvest, would remain well above $B_{40}$ for the next 10 years (See Table h., page xiii from the executive summary in the rougheye stock assessment from the September 2013 PFMC meeting, attached). Even harvest levels 80 mt higher than the proposed 184 metric tons would maintain the stock at or above 49 percent through 2023. Therefore, the GAP questions the need to remove rougheye rockfish from the complex at this time.

The GAP requests a presentation at its April meeting that shows the results of the stock assessment and the various steps that have occurred that have resulted in the current OFL option for rougheye. The GAP would also like to have a time series of catch data presented that shows the various sectors' take of rougheye.

The GAP requests Council staff explore the need of an additional day at the April meeting to fully discuss management options of allocating rougheye rockfish in the short and long term.

**Table h. Summary table of 12-year projections beginning in 2015 for alternate states of nature based on the axis of uncertainty. Columns range over low, mid, and high state of nature, and rows range over different assumptions of total catch levels (discards + retained). Catches in 2013 and 2014 are determined from 5 year averages of the landings for each fleet (trawl, hook & line, and at-sea), and are also used as status quo catches.**

| | | | State of nature | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Low<br>$M$ = 0.037 | | Base case<br>$M$ estimated at 0.042 | | High<br>$M$ = 0.047 | |
| **Relative probability of ln(SB_2013)** | | | 0.25 | | 0.5 | | 0.25 | |
| **Management decision** | Year | Catch (mt) | Spawning biomass (mt) | Depletion | Spawning biomass (mt) | Depletion | Spawning biomass (mt) | Depletion |
| ABC assuming $\sigma$ = 0.36 | 2015 | 194 | 1,855 | 39% | 2,653 | 49% | 3,779 | 60% |
| | 2016 | 198 | 1,886 | 39% | 2,704 | 50% | 3,857 | 61% |
| | 2017 | 202 | 1,914 | 40% | 2,751 | 51% | 3,928 | 62% |
| | 2018 | 206 | 1,936 | 40% | 2,791 | 52% | 3,987 | 63% |
| | 2019 | 209 | 1,952 | 41% | 2,821 | 52% | 4,034 | 64% |
| | 2020 | 212 | 1,959 | 41% | 2,841 | 53% | 4,068 | 64% |
| | 2021 | 213 | 1,960 | 41% | 2,852 | 53% | 4,088 | 65% |
| | 2022 | 214 | 1,954 | 41% | 2,855 | 53% | 4,098 | 65% |
| | 2023 | 214 | 1,943 | 41% | 2,850 | 53% | 4,097 | 65% |
| | 2024 | 214 | 1,928 | 40% | 2,840 | 53% | 4,090 | 65% |
| Recent 5-year average of catches | 2015 | 189 | 1,855 | 39% | 2,653 | 49% | 3,779 | 60% |
| | 2016 | 189 | 1,888 | 39% | 2,706 | 50% | 3,859 | 61% |
| | 2017 | 189 | 1,919 | 40% | 2,756 | 51% | 3,933 | 62% |
| | 2018 | 189 | 1,946 | 41% | 2,801 | 52% | 3,997 | 63% |
| | 2019 | 189 | 1,968 | 41% | 2,837 | 53% | 4,051 | 64% |
| | 2020 | 189 | 1,983 | 41% | 2,865 | 53% | 4,091 | 65% |
| | 2021 | 189 | 1,992 | 42% | 2,884 | 53% | 4,120 | 65% |
| | 2022 | 189 | 1,995 | 42% | 2,895 | 54% | 4,138 | 65% |
| | 2023 | 189 | 1,993 | 42% | 2,900 | 54% | 4,147 | 65% |
| | 2024 | 189 | 1,987 | 41% | 2,899 | 54% | 4,148 | 65% |
| Catch that stabilizes equilibrium depletion at 40% in the base model | 2015 | 258 | 1,855 | 39% | 2,653 | 49% | 3,779 | 60% |
| | 2016 | 261 | 1,862 | 39% | 2,680 | 50% | 3,833 | 61% |
| | 2017 | 265 | 1,867 | 39% | 2,704 | 50% | 3,880 | 61% |
| | 2018 | 267 | 1,866 | 39% | 2,720 | 50% | 3,917 | 62% |
| | 2019 | 269 | 1,859 | 39% | 2,728 | 51% | 3,942 | 62% |
| | 2020 | 270 | 1,844 | 38% | 2,726 | 51% | 3,954 | 62% |
| | 2021 | 270 | 1,823 | 38% | 2,715 | 50% | 3,953 | 62% |
| | 2022 | 269 | 1,796 | 37% | 2,697 | 50% | 3,942 | 62% |
| | 2023 | 267 | 1,764 | 37% | 2,673 | 50% | 3,923 | 62% |
| | 2024 | 264 | 1,730 | 36% | 2,644 | 49% | 3,897 | 62% |

Agenda Item D.5.b
Supplemental GMT Report
March 2014

# GROUNDFISH MANAGEMENT TEAM REPORT ON BIENNIAL HARVEST SPECIFICATIONS FOR 2015-2016 AND BEYOND GROUNFISH FISHERIES

The Groundfish Management Team (GMT) reviewed the March Briefing Book report on proposed overfishing limits (OFLs) for cowcod south of 40°10' N Lat., the Oregon and Washington sub-stocks of kelp greenling and the Washington sub-stock of cabezon (Agenda Item D.5.a, Attachment 1). The GMT also heard a presentation from Dr. E.J. Dick on updates to the China, copper, and brown rockfish OFLs. We offer the following comments.

The GMT understands that we will have corrected harvest specifications for the nearshore rockfish complex, including the range of Council-requested China rockfish harvest guidelines, early next week. In addition, the GMT will have updated cabezon harvest specifications for Washington sometime in the near future. The GMT has found it challenging to evaluate a range of management measures and produce estimates of projected mortality from our recreational and commercial fisheries necessary for the draft environmental impact statement (DEIS) given the dynamic nature in the harvest specifications for these species. State representatives on the GMT note that these and other delays in receiving harvest specifications have also made it difficult to provide information to our recreational and commercial stakeholders, and get their input on season structures and management measures that may be required to say within these harvest limits. Prior to this cycle, harvest specifications have been adopted during the November Council meeting and few, if any, corrections occur prior to final action.

PFMC
03/10/14

# NMFS Analysis Recommendations

- Analysis is behind
  - GOAL: get back on track
- Simple Interim Slope Restructuring
- Narrow management measures

# Simple Interim Slope Restructuring

- High conservation priority.
- Focus analysis on modified existing alternative
- New Rougheye/Shortraker complex
- Establish interim two-year allocations + needed management measures

# SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON BIENNIAL HARVEST SPECIFICATIONS FOR 2015-2016 AND BEYOND GROUNDFISH FISHERIES

**Overfishing limits (OFLs)**

The Scientific and Statistical Committee (SSC) Groundfish Subcommittee reviewed proposed methods for computing 2015 and 2016 overfishing limits (OFLs) for cowcod south of 40º10' N lat., kelp greenling off Oregon, kelp greenling off Washington, and cabezon off Washington during webinars conducted on December 11, 2013 and January 30, 2014. The SSC endorses the cowcod rebuilding analysis, the OFLs for cowcod south of 40º10' N lat (Table 1 of Attachment D.5a), and the OFLs for kelp greenling off Oregon and Washington (Table 2 of Attachment D.5a). These tables also report acceptable biological catches (ABCs) for P* values of 0.45 and 0.25. The SSC notes that the 2016 OFLs depend on the Council's choice of P*.

In relation to cabezon, the SSC notes that the population off Washington is estimated to be at a lower fraction of its unfished level than that off Oregon, even though catches increased substantially off Oregon following the mid-1990s. This result is a consequence of the full assessment for cabezon off Oregon indicating increased recruitment after 1997 which cannot be reflected in the Depletion-Based Stock Reduction Analysis (DB-SRA) assessment method applied for cabezon off Washington. The SSC recommends that the DB-SRA assessment for cabezon off Washington be revised, assuming that the depletion in 2010 equals that inferred from the assessment for Oregon (48%). This work could not be completed before the end of the SSC meeting.

In relation to China rockfish off Washington, Agenda Item D.5.b (supplemental WDFW report), highlights that there has been a large increase in the catch off Oregon, but no corresponding increase in the catch off Washington. The assessment for China rockfish north of 40º10' N lat is based on a catch-per-unit-effort index for Oregon which might not reflect trends off Washington. Such issues related to incomplete spatial coverage of data are, however, not unusual for assessments of nearshore species. The SSC notes that updating this OFL would involve conducting a revised data-moderate assessment for China rockfish off Oregon using only data collected north of 40º10' N lat and then developing a way to compute an OFL for just Washington. It is infeasible to do these analyses and review them in the time available before final decisions need to be made. However, the SSC recommends that the assessment of China rockfish north of 40º10' N lat be considered for revision during the next assessment cycle. The SSC also advises that historical catches of nearshore species by state may not reflect biomass by state because of major differences in the management among states.

Dr. E.J. Dick outlined a revised approach for calculating OFLs for stocks assessed using DB-SRA and extended DB-SRA. The SSC agrees that the revised approach is more technically correct than that used to compute the OFLs presented to the Groundfish subcommittee in January 2014. The SSC notes that revised 2016 OFLs for China, brown and copper rockfish are needed but could not be produced before the end of the SSC meeting. In addition, ABCs for these species need to be computed for P* values of 0.45 and 0.25. The SSC notes that this issue is different from the situation for China rockfish off Washington outlined above which would involve a major change to the stock assessments.

Application of the revised approach would likely have impacted other OFLs projected using DB-SRA. However, the effect of revising all of the DB-SRA-based OFLs is likely to be small, and the SSC advises that this revision occur during the next assessment cycle.

The SSC will review the revised OFLs for China, brown and copper rockfish and those for cabezon off Washington once they are available and provide the endorsed OFLs to Council Staff for inclusion in the EIS.

**Advice on Estimating the Monterey-area Cowcod ACL**

The SSC recommends that the cowcod ACL contribution for the area north of Point Conception be computed by applying the fishing mortality rate corresponding to the ACL for south of Point Conception to the biomass north of Point Conception from DB-SRA. This is more scientifically justified than the past approach of doubling the ACL value from south of Point Conception to produce the ACL for the entire area.

**Additional Issues**

Based on its review of how OFLs have been computed this cycle, the SSC wishes to emphasize the following points:

(1) Setting of DB-SRA-based OFLs is highly reliant on the work of Dr. E.J. Dick. He has not only conducted several of the data-moderate assessments, but is also responsible for the DB-SRA analyses. Additional staff working in this area are needed given the rapidly increasing number of requests for additional analyses.

(2) Assessment authors and state data providers should talk well before assessments are conducted to ensure that the most appropriate data are used in assessments, particularly for assessments which rely on fishery-dependent data sources.

(3) The spatial structure of assessments should be based on biological considerations but avoid inferring stock status for areas for which there are no index data, particularly for nearshore species.

SCIENTIFIC AND STATISTICAL COMMITTEE'S GROUNDFISH SUBCOMMITTEE STATEMENT FROM THE CONFERENCE CALL ON REVIEW OF COWCOD REBUILDING ANALYSIS AND OVERFISHING LIMITS FOR KELP GREENLING AND CABEZON

On December 11, 2013, the Scientific and Statistical Committee's Groundfish Subcommittee (SSCGF) held a conference call to review the draft cowcod rebuilding analysis and new overfishing limits (OFLs) for Kelp Greenling in Oregon and Washington and for the Washington stock of Cabezon. The SSCGF members participating in the conference call included Vladlena Gertseva, Owen Hamel, Tom Jagielo, Meisha Key, André Punt and David Sampson.

**Cowcod Rebuilding Analysis**

Dr. E.J. Dick provided the SSCGF with a summary of the draft rebuilding analysis for cowcod. Progress towards rebuilding for cowcod was reviewed in relation to the median time to rebuild ($T_{TARGET}$=2068), which was adopted in 2009. The catches of cowcod have been lower than the annual ACLs since the start of the rebuilding plan in 2003.

The cowcod stock assessment was conducted using Extended Depletion-Based Stock Reduction Analysis (XDB-SRA) rather than an age-structured model such as Stock Synthesis; therefore, the rebuilding analysis could not be conducted using the standard rebuilding software (such as "Puntalyzer"). The projections accounted for uncertainty in all of the estimable parameters of XDB-SRA. In the absence of an age-structured model, the mean generation time was set to 38 years as in the 2009 rebuilding analysis. The SSCGF agrees that the technical approach taken to conduct the rebuilding analysis is appropriate and that the appropriate outputs were provided. The rebuilding analysis provides the basis for Council decision making.

Cowcod is substantially ahead of schedule given the updated rebuilding analysis. For example, the updated $T_{MIN}$ (2019) is much smaller than the $T_{MIN}$ from the 2009 rebuilding analysis (2059). This result is expected given that the 2013 stock assessment is more optimistic than the 2009 stock assessment. Progress towards rebuilding is considered adequate. The updated $T_{MAX}$ (2057) is now lower than the $T_{TARGET}$ (2068), therefore the SSCGF recommends redefining the $T_{TARGET}$ for cowcod.

**Catch-based yield estimates for cowcod north of Point Conception**

Dr. E.J. Dick provided the SSCGF with DB-SRA estimates of OFLs for cowcod north of Point Conception. The cowcod stock assessment was only for the stock south of Point Conception. DB-SRA has been used in the past to provide an OFL for the northern component of the stock under the assumption that depletion is the same in the north and the south. Dr. E.J. Dick applied DB-SRA to catches using the posterior distribution for the parameters from the base model for cowcod south of Point Conception. This resulted in the conclusion that the stock north of Point Conception is smaller than that south of Point Conception. The OFLs from DB-SRA (13.3mt for 2015 and 13.7mt for 2016) are similar to the estimate of sustainable catch from DCAC (12.5mt). The SSCGF recommends that the OFL for cowcod north of Point Conception be based on the results from DB-SRA and that the ACL north of Point Conception be computed by applying the fishing mortality rate corresponding to the ACL for south of Point Conception to the biomass north of Point Conception from DB-SRA.

**Overfishing Limits for Kelp Greenling in Washington and Oregon and Cabezon in Washington.**

Dr. E.J. Dick presented results of preliminary analysis to determine an OFL for Kelp Greenling in waters off Washington and Oregon. A DB-SRA model has been developed for the two states combined, using a prior on 2005 depletion that matches the depletion estimate from the 2005 Kelp Greenling assessment off Oregon (Cope and MacCall 2005). Also, an exSSS Kelp Greenling model has recently been developed for Oregon waters only (Cope, pers. com.), although it has not received a formal review. The exSSS model uses recently revised Oregon recreational and commercial historical catches, while DB-SRA model does not. Catch streams in neither model have been reviewed. The SSCGF recommends that the revised Oregon historical catch estimates for Kelp Greenling be reviewed and included in the model to be used for 2015-2016 management.

Currently, there is no biological information that would indicate a presence of separate stocks of Kelp Greenling in Washington and Oregon waters. However, there have been substantial differences in removals and management of this species between the two states since 1997 (with the advent of the Oregon live fish fishery). These differences would argue for a need for separate Kelp Greenling assessments for Washington and Oregon. Dr. Alec MacCall proposed to develop separate DB-SRA models for each state. An Oregon model would use the updated historical catches and the prior on 2005 depletion based on the 2005 Kelp Greenling assessment off of Oregon (Cope and MacCall 2005), while the Washington model would use the prior on 1997 depletion (the year before the increased removals in Oregon started) from the Oregon model. The SSCGF found this approach reasonable.

Dr. E.J. Dick also proposed to develop a data-moderate (category 2) Kelp Greenling assessment for the 2015-2016 management cycle, instead of one based on DB-SRA. The SSCGF however, agreed that there is no time to develop and properly review a data-moderate assessment for the 2015-2016 cycle, but recommends that such model be developed for the next management cycle.

No analysis was presented for determining an OFL for Cabezon in Washington. The SSCGF agreed to hold another conference call on January 30, 2014, to review OFL estimates for Cabezon off Washington and Kelp Greenling off Oregon and Washington. Models and catch histories used to generate OFLs for these two species would also be reviewed during that conference call.

**References**

Cope, J., MacCall, A. 2005. Status of Kelp Greenling (*Hexagrammos decagrammus*) in Oregon and California Waters as Assessed in 2005. Pacific Fishery Management Council, Portland, OR.

SCIENTIFIC AND STATISTICAL COMMITTEE'S GROUNDFISH SUBCOMMITTEE STATEMENT FROM THE CONFERENCE CALL ON REVIEW NEW OVERFISHING LIMITS FOR WASHINGTON STOCK OF CABEZON AND KELP GREENLING IN OREGON AND WASHINGTON

On January 30, 2014, the Scientific and Statistical Committee's Groundfish Subcommittee (SSCGF) held a conference call to review the new overfishing limits (OFLs) for the Washington stock of Cabezon and for Kelp Greenling in Oregon and Washington. During the call, the SSCGF also discussed the issue of model choice for 2013 China rockfish assessment. The SSCGF members participating in the conference call were Martin Dorn, Vladlena Gertseva, Owen Hamel, Tom Jagielo, Meisha Key, André Punt, David Sampson and Theresa Tsou.

**Review of new OFLs for Oregon stock of Cabezon in and Kelp Greenling stocks in Oregon and Washington**

Dr. E.J. Dick provided the SSCGF with new OFL estimates for the Washington stock of Cabezon, and the Kelp Greenling stocks in Oregon and Washington. He also summarized the data and methods that were used to calculate these OFLs.

The OFL estimates for Cabezon in waters off Washington were calculated using data-poor methods: Depletion-Based Stock Reduction Analysis (DB-SRA), and Depletion-Corrected Average Catch (DCAC). Catch time series for the models were provided by the Washington Department of Fish and Wildlife (WDFW); other input quantities were obtained from the last assessment of the Cabezon stock in Oregon (Cope and Key 2009). The assessment estimated that the Oregon stock was at 39% of its unfished level in 2013. The SSCGF endorses the DB-SRA results and new OFL estimates for use in the next management cycle.

The OFL estimates for Kelp Greenling stocks in Oregon and Washington were generated using DB-SRA models as well. The input parameters for the Oregon model were obtained from the last Oregon Kelp Greenling assessment (Cope and MacCall 2005). The Oregon model assumed the prior on 2005 depletion from the last assessment, and used an updated (compared to the last assessment) catch time series. The Washington model used a prior on 1997 depletion (the year before the Oregon fishery for live fish started) based on output from the Oregon DB-SRA model, as recommended during the SSCGF conference call on December 11, 2013. The models estimated that in 2013, the Kelp Greenling stock in Oregon was at 37% of its unfished level, and in Washington it was at 92% of its unfished stock biomass. Dr. E.J. Dick, however, noted that the Washington OFL estimates should not be considered sustainable on the long term. The SSCGF endorses the new OFLs for the Kelp Greenling in Oregon and Washington, but emphasizes that OFL estimates for the Washington stock should not be used beyond the 2015-2016 management cycle.

**China Rockfish Assessment Model Choice**

The SSCGF discussed model choice for the 2013 China rockfish assessment, as related to the issue of the management break between northern and southern stocks and how it pertains to the structure of the assessment model. At the November 2013 Pacific Fishery Management Council (Council) meeting, the Scientific and Statistical Committee (SSC) reviewed two sets of models for China rockfish. The first, which had been previously reviewed by a STAR panel and the SSC, assumed a split between stocks at 40°10' N latitude. The second, new set of models assumed a split between stocks at 42° N. latitude (the Oregon-California border). The SSC was presented with no information that would help in determining the location which best represents the division between these assumed stocks, and thus there was no scientific basis for selecting one or the other as the biological boundary. Also, there were no

data available to help determine if the trend in stock status in the area between 40°10’ N and 42° N. latitude was more similar to the area to the north or that to the south. Both sets of assessments were endorsed by the SSC for potential use in management, as both sets were based on the same information and provided stable and reasonable results.

Given that there is no scientific basis for selecting among management boundaries, the SSCGF recommends that the set of models, which reflect the management boundaries currently chosen by the Council for OFL determination, be used for the purpose of setting OFLs and ABCs for China rockfish, for a northern and a southern portion of the coast. In the case of China rockfish, the Council has selected 40°10’ N. latitude as the management boundary between northern and southern stocks; therefore the OFLs for the species should be based on the assessments with a break at 40°10’ N. latitude. The SSCGF, however, emphasizes that in future, the Council should determine the north/south boundaries for fishery stocks prior to assessments, and that such boundaries would be changed afterwards only when strong biological evidence is presented.

**References**

Cope, J. M. and M. Key. 2009. Status of Cabezon (*Scorpaenichthys marmoratus*) in California and Oregon Waters as Assessed in 2009. Pacific Fishery Management Council, 7700 Ambassador Place NE, Suite 200, Portland, OR 97220. 390 pp.

Cope, J.M. and A.D. MacCall. 2005. Status of Kelp Greenling (*Hexagrammos decagrammus*) in Oregon and California Waters as Assessed in 2005. Pacific Fishery Management Council, 7700 Ambassador Place NE, Suite 200, Portland, OR 97220. 158 pp.

PFMC
03/09/14

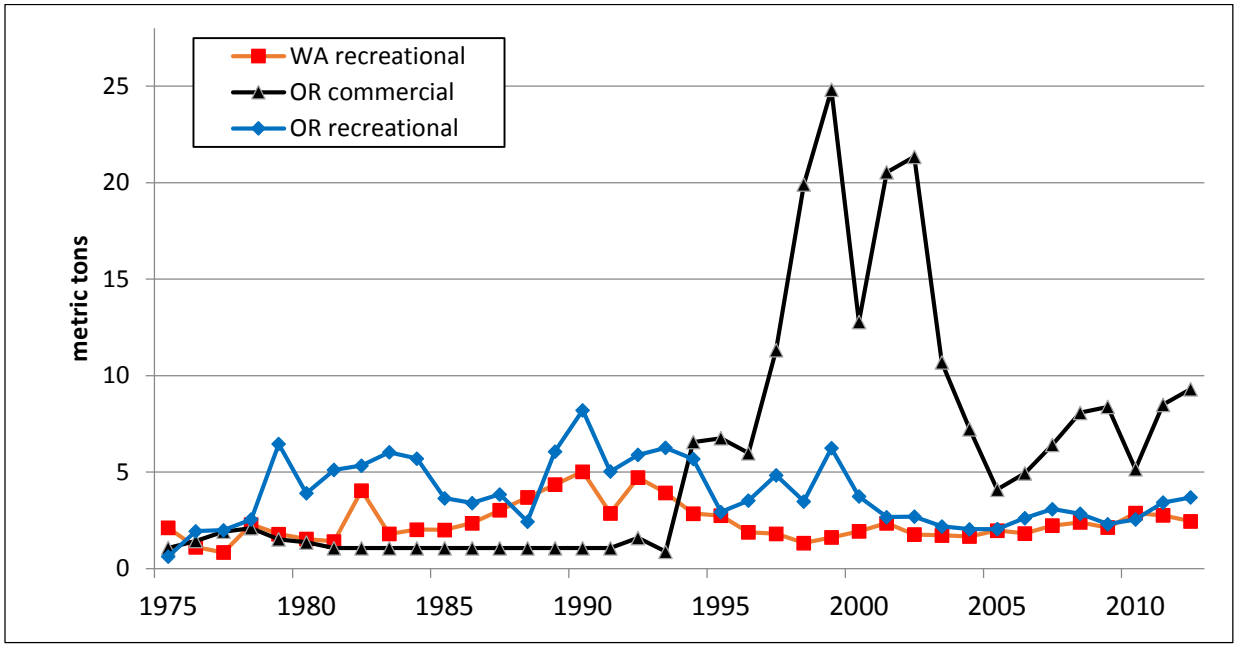
# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE REPORT ON THE 2015-2016 BIENNIAL HARVEST SPECIFICATIONS AND MANAGEMENT MEASURES

The Washington Department of Fish and Wildlife (WDFW) does not believe that the "data moderate" stock assessment for China rockfish accurately reflects its status off Washington. The data used in the assessment are solely catch data, as we do not have a fishery independent survey for nearshore stocks. This fact alone means that the estimated biomass may be more reflective of changes in fishing regulations, rather than abundance.

For Washington, in particular, the catch data source is the recreational fishery as we closed our directed nearshore commercial hook-and-line fishery in 1995, and we prohibited a live fish fishery in 1999, before it could begin. However, the catch-per-unit-of-effort (CPUE) index of abundance that was applied to the northern area is from the Oregon recreational fishery, which is much different from the Washington fishery. In addition to the CPUE, the Washington recreational fishery differs from Oregon's in many respects, including time, area (space and depth), fluctuations in bag limits, discard rates for China rockfish, length of retained catch, and competition for resources from commercial fisheries.

Upon close examination of the Washington data that went into the assessment, the results simply do not make sense. Figure 1 displays the catches by fishery in the northern area. As you can see, the Washington recreational fishery has sustained a relatively low level of catch for over 55 years with an average catch of less than 4 mt per year.

Figure 1. China rockfish catches off Washington and Oregon, 1975-2012.



A current status determination of B40% and recommended northern catches (Oregon and Washington combined) of 6-8 mt means that this will be the long-term sustainable level of harvest. For Washington to reduce its level of harvest from 4 mt to 1-2 mt—when we have sustained an average harvest of 4 mt for 55 years—and to suggest that a harvest of 1-2 mt is all we will ***ever*** be allowed to harvest is unreasonable.

From a policy perspective, this is particularly concerning given the proactive management measures WDFW has adopted over the years to protect our nearshore stocks. We essentially don't have any commercial catch data to feed into the assessment because we stopped the activity before it could happen, and now our recreational fishery may pay the price for a problem that the data we do have demonstrates does not exist.

For these reasons, WDFW recommends that the "data moderate" assessment for China rockfish not be accepted as applicable to waters adjacent to Washington for 2015-2016 management. We will begin a nearshore hook-and-line survey this year, which we hope will provide data for a future full assessment for China rockfish off Washington.

# TRAWL RATIONALIZATION TRAILING ACTIONS

At its September 2013 meeting, the Council decided to delay additional work on trailing actions to allow additional time for implementation of recommendations on which it had already taken action. At this time there are a number of issues on which the Council has taken action for which implementation is in progress.

1. **Chafing Gear Rule** - Regulations deemed, proposed rule to be published.
2. **Observer/Catch Monitoring Rule** - Proposed rule published February 19 with a March 21 public comment deadline.
3. **Fixed Gear and Trawl Permit Stacking** (concurrent registration to same vessel – includes action on at-sea processing on fixed gear vessels) – Regulatory package under development.
4. **Shorebased Whiting Season Date Changes** – Regulatory package under development with further progress delayed until whiting cleanup rule package is developed (see Agenda Item D.1, NMFS Supplemental Report regarding whiting cleanup rule).

Since last September, NMFS has also completed implementation of the cost recovery rule and the second program improvements and enhancement rule (PIE 2). A more detailed description of the status on these trailing action issues is provided on the Council webpage (www.pcouncil.org/groundfish/fishery-management-plan/trailing-actions/). Also since September, a law suit has been filed on the cost recovery rule and plaintiffs have filed an appeal on Pacific Dawn II (Agenda Item D.6.a, Attachment 1).

This agenda item was scheduled to address any issues arising during implementation of the above issues and to address development of the adaptive management program. With respect to the above issues, at that this time none have been identified as requiring Council attention.

With respect to the implementation of an allocation criteria for the quota pounds (QP) associated with the non-whiting quota share (QS) (10 percent) set aside for the Adaptive Management Program (AMP), at this time there has been insufficient progress on developing alternatives for those criteria to warrant Council decision making. Therefore, the Council's main task is to determine whether or not and the terms on which the current pass-through of QP should be continued. The following strawman alternatives are provided here for Council consideration and are structured on the alternatives the Council considered in June 2011, when it decided to extend the pass through past 2012:

**No Action Alternative (status quo):** Beginning in 2014, the QP associated with the QS set-aside for AMP purposes will be distributed in accordance with procedures developed under the AMP provisions. If such procedures are not developed and implemented by January 1, 2014, there is no guidance on how the AMP QP will be distributed.

**Strawman Alternative 1:** The pass-through procedures used since 2011 will be continued though 2016.

**Strawman Alternative 2:** The pass-through procedures used since 2011 will be continued until procedures are developed under the AMP.

NMFS will be providing as supplemental report on the issue of continuing the AMP pass-through.

**Council Action:**

1. **Provide direction on implementation, if a need for such direction is identified.**
2. **Adopt alternatives for analysis for continuation of the adaptive management program pass-through.**

Reference Materials:

1. Agenda Item D.6.a, Attachment 1: Glacier Fish Company LLC vs. Pritzker and Plaintiffs' Appeal on Pacific Dawn II.
2. Agenda Item D.6.b, Supplemental NMFS Report.

Agenda Order:

a. Agenda Item Overview — Jim Seger
b. Reports and Comments of Advisory Bodies and Management Entities
c. Public Comment
d. **Council Action**: Provide Guidance on Implementation and Adaptive Management Program Pass-Through

PFMC
02/14/14

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON AT SEATTLE

| | |
|---|---|
| GLACIER FISH COMPANY LLC, a Washington limited liability company,<br><br>Plaintiff,<br><br>v.<br><br>PENNY PRITZKER, in her official capacity as Secretary of the United States Department of Commerce; NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; and NATIONAL MARINE FISHERIES SERVICE,<br><br>Defendants. | Case No. 2:14-cv-00040<br><br>COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF, AND PETITION FOR REVIEW |

Plaintiff, Glacier Fish Company LLC ("Plaintiff," "Glacier Fish Company" or "Glacier"), alleges as follows:

**PARTIES**

Plaintiff

1. Plaintiff, Glacier Fish Company, is a member of the Pacific Whiting Conservation Cooperative ("PWCC"), whose members operate all of the vessels licensed to harvest and process Pacific whiting at-sea in the catcher-processor ("CP") sector of the federal Pacific coast groundfish limited entry trawl fishery (the "CP sector"). Glacier owns and operates two vessels that catch and process whiting at-sea in the CP sector. Glacier also owns the trawl limited entry permits



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authorizing its vessels to catch and process whiting in the CP sector.

Defendants

2. Defendant Penny Pritzker is the Secretary of the United States Department of Commerce ("Secretary") and is being sued in her official capacity.

3. Defendant National Oceanic and Atmospheric Administration ("NOAA") is an agency within the Department of Commerce.

4. Defendant National Marine Fisheries Service ("NMFS") is an agency within NOAA.

**JURISDICTION AND VENUE**

5. This Court has jurisdiction over this action pursuant to 28 U.S.C. § 1331 (federal question jurisdiction) and §§ 2201-2202 (Declaratory Judgment Act); 16 U.S.C. §§ 1855(f) and 1861(d) (Magnuson-Stevens Fishery Conservation and Management Act or "MSA" or "the Act"); and 5 U.S.C. §§ 702 and 706 (Administrative Procedure Act or "APA").

6. Defendants have waived sovereign immunity in this action pursuant to 5 U.S.C. § 702 and 16 U.S.C. § 1855(f).

7. This Complaint and Petition for Review under the MSA and APA ("Complaint") is timely under 16 U.S.C. § 1855(f) because it has been brought within thirty (30) days of Defendants' promulgation of the regulations challenged herein through publication in the Federal Register on December 11, 2013. 78 Fed. Reg. 75,268.

8. Glacier Fish Company has exhausted all of its administrative remedies and is a "person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action" within the meaning of the MSA and APA. 5 U.S.C. § 702.

9. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391(e) because this action is brought against an officer of an agency of the United States in her official capacity and against agencies of the United States; Glacier Fish Company resides in this district; and a substantial part of the events or omissions giving rise to the claims for relief stated herein occurred in this



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district.

**BACKGROUND**

10. PWCC formed in 1997 as a private, voluntary cooperative of companies operating all vessels in the CP sector of the federal Pacific whiting fishery. PWCC was formed to promote rational harvest, optimal utilization and minimal waste in the whiting fishery.

11. Defendants, along with the Pacific Fishery Management Council (the "Council"), manage the federal fishery for Pacific whiting and other groundfish species off the Pacific coast under the MSA.

12. In a 2007 publication, Defendants noted that "[m]anagement costs [to Defendants] for the [CP] sector may have declined because industry has taken responsibility for funding real-time reporting" of the CP sector's harvesting activities. To cover the management expenses borne by industry, Defendants observed that "PWCC members voluntarily assess themselves a tonnage fee that is used to fund co-op administrative costs, scientific research (stock assessment and bycatch avoidance) and public education." Lee G. Anderson and Mark C. Holliday, *The Design and Use of Limited Access Privilege Programs* (Nov. 2007), pp. 110-11, at http://www.nmfs.noaa.gov/sfa/domes_fish/catchshare/docs/design_and_useLAPs2007.pdf.

13. Subsequent to their 2007 publication, Defendants implemented the Pacific coast groundfish trawl rationalization program. That program significantly altered management of the shorebased catcher vessel sector and, for that sector, Defendants' management costs may have increased. However, the CP sector operates largely as it did before the trawl rationalization program.

14. To date, Defendants have not made publicly available any evidence of increased costs of managing the CP sector incurred by Defendants as a result of the trawl rationalization program.

15. Notwithstanding Defendants' failure to produce evidence of any additional costs and their previous acknowledgement of potential savings from PWCC's co-management activities,



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Defendants are now asserting that they incurred $176,460.05 in additional costs in 2013 related to managing the CP sector under the trawl rationalization program. 78 Fed. Reg. at 75,268.

16. Defendants seek to recoup their purported additional costs through "cost recovery program" regulations published in the Federal Register on December 11, 2013. Those regulations authorize defendant NMFS to "collect[ ] mandatory fees of up to three percent of the ex-vessel value of fish harvested by sector" from "fish buyers." 78 Fed. Reg. at 75,280. In the CP sector, "fish buyers" include "[t]he owner of a vessel registered to a C/P-endorsed limited entry trawl permit, the operator of a vessel registered to a C/P-endorsed limited entry trawl permit, and the owner of the C/P-endorsed limited entry trawl permit registered to that vessel." 78 Fed. Reg. at 75,281, 75,283. Glacier Fish Company and other PWCC members meet the definition of "fish buyer" in the CP sector, and each of them would be responsible for a share of the fees collected from that sector by defendant NMFS.

**CLAIMS FOR RELIEF**

First Claim for Relief – MSA [16 U.S.C. § 1854(d)(2)(A)(i)]

17. Plaintiff incorporates and re-alleges all previous paragraphs in this Complaint.

18. The only basis on which Defendants claim authority to collect cost recovery fees from Glacier Fish Company and other PWCC members is 16 U.S.C. § 1854(d)(2)(A)(i), a section of the MSA that in pertinent part requires the Secretary to "collect a fee to recover the actual costs directly related to the management, data collection, and enforcement of any (i) limited access privilege program ["LAPP"] …." The MSA, at 16 U.S.C. § 1802(26)(A), defines a "limited access privilege" as "a Federal permit, issued as part of a limited access system under section 1853a of this title to harvest a quantity of fish expressed by a unit or units representing a portion of the total allowable catch of the fishery that may be received or held for exclusive use by a person…." The MSA at 16 U.S.C. § 1853a(f) describes additional defining characteristics of a limited access privilege, one of which is that the permit must be "issued for a period of not more than 10 years" and "will be



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renewed before the end of that period, unless it has been revoked, limited, or modified" as a result of certain violations.

19. Under the trawl rationalization program, PWCC and its members are categorized as part of the "C/P Coop Program." However, the C/P Coop Program is not a LAPP (and therefore not subject to cost recovery fees) because neither of the two types of permits associated with the C/P Coop Program is a limited access privilege.

20. One of the permits is the "C/P endorsed limited entry trawl permit," which each PWCC member holds. That permit is not a limited access privilege because it does not allow its holder the "exclusive use" of a specific "quantity of fish expressed by a unit or units representing a portion of the total allowable catch of the" CP sector.

21. The other permit is the "C/P coop permit," which is issued to a single "eligible coop entity" each year, 50 C.F.R. § 660.160(d)(ii), including to PWCC in 2013. The C/P coop permit is "not a limited entry permit," 50 C.F.R. § 660.25(e)(2), and therefore, under trawl rationalization program regulations, does not allow the cooperative itself to harvest fish. Because the C/P coop permit "does not, by itself, allow [the cooperative] to catch any fish," it does not constitute a "harvesting" permit as required under the limited access privilege definition. *Lovgren v. Locke*, 701 F.3d 5, 27 (1st Cir. 2012). In addition, the C/P coop permit "expires" at the end of the year it was issued, 50 C.F.R. § 660.160(d)(1)(ii), instead of being subject to continuous "renewal" as required under 16 U.S.C. § 1853a(f)(1).

22. Indirectly acknowledging what may be their own doubts about whether the C/P Coop Program currently qualifies as a LAPP, Defendants point to regulations contemplating a fundamentally different program structure contingent upon the future occurrence of a "coop failure." 78 Fed. Reg. at 75,272. In that event, those regulations would "convert [the CP sector] to an [individual fishing quota ("IFQ")]-based fishery beginning the following calendar year after a coop failure, or a[s] soon as practicable thereafter. NMFS will develop additional regulations, as



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necessary to implement an IFQ fishery for the C/P sector. Each C/P-endorsed permit would receive an equal distribution of [quota share] from the total IFQ for the catcher/processor sector allocation." 50 C.F.R. § 660.160(h)(4).

23. Whether or not the C/P Coop Program would qualify as a LAPP under those criteria, they are not in effect now – and would not be effective for some unspecified time even after a future "coop failure." Consequently, those future criteria cannot serve as a basis on which to conclude the C/P Coop Program as presently organized is a LAPP.

24. Because the C/P Coop Program is not a LAPP, Defendants are not authorized to collect any of their purported additional management costs from Glacier Fish Company and other PWCC members. Accordingly, to the extent the cost recovery program regulations apply to the C/P Coop Program, Glacier Fish Company and other PWCC members, they are contrary to 16 U.S.C. § 1854(d)(2)(A)(i) and should be set aside.

Second Claim for Relief – MSA [16 U.S.C. §§ 1853(e)(1)-(2), 1854(d)(2)(A)(i)]

25. Plaintiff incorporates and re-alleges all previous paragraphs in this Complaint.

26. If this Court concludes the C/P Coop Program is a LAPP, this second claim and the following claims are pleaded in the alternative and would provide other grounds on which to set aside all or some of the cost recovery program regulations applicable to the C/P Coop Program, Glacier Fish Company and other PWCC members.

27. The MSA requires the Council to "develop" the "methodology and means to identify and assess the management, data collection and analysis, and enforcement programs that are directly related to and in support of" the LAPP and to "provide" for a "program" of fees paid to cover the costs of those activities (subject to certain limitations on fee amounts). 16 U.S.C. § 1853a(e)(1)-(2). The Act then requires defendant Secretary to "collect" fees generated by the Council-developed program to recover "the actual costs directly related to the management, data collection, and enforcement" of a LAPP. 16 U.S.C. § 1854(d)(2)(A)(i).



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28. The cost recovery program was developed by Defendants and not the Council, and the program also does not contain the required "methodology and means" to "identify and assess" the management activities claimed to be subject to cost recovery. Because the cost recovery program regulations were promulgated contrary to 16 U.S.C. §§ 1853a(e)(1)-(2) and 1854(d)(2)(A)(i), they should be set aside to the extent they apply to the C/P Coop Program, Glacier Fish Company and other PWCC members.

Third Claim for Relief – MSA [16 U.S.C. § 1853a(e)(2)]

29. Plaintiff incorporates and re-alleges all previous paragraphs in this Complaint.

30. The MSA limits the class of persons required to pay cost recovery fees to "limited access privilege holders." 16 U.S.C. §1853a(e)(2). However, under Defendants' cost recovery program, the persons in the C/P Coop Program subject to the fee payment obligation are not limited access privilege holders.

31. The persons subject to paying the fee are "[t]he owner of a vessel registered to a C/P-endorsed limited entry trawl permit, the operator of a vessel registered to a C/P-endorsed limited entry trawl permit, and the owner of the C/P-endorsed limited entry trawl permit registered to that vessel." 78 Fed. Reg. at 75,281, 75,283.

32. As explained above, the owner of a C/P endorsed limited entry trawl permit does not hold a limited access privilege because the permit does not provide its owner with the "exclusive use" of a specific "quantity of fish expressed by a unit or units representing a portion of the total allowable catch of the" CP sector. Likewise, neither owners nor operators of vessels qualify as holders of a limited access privilege because a vessel is not "a Federal permit," one element of the limited access privilege definition at 16 U.S.C. §1802(26)(A).

33. Because Defendants' cost recovery program regulations impose cost recovery fees on persons in the C/P Coop Program who are not required to pay those fees, including Glacier Fish Company, they are contrary to 16 U.S.C. §1853a(e)(2) and should be set aside to the extent they



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apply to the C/P Coop Program, Glacier Fish Company and other PWCC members.

Fourth Claim for Relief – APA [5 U.S.C. § 706(2)(A)]

34. Plaintiff incorporates and re-alleges all previous paragraphs in this Complaint.

35. In the preamble to the December 11, 2013 final rule promulgating Defendants' cost recovery program regulations, Defendants also announced a 1.1% cost recovery fee percentage that they intend to apply to the ex-vessel value of PWCC members' harvest in 2014. 78 Fed. Reg. at 75,268.

36. Defendants calculated that percentage by (i) dividing what Defendants assert are $176,460.05 in additional "direct program costs" associated with their management of the C/P Coop Program by $16,763,066, the ex-vessel value of the CP sector in 2013 as determined by Defendants, and (ii) multiplying the quotient from (i) by 100. Expressed mathematically, ($176,460.05/$16,763,066) x 100 = 1.1%. Defendants apparently intend to collect from Glacier Fish Company and other PWCC members collectively 1.1% of the ex-vessel value of the CP sector's harvest in 2014. 78 Fed. Reg. at 75,268.

37. Defendants have not provided any basis for their assertion that they have incurred $176,460.05 in additional management costs directly related to the C/P Coop Program, which involves the same CP sector that Defendants noted in 2007 may have actually reduced management costs to Defendants through industry-funded harvest reporting and other measures.

38. Because Defendants have not provided any basis for their cost figure, the 2014 cost recovery fee percentage based in part on that unsupported cost figure is arbitrary and capricious and an abuse of discretion. Consequently, the 2014 cost recovery fee percentage for the C/P Coop Program, Glacier Fish Company and other PWCC members is contrary to the APA, 5 U.S.C. § 706(2)(A), and should be set aside.

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**REQUEST FOR RELIEF**

Plaintiff requests the following relief:

1. For expedited consideration of this matter pursuant to 16 U.S.C. § 1855(f)(4);

2. For a judicial declaration that, as applied to the C/P Coop Program, Glacier Fish Company and other PWCC members, Defendants' cost recovery program regulations violate the MSA and APA and are arbitrary, capricious, an abuse of discretion, not in accordance with law and in excess of statutory jurisdiction, authority, or limitations and short of statutory right;

3. For a) an order requiring that Defendants' cost recovery program regulations be set aside in their entirety to the extent they apply to the C/P Coop Program, Glacier Fish Company and other PWCC members, or, to the extent the Court determines the regulations should not be set aside in their entirety, b) an order setting aside Defendants' 2014 cost recovery fee percentage for the C/P Coop Program, Glacier Fish Company and other PWCC members;

4. For an award of costs of suit and other expenses, including reasonable fees and expenses of attorneys to the extent available; and

5. For such other and further relief as the Court may deem necessary and appropriate.

Dated this 9th day of January, 2014.

Sullivan & Richards LLP

By *Andrew Richards*

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Attorneys for Plaintiffs
PACIFIC DAWN LLC and JESSIE'S ILWACO FISH COMPANY

IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

PACIFIC DAWN LLC, , OCEAN GOLD SEAFOODS, INC., CHELLISSA LLC INC., and JESSIE'S ILWACO FISH COMPANY,

Plaintiffs,

v.

PENNY PRITZKER, Secretary of Commerce, in her official capacity as Secretary of the United States Department of Commerce, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, and NATIONAL MARINE FISHERIES SERVICE,

Defendants.

Case No. 3:13-cv-01419 TEH

**JOINT NOTICE OF APPEAL**

NOTICE IS HEREBY GIVEN that plaintiffs Pacific Dawn LLC and Jessie's Ilwaco Fish Company appeal in the above-named case to the United States Court of Appeals for the Ninth Circuit from (1) the judgment entered on December 6, 2013 (Dkt. No. 65) and (2) the order granting Federal Defendants' and Defendant-Intervenors' cross motions for summary judgment entered December 5, 2013 (Dkt. No. 64).

Dated: February 3, 2014

Respectfully submitted,

DAVIS WRIGHT TREMAINE LLP

By : */s/ James P. Walsh*
James P. Walsh
Gwen L. Fanger

Attorneys for Plaintiffs, Pacific Dawn LLC and Jessie's Ilwaco Fish Company

# ENFORCEMENT CONSULTANTS REPORT ON TRAWL RATIONALIZATION TRAILING ACTIONS

The Enforcement Consultants (EC) reviewed Agenda Item D.1.b, Supplemental NMFS Report, March 2014, and has the following comments regarding amendments to regulations relative to vessels on Pacific whiting individual fishing quota (IFQ) trips:

1. Regarding the definition for a Pacific whiting IFQ trip, the EC has no concerns with the requirement for each landing to be 50 percent or more Pacific whiting by weight.

2. Regarding disposition procedures for salmon and protected species landed at IFQ first receivers, state enforcement representatives from Washington, Oregon, and California are working with National Marine Fisheries Service to develop disposition protocols for the first receivers in the respective states.

PFMC
03/09/14

# GROUNDFISH ADVISORY SUBPANEL REPORT ON TRAWL RATIONALIZATION TRAILING ACTIONS

Mr. Jim Seger briefed the Groundfish Advisory Subpanel (GAP) on the status of trawl rationalization trailing actions. The GAP offers the following comments and recommendations.

Adaptive Management Program (AMP) – The GAP reviewed the alternatives for pass-through of adaptive management quota pounds and recommends a modification to alternative two. Specifically, the GAP recommends that the pass-through procedures used since 2011 be continued until procedures are developed under the AMP, as per alternative two, with the additional recommendation that no development of AMP procedures occur before the five-year review. As we have highlighted in previous statements, there are many much more pressing and less time intensive trailing amendments that could help streamline and improve the catch share program.

Whiting season start date – Modifying the whiting season start date, and providing opportunities for non-whiting midwater fishing earlier in the year are both major priorities for the GAP. The GAP believes that under a rationalized fishery fishermen should be allowed to fish at any time during the year, provided they have the quota to cover their catch. This is particularly true now as costs mount in the fishery and opportunities to generate additional revenue, like modifying opening dates, seem to move forward very slowly. On the other hand, trailing amendments that place additional burdens on the fleet, like cost recovery, have no difficulty moving through the process.

The GAP reviewed the NMFS report (Agenda Item D.1.b, Supplemental NMFS Report, March 2014) and appreciates that the agency feels a clean-up rule is needed before moving forward on modifying the whiting season start date. While the GAP struggled to understand all of the nuances, the GAP supports that approach if NMFS is confident it can complete the clean-up and the start date modification before the 2015 whiting opener. The GAP requests a determination of whether that is possible by April, so we can revisit and prioritize appropriately.

Observer/Catch monitor proposed rule – The GAP reviewed the proposed rule and supports removing the current requirement that observers providing coverage on the West Coast be certified to provide coverage in the North Pacific groundfish fishery. That requirement may limit the available number of West Coast providers thereby limiting competition and driving up costs. In the proposed rule, NMFS states their intent to expand conflict of interest limitations for observer and catch monitor providers. Moreover, the proposed rule indicates that NMFS appears intent on developing these limitations without Council guidance outside of this rulemaking process. This concerns the GAP. The current conflict of interest provisions were developed by the Council to help facilitate procurement of observers. A central point of the proposed rule also is about facilitating procurement of observers by expanding the pool of observer providers on the West Coast. Therefore, it seems counter-intuitive for NMFS to suggest the need for additional constraints on observer providers that will hinder procurement of observers. Further, during the original deeming of amendment 20, the Regulatory Deeming Workgroup specifically rejected the more expansive conflict of interest language that NMFS initially proposed and at that time

NMFS agreed to go with the narrowed language which is currently in regulation. The GAP recommends that the conflict of interest provisions should not be expanded beyond those originally developed by the Council.

PFMC
03/09/14

Agenda Item D.6.b
Supplemental GMT Report
March 2014

# GROUNDFISH MANAGEMENT TEAM REPORT ON TRAWL RATIONALIZATION TRAILING ACTIONS

The Groundfish Management Team (GMT) thanks Mr. Jim Seger for the detailed overview of trawl trailing actions at this meeting. The GMT reviewed and discussed the documents under this agenda item and Agenda Item D.1 (NMFS Report) and provides the following perspective.

Regarding the proposed rule for Pacific whiting (Agenda Item D.1.b, Supplemental NMFS Report, March 2014), it appears that there are potential needs and benefits for clarifying the definition of midwater whiting trips from midwater non-whiting trips. However, we do not know at this point if the definition and proposed corrections are consistent with past Council action from 2009 and are appropriate in 2014. The GMT requests that the comment period for the proposed rule and the associated Environmental Assessment be available during a future Council meeting.

PFMC
03/10/14

# NATIONAL MARINE FISHERIES SERVICE REPORT ON THE ADAPTIVE MANAGEMENT PROGRAM FOR THE TRAWL RATIONALIZATION PROGRAM

In June 2009, the Council recommended as part of Amendment 20 to the Groundfish Fishery Management Plan (FMP) that NMFS establish the Adaptive Management Program (AMP). NMFS approved Amendment 20 and promulgated AMP in regulation (75 FR 78344) on December 15, 2010, setting aside 10% of the non-whiting quota share (QS) to achieve several purposes.

The set aside of AMP QS was implemented to address the following objectives:

1) Community stability;
2) Processor stability;
3) Conservation;
4) Unintended/unforeseen consequences of IFQ management; or
5) Facilitating new entrants.

As we stated in our November 2012 supplemental NMFS report (see Agenda Item I.5.b, Supp NMFS Report) we believe the first three years of the trawl rationalization program have already shown significant conservation benefits, and therefore suggest that the Council may wish to focus further AMP discussions on the other items, such as community/processor stability or new entrants.

Under 50 CFR§ 660.140 (l)(2), 10 percent will be reserved for AMP, and resulting AMP QP will be issued to all QS permit owners in proportion to their non-whiting QS through 2014 or until alternative criteria for distribution of the AMP QP is developed and implemented, whichever is earlier. This means that the Council needs to take some action, and it must be implemented by NMFS prior to the end of 2014, in order to allow continued pass-through of AMP QP.

NMFS believes information gathered through the 5-year review should be used to guide AMP development to address these objectives. NMFS is committed to implementing the AMP with the best available information and therefore recommends continuing the pass-through until the 5-year review is completed. NMFS believes the 5-year review could be completed by the end of 2016, so the Council may want to consider an alternative extending the pass-through until the end of 2017.

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**50 CFR Part 660**

**[Docket No. 130503447–4051–01]**

**RIN 0648–BD30**

## Fisheries off West Coast States; Pacific Coast Groundfish Fishery Management Plan; Trawl Rationalization Program; Catch Monitor Program; Observer Program

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Proposed rule; request for comments.

**SUMMARY:** This action would revise Pacific Coast Groundfish Fishery regulations pertaining to certified catch monitors and certified observers required for vessels in the Shorebased Individual Fishery Quota Program, the Mothership Coop Program, the Catcher/Processor Coop Program, and for processing vessels in the fixed gear or open access fisheries. This action also specifies permitting requirements for persons interested in providing certified observers and certified catch monitor services; updates observer provider and vessels responsibilities relative to observer safety; makes minor revisions relative to administration of the programs, and proposes numerous housekeeping measures. This action affects individuals serving as certified catch monitors and observers, persons that provide certified catch monitors and observers, vessels that are required to carry certified observers, and persons that are required to employ the services of certified catch monitors.

**DATES:** Submit comments on or before March 21, 2014.

**ADDRESSES:** You may submit comments on this document, identified by NOAA–NMFS–2012–0218, by any of the following methods:

- *Electronic Submissions:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to *www.regulations.gov. www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2012-0218*, NOAA-NMFS-2012-0218, click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.
- *Fax:* 206–526–6736; Attn: Becky Renko.
- *Mail:* William W. Stelle, Jr., Regional Administrator, West Coast Region, NMFS, 7600 Sand Point Way NE., Seattle, WA 98115–0070; Attn: Becky Renko.

*Instructions:* Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (e.g., name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word, Excel, or Adobe PDF file formats only.

Written comments regarding the burden-hour estimates or other aspects of the collection-of-information requirements contained in this proposed rule may be submitted to William W. Stelle Jr., Regional Administrator, West Coast Region NMFS, 7600 Sand Point Way NE., Seattle, WA 98115–0070 and to the Office of Management and Budget (OMB) by email to *OIRA_Submission@omb.eop.gov* or fax to (202) 395–7285.

**FOR FURTHER INFORMATION CONTACT:** Becky Renko, 206–526–6110; (fax) 206–526–6736; *Becky.Renko@noaa.gov*.

**SUPPLEMENTARY INFORMATION:** NMFS manages the groundfish fishery under the Pacific Coast Groundfish Fishery Management Plan. The Pacific Coast groundfish regulations establish frameworks for certified observers and certified catch monitors. The framework for the certified observers includes: Observer coverage requirements for vessels fishing or processing in the shorebased Individual Fishery Quota (IFQ) program, Mothership (MS) Coop Program, Catcher/processor (C/P Coop Program); requirements for vessels to obtain observers from permitted observer providers; certification eligibility and decertification requirements for observers; and program related responsibilities for vessels, certified observers, and permitted observer providers. Certified observer coverage requirements are also specified for vessels processing in the limited entry fixed gear and open access fisheries. The framework for the certified-catch monitors includes: Catch monitor coverage requirements for first receivers accepting shorebased IFQ landings; requirements for first receivers to obtain catch monitors from certified observer providers; certification and decertification procedures for catch monitors and catch monitor providers; and program-related responsibilities for first receivers, certified catch monitors, and catch monitor providers. The regulations at 50 CFR 660.17 include an application and approval process for catch monitor provider certification. The catch monitor provider certification process is comparable to the permitting process for observer providers in the North Pacific Groundfish Observer Program.

This rule would remove the existing regulations requiring vessels to obtain certified observers from permitted providers for the North Pacific Groundfish Observer Program, and would establish provider permitting requirements specific to the Pacific Coast groundfish fishery. In addition, regulations specifying certification procedures for catch monitor providers would be converted to permitting procedures. Because some provider businesses in the Pacific Coast groundfish fishery provide both observers and catch monitors, a combined permitting process for observer and catch monitor providers would be implemented at 50 CFR 660.18. For clarity, and to allow for a common permitting process for providers, new definitions would be added, existing definitions would be refined and observer program and catch monitor program terminology would be consistently applied. A new section would be added at 50 CFR 660.19 to consolidate the appeals process for certified catch monitors, certified observers and permitted providers. The appeals process would be available to them when they receive an adverse certification or permit determination. In the current regulations, there are separate appeals processes applicable to the observer program and the catch monitor program.

This action would also revise regulatory text pertaining to observer safety. Fishing vessel responsibilities relative to safety would be revised to more closely align with the National Observer Program provisions at 50 CFR 600.725 and 600.746, and the prohibitions at 50 CFR 660.12(e) would be revised to clarify that a vessel required to carry an observer is prohibited from fishing (including processing) if NMFS, the observer provider, or the observer determines that the vessel is inadequate or unsafe. In addition, the observer provider responsibilities would require the use of the current Vessel Safety checklists for pre-cruise checks and that any safety-related findings be submitted to the Observer Program. Minor regulatory

changes in program administration and numerous housekeeping measures are also proposed in this action.

**Observer Provider and Catch Monitor Provider Permitting**

Under current regulations, persons seeking to provide observer services must have an observer provider permit issued under regulations at 50 CFR 679.52 for the North Pacific groundfish fishery. Only those persons that were permitted for the North Pacific groundfish fishery in 2010 may provide observers in the Pacific Coast Groundfish fishery. To expedite implementation of the trawl rationalization program on January 1, 2011, it was necessary to pattern the Pacific Coast observer provider regulations from the North Pacific groundfish regulations. At that time, it was NMFS' intent that a process to issue permits for new observer providers for the Pacific Coast groundfish fishery would be implemented in a trailing rulemaking. With fewer than three persons qualified to provide observers for the Pacific Coast groundfish fishery in 2013, the current regulations should be revised so that new, additional observer providers can receive permits and provide services in the Pacific Coast groundfish fisheries.

At the Pacific Fishery Management Council's (Council) April 2012 meeting, the Council recommended draft regulations for certification and decertification of observer providers establishing a process similar to that currently in place for catch monitor providers. Establishing regulations for the Pacific Coast groundfish fishery was considered necessary to allow for the entry of new observer providers separate from those that provide observers in the Alaska groundfish fisheries. During the development of this rulemaking, NMFS gave further consideration to the North Pacific Groundfish Observer Program framework that requires observer providers obtain permits, rather than certifications. Prior to 2003, the North Pacific groundfish fishery's observer framework required that observer providers obtain certifications. However, in 2002 the North Pacific groundfish fishery observer regulations were revised and the certification process was replaced with a permitting process (67 FR 72596; December 6, 2002).

Provider permits authorize persons to provide observer services and are more business-oriented, granting permission to perform specific activities. This is in contrast to a certification which is generally used to grant permission to the holder to perform tasks providing some minimum training. NMFS believes that the proposed process for evaluation of observer provider applications and issuance of permits has clear application requirements and evaluation criteria while providing NMFS with flexibility and discretion in its decision whether to issue the permit.

Under current regulations, persons who wish to provide catch monitor services must obtain certification under regulations at 50 CFR 660.17. Regulations at § 660.17 contain certification procedures and regulations at § 660.18 contain decertification procedures for catch monitor providers. This action would replace the catch monitor certification process with a permitting process, which is primarily a nomenclature change. Although current regulations establish certification and decertification procedures for catch monitor providers, to date, all catch monitor providers have been permitted as observer providers for the North Pacific Groundfish Observer Program. Existing certified catch monitor providers would be ''grandfathered''; issued permits in place of the current certification.

This action proposes a single, combined permit application process for catch monitor and observer providers. The permit application procedures would be similar to those used in the North Pacific Groundfish Fishery Observer Program. New provider permits would be obtained through an application process. Both new and grandfathered permits would be renewed annually to ensure that the business information was current and the permit holder continues to meet eligibility criteria.

There are two types of endorsements that would be attached to a provider permit; an observer endorsement and a catch monitor endorsement. During the application process, new providers would specify which endorsement(s) they are seeking. Provider permits must have at least one endorsement and it must be appropriate for the services being provided. A provider permit expires if it is not renewed or when services have not been provided for a period of 12 months. Providing a single application process reduces duplication for persons that provide both observers and catch monitors.

Observer and catch monitor providers contribute an important service to NMFS by recruiting, hiring, and deploying motivated individuals to serve as observers and catch monitors. NMFS must ensure that observer providers meet minimum requirements so that this important service is consistently maintained. NMFS would, in its discretion, issue permits to applicants who: Demonstrate that they understand the scope of the regulations they will be held to; document how they will comply with those regulations; demonstrate that they have the business infrastructure necessary to carry out the job; are free from conflict of interest; do not have past performance problems on a Federal contract or any history of decertification as either an observer or observer provider; and are free from criminal convictions for certain serious offenses that could reflect on their ability to carry out the role of application. Upon issuance of an observer provider permit, an observer provider permit holder would be held accountable for all applicable regulations promulgated by NMFS.

Provider applications may be submitted at any time during the year. Once a complete application is received, NMFS' review process would begin and take at least a month. Therefore, applicants would need to plan accordingly. Applications submitted in the fourth quarter of any given calendar year (October 1 to December 31) may not be processed until the following year. The application process would be described in regulation and include an application review by a board appointed by NMFS, as well as permit eligibility standards. If necessary, the review board would contact the applicant for further information. If the applicant fails to meet the permitting criteria, a decision to deny an application would be made and written notification provided to the applicant. The written notice would describe why the application was denied. The denial of an observer or catch monitor provider permit application would constitute final agency action and an appeal for further NMFS' review would not be available. However, an applicant who is denied a permit may correct the original application's deficiencies and submit a new application. NMFS would have discretion to either grant or deny an issuance of a catch monitor or observer provider permit.

Persons that provided observers and catch monitors in the 12 months prior to the effective date of this rule will be issued a provider permit without needing to submit an application. The existing record regarding performance and the ability to provide observer or catch monitor services would be adequate documentation. Existing providers would not be required to submit a new application unless they were seeking additional endorsements.

A permit issued to a catch monitor or observer provider would remain effective until the expiration date on the

permit, December 31 of that year, unless: An ownership change occurs that requires application for a new permit; the permitted provider ceases to deploy observers to groundfish fisheries during a period of 12 continuous months; or the permit issued to an observer provider is suspended, revoked, or voided. To remain in effect in the subsequent years, provider permits must be renewed prior to the December 31 permit expiration date. If an existing provider fails to renew the provider permit, the provider permit will expire on the permit expiration date. NMFS will send a renewal form on or about October 1. The provider must verify that all information is current and return the form by November 30, to be assured that there is no lapse in the permit. The purpose of the annual renewal is to verify that the management, organizational, and ownership structure is unchanged; to update provider contact information; and to assure there are no new conflict of interests or state or federal criminal convictions that could affect the wellbeing of observers or catch monitors.

If a permit lapses after a period of 12 months of inactivity as described above, NMFS would issue an Initial Administrative Decision (IAD) to the permit holder stating that NMFS records indicate that the permit had lapsed and that the permit holder has the opportunity to appeal the determination. The IAD would also describe the appeals process available to the permit holder. Permit for holders who appeal this IAD would remain valid while during the appeal process.

Potential violations regarding observer or catch monitor providers, including those serious enough to warrant possible suspension or revocation of a provider's permit, would be forwarded to NMFS Office for Law Enforcement (OLE) for investigation. Procedures governing sanctions of permits are found at subpart D of 15 CFR Part 904.

**Observer Safety**

Under the Magnuson-Stevens Act National Standard 10, conservation and management measures must promote the safety of human life at sea. Consistent with that standard, NMFS has promulgated numerous regulatory provisions designed to promote not just vessel safety, but observer safety, as well. Current Pacific Coast groundfish regulations and National Observer Program regulations at 50 CFR 600.746 require that vessels carrying observers in the Pacific Coast groundfish fishery have a valid Commercial Fishing Vessel Safety Decal certifying compliance with regulations found in 33 CFR Chapter I and 46 CFR Chapter I, or in mitigating circumstances a certificate of compliance issued pursuant to 46 CFR 28.710 or a valid certificate of inspection pursuant to 46 U.S.C. 3311.

On December 20, 2012 the Coast Guard and Maritime Act of 2012 was signed. The Act requires significant changes in safety and survival equipment requirements for commercial fishing industry vessels including, fishing vessels and fish processing vessels. In anticipation of regulatory changes at 46 CFR Chapter I, part 28, NMFS reviewed the Pacific Coast groundfish regulations pertaining to observer safety. The review found that safety related cross references were not consistent throughout the regulations; that the observer provider responsibilities did not clearly state that the most current observer vessel safety checklist must be completed prior to an observer's first cruise or that the checklist needed to be provided to the Observer Program; nor did the regulations clearly state that a vessel is prohibited from fishing if NMFS, the observer provider or the observer determine that a vessel is unsafe or inadequate for an observer. This action proposes to revise regulatory language pertaining to observer safety found under the observer provider responsibilities (50 CFR 660.140(h)(2)(ix), 660.150(j)(5)(ix), 660.160 (g)(5)(ix)), vessel responsibilities (§§ 660.140(h)(2)(ii)(B), 660.150(j)(2)(ii)(B), 660.160(g)(2)(ii)(B), 660.216(e)(2), 660.316(e)(2)), and prohibitions (§§ 660.12(e) and 660.112).

**Limited Entry Fixed Gear and Open Access Observer Requirements**

Observer requirements in §§ 660.216 and 660.316 would be amended by this action. Regulation implementing the trawl rationalization program (75 FR 32994, June 10, 2010) moved the observer regulations from a general observer section that applied to all sectors of the fishery to newly created sections for each fishing sector. The reorganization resulted in unintended changes to the observer requirements for the limited entry fixed gear and open access sectors. Subsequent regulations reinstated coverage provisions for processing vessels that had inadvertently been removed. However, revisions are necessary to clarify which observer provisions apply to harvesting vessels and which apply to processing vessels; for processing vessels, the regulations would clearly state who had to be contacted to obtain a certified observer. Safety provisions would be updated to be consistent with the requirements described in the previous section.

**Minor Regulatory Changes and Housekeeping Measures**

Numerous minor non-substantive and housekeeping changes are being proposed for improved Observer Program and Catch Monitor Program administration. The changes involve removing outdated regulatory text, adding clarification to existing text without changing the intended meaning, and revising to ensure consistent use of terms throughout the entire chapter. The proposed minor and housekeeping changes are summarized below:

- Proposed revisions to the Observer Program regulations at § 660.140 (Shorebased IFQ Program), § 660.150 (MS Coop Program), and § 660.160 (C/P Coop Program) are intended to clarify the existing policies and practices. These changes include: (1) Revising communication requirements to reflect current practices; (2) removing outdated reporting requirements; (3) adding descriptions of transportation requirements for deployed observers; (4) revising timelines on the issuance of an observer certification; (5) adding components to observers certification requiring annual safety training and fish identification testing; (6) broadening the statement describing the required briefings so fishery specific briefings such the briefing for the Pacific whiting fishery are explicitly required by regulation; and (7) removing unnecessary requirements of the physician statement for certified observers.
- In the general prohibitions at § 660.12, incorrect references regarding cease fishing reports would be moved to the trawl prohibitions at § 660.112, and the remaining prohibitions would be consolidated.
- At § 660.60, cross references are updated.
- At § 660.112, a prohibition relative to observer coverage while a vessel is in port is simplified and linking text at § 660.140(h) is revised for clarity.
- In § 660.16, a table displaying current observer coverage requirements would be revised to show the Observer Program office overseeing the observers.
- Proposed revisions to the Catch Monitor Program regulations at § 660.17 are intended to more clearly state the current policies and practices. These changes include: (1) Revising communication requirements to reflect current practices; (2) revising language pertaining to the disclosure of catch monitor data to align requirements other similar text in other paragraphs and

sections; (3) removing unnecessary requirements of the physician statement; (4) adding text to explain that a catch monitor certification expires if the individual is not deployed for 12 months; and (5) clarifying the provider policies regarding standards of conduct consistent with those specified for observer providers.

• In § 660.16, paragraphs (d) and (e) are added, and in § 660.17, paragraphs (a) to (c) are added to make Observer Program regulations Catch Monitor Program regulations consistent.

Physical fitness examinations and requirements of the physician statements are currently being reviewed by the National Observer Program. Modifications to the groundfish regulations being proposed at §§ 660.17(e)(1)(vii)(A), 660.140(h)(5)(xi)(B), and 660.150(j)(5)(xi)(B)(*2*) may be withdrawn or further modified in the final rule pending the outcome of the review.

NMFS believes that the limitations on the conflict of interests for observer and catch monitor providers are too narrow and increase the risk that professional judgment or actions related to the interest of observers or catch monitors would be unduly influenced by a secondary interest in a fishing related business. Current regulations limit only those businesses with a direct financial interest in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California from being observer or catch monitor providers. The only exception to these standards would be an allowance to provide observer and catch monitor services. NMFS is considering whether to use its authority under section 305(d) of the Magnuson Stevens Act (MSA) to broaden the limitations to restrict providers from having a direct financial interest in any federal or state managed fisheries with the exception of an allowance to provide observers, catch monitor or other biological sampling services. NMFS invites comments from the public on this issue.

**Classifications**

Pursuant to section 304(b)(1)(A) and 305(d) of the MSA, the NMFS has determined that this proposed rule is consistent with the Groundfish FMP, the MSA, and other applicable law, subject to further consideration after public comment.

This proposed rule has been determined to be not significant for purposes of Executive Order12866.

NMFS has prepared an initial regulatory flexibility analysis (IRFA) as required by section 603 of the Regulatory Flexibility Act (RFA). The IRFA describes the economic impact this proposed rule would have on small entities. The preamble contains a description of the action, why it is considered, and the legal basis for this action (see the beginning of this section in the preamble and the **SUMMARY** section of the preamble). NMFS also prepared a Regulatory Impact Review (RIR) for this action. A copy of the RIR/IRFA is available from NMFS (see **ADDRESSES**). A summary of the IRFA, per the requirements of 5 U.S.C. 604(a) follows:

The Small Business Administration (SBA) has established size criteria for all major industry sectors in the U.S., including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates), and if it has combined annual receipts not in excess of $19 million for all its affiliated operations worldwide. The SBA recently revised the small business size standards for some fishery related businesses (78 FR 37398, June 20, 2013). The rule increased the size standard for Finfish Fishing from $4.0 to 19.0 million, Shellfish Fishing from $4.0 to 5.0 million, and Other Marine Fishing from $4.0 to 7.0 million, Id. *at* 37400 (Table 1). A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. Prior to SBA's recent changes to the size standards for commercial harvesters, a business involved in both the harvesting and processing of seafood products, also referred to as a catcher/processor (CP), was considered a small business if it met the $4.0 million criterion for commercial fish harvesting operations. In light of the new size standards for commercial harvesters, NMFS is reviewing the size standard for CPs. However, for purposes of this rulemaking, NMFS is applying the $19 million standard because whiting CPs are involved in the commercial harvest of finfish. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. For marinas and charter/party boats, a small business is one with annual receipts, not in excess of $7.0 million. There are no specific SBA defined size criteria for observer providers. For this sector, NMFS Alaska Region has employed the $7.0 million in gross annual receipts size standard based on SBA standards associated with firms engaged in placing technical employees. (See: *http://alaskafisheries.noaa.gov/analyses/observer/ririrfa_soc_observer_0209.pdf*)

This proposed rule affects current and future businesses that supply observers for monitoring fishing and processing activities on a vessel at-sea and catch monitors who observe and document offloads at first receiver/processing plants on shore. The actions listed above are intended to establish permitting requirements for businesses providing certified observers and catch monitors; make regulations consistent with The Coast Guard and Maritime Act of 2012; and make minor administrative and housekeeping changes.

Currently, companies that supply observers have undergone the permit processes used for North Pacific Fisheries. This proposed rulemaking would create a new permitting process for Pacific groundfish fisheries. Currently, businesses supplying catch monitors undergo a certification process. This proposed rulemaking would convert this process into a permitting process. Under the current process of certification, potential providers submit an application and receive a letter or approval or denial from NMFS. Under the proposed permit process, potential providers will submit a similar application, but will either receive a permit or a letter of denial. Providers that existed during the 12 months prior to the rule will be grandfathered into the new system. Rather than create two different permits, one for supplying observers and one for supplying catch monitors, under the proposed regulations there will only be one permit process. Under this process, a company can request to have an observer endorsement or a catch monitor endorsement or both. NMFS NWR currently has permitted five observer provider companies: Alaskan Observers, Inc.; NWO, Inc.; Saltwater Observers, Inc.; TechSea International; and MRAG Americas, Inc. The principal activity of most of these companies has been to provide observers for Alaska groundfish fisheries the North Pacific, but they also provide observers for other fisheries such and the Pacific Groundfish fishery. Regulations require observers in all sectors and catch monitors at first landings/processing sites. Therefore, this proposed rule

indirectly affects participants in the following: IFQ Program, Mothership Coop Program, and Catcher/Processor Coop Program. Two companies, Alaskan Observers, Inc. and Saltwater Observers, Inc., are providing observers and monitors for the IFQ Program. The other sectors may be using the other companies as they typically also fish off Alaska. There are 144 shoreside vessel accounts, 36 mothership endorsed limited entry permits, 6 mothership permits, 10 catcher/processor permits, and 51shorebased first receiver site licenses. Taking into account cross participation, multiple accounts, and affiliation between entities, NMFS estimates that there are 145 fishery related entities indirectly affected by these proposed regulations as they need to acquire observers for their vessels and monitors for their shoreside processing plants. Of these entities, 102 are ''small'' businesses. This rule directly affects the five providers currently permitted to operate in the fishery. NMFS considers these all small businesses (75 FR 69016 November 10, 2010).

The benefits from these regulations are largely administrative in nature and minor in the context of the entire program. In terms of economic effects, the main impact is requiring observer providers to obtain a Pacific Groundfish Provider permit. These regulations will allow for entry of new providers, separate from the five that have provided observers in the Alaska groundfish fisheries. There will be an administrative fee charged for issuing permits. NMFS projects these fees to be about $165 for renewals and $550 for new permits.

Based on the discussion above, this proposed rule would not have a significant economic effect on a substantial number of small entities. This rulemaking is largely administrative in nature. There are no significant alternatives to the proposed rule that accomplish the stated objectives of applicable statutes, and that minimize the impact of the proposed rule on small entities. The benefits of these regulations include more understandable and less complex regulations and the potential for increased provider companies in the fishery. Additional companies may lower costs to fishing vessels and processors and alleviate logistical/scheduling issues with providing observers and monitors to the various ports. Nonetheless, for transparency purposes, NMFS has prepared this IRFA. Through the rulemaking process associated with this action, we are requesting comments on this conclusion.

This proposed rule contains a new collection-of-information requirement subject to review and approval by OMB under the Paperwork Reduction Act (PRA). This requirement has been submitted to OMB for approval as revisions to OMB collection 0648–0619 and 0648–0500. The estimated public reporting burden for OMB collection 0648–0619, provider permit applications, is an average of 10 hours per response, annual renewal of provider permits is estimated to average 2 hours per response, and appeals of permits that have been expire after a period of 12 continuous months during which no observers or catch monitors are deployed average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection information. NMFS estimates the public reporting burden for OMB collection 0648–0500, the submission of vessel safety checklists, averages 5 minutes per response.

Public comment is sought regarding: Whether this proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; the accuracy of the burden estimate; ways to enhance the quality, utility, and clarity of the information to be collected; and ways to minimize the burden of the collection of information, including through the use of automated collection techniques or other forms of information technology. Send comments on these or any other aspects of the collection of information to West Coast Region at the **ADDRESSES** above, and by email to *OIRA_Submission@omb.eop.gov* or fax to (202) 395–7285.

Notwithstanding any other provision of the law, no person is required to respond to, and no person shall be subject to penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB control number.

Pursuant to Executive Order 13175, this proposed rule was developed after meaningful consultation and collaboration with tribal officials from the area covered by the PCGFMP. Under the Magnuson-Stevens Act at 16 U.S.C. 1852(b)(5), one of the voting members of the Pacific Council must be a representative of an Indian tribe with federally recognized fishing rights from the area of the Council's jurisdiction. The proposed regulations do not require the tribes to change from their current practices.

NMFS issued Biological Opinions under the Endangered Species Act (ESA) on August 10, 1990, November 26, 1991, August 28, 1992, September 27, 1993, May 14, 1996, and December 15, 1999 pertaining to the effects of the Pacific Coast Groundfish Fishery Management Plan (PCGFMP) fisheries on Chinook salmon (Puget Sound, Snake River spring/summer, Snake River fall, upper Columbia River spring, lower Columbia River, upper Willamette River, Sacramento River winter, Central Valley spring, California coastal), coho salmon (Central California coastal, southern Oregon/northern California coastal), chum salmon (Hood Canal summer, Columbia River), sockeye salmon (Snake River, Ozette Lake), and steelhead (upper, middle and lower Columbia River, Snake River Basin, upper Willamette River, central California coast, California Central Valley, south/central California, northern California, southern California). These biological opinions have concluded that implementation of the PCGFMP for the Pacific Coast groundfish fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat.

NMFS issued a Supplemental Biological Opinion on March 11, 2006 concluding that neither the higher observed bycatch of Chinook in the 2005 whiting fishery nor new data regarding salmon bycatch in the groundfish bottom trawl fishery required a reconsideration of its prior ''no jeopardy'' conclusion. NMFS also reaffirmed its prior determination that implementation of the Groundfish PCGFMP is not likely to jeopardize the continued existence of any of the affected ESUs. Lower Columbia River coho (70 FR 37160, June 28, 2005) and Oregon Coastal coho (73 FR 7816, February 11, 2008) were recently relisted as threatened under the ESA. The 1999 biological opinion concluded that the bycatch of salmonids in the Pacific whiting fishery were almost entirely Chinook salmon, with little or no bycatch of coho, chum, sockeye, and steelhead.

On December 7, 2012, NMFS completed a biological opinion concluding that the groundfish fishery is not likely to jeopardize non-salmonid marine species including listed eulachon, green sturgeon, humpback whales, Steller sea lions, and leatherback sea turtles. The opinion also concludes that the fishery is not likely to adversely modify critical habitat for green sturgeon and leatherback sea

turtles. An analysis included in the same document as the opinion concludes that the fishery is not likely to adversely affect green sea turtles, olive ridley sea turtles, loggerhead sea turtles, sei whales, North Pacific right whales, blue whales, fin whales, sperm whales, Southern Resident killer whales, Guadalupe fur seals, or the critical habitat for Steller sea lions.

As Steller sea lions and humpback whales are also protected under the Marine Mammal Protection Act (MMPA), incidental take of these species from the groundfish fishery must be addressed under MMPA section 101(a)(5)(E). On February 27, 2012, NMFS published notice that the incidental taking of Steller sea lions in the West Coast groundfish fisheries is addressed in NMFS' December 29, 2010 Negligible Impact Determination and this fishery has been added to the list of fisheries authorized to take Steller sea lions (77 FR 11493, Feb. 27, 2012). NMFS is currently developing MMPA authorization for the incidental take of humpback whales in the fishery.

On November 21, 2012, the U.S. Fish and Wildlife Service (FWS) issued a biological opinion concluding that the groundfish fishery will not jeopardize the continued existence of the short-tailed albatross. The FWS also concurred that the fishery is not likely to adversely affect the marbled murrelet, California least tern, southern sea otter, bull trout, nor bull trout critical habitat.

**List of Subjects in 50 CFR Part 660**

Fisheries, Fishing, and Indian fisheries.

Dated: February 3, 2014.

**Samuel D. Rauch III,**

*Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.*

For the reasons stated in the preamble, 50 CFR part 660 is proposed to be amended as follows:

## PART 660—FISHERIES OFF WEST COAST STATES

■ 1. The authority citation for part 660 is revised to read as follows:

**Authority:** 16 U.S.C. 1801 *et seq.,* 16 U.S.C. 773 *et seq.,* and 16 U.S.C. 7001 *et seq.*

■ 2. In § 660.11:

■ a. Add definitions, in alphabetical order, for ''Catch Monitor Program or Catch Monitor Program Office'', ''Catch monitor provider'', and ''Observer provider''; and

■ b. Revise the definitions for ''Observer Program or Observer Program Office'' and ''Sustainable Fisheries Division or SFD'' to read as follows:

**§ 660.11 General definitions.**

* * * * *

*Catch Monitor Program or Catch Monitor Program Office* means the Catch Monitor Program Office of the West Coast Region, National Marine Fisheries Service.

*Catch monitor provider* means any person or commercial enterprise that is granted a permit by NMFS to provide certified catch monitors as required in § 660.140.

* * * * *

*Observer Program or Observer Program Office* means the Observer Program Office of the Northwest Fisheries Science Center, National Marine Fisheries Service, Seattle, Washington. Branch offices within the Observer Program include the West Coast Groundfish Observer Program and the At-Sea Hake Observer Program.

*Observer provider* means any person or commercial enterprise that is granted a permit by NMFS to provide certified observers as required at §§ 660.140, 660.150, 660.160, 660.216 or 660.316.

* * * * *

*Sustainable Fisheries Division or SFD* means the Assistant Regional Administrator of the Sustainable Fisheries Division, West Coast Region, NMFS, or a designee.

* * * * *

■ 3. In § 660.12, revise paragraphs (e)(5) through (9) to read as follows:

**§ 660.12 General groundfish prohibitions.**

* * * * *

(e) * * *

(5) Fish for, land, or process fish without observer coverage when a vessel is required to carry an observer under subparts C through G of this part.

(6) Fish when a vessel is required to carry an observer under subparts C through G of this part if:

(i) The vessel is inadequate for observer deployment as specified at § 600.746 of this chapter;

(ii) The vessel does not maintain safe conditions for an observer as specified at §§ 660.140(h), 660.150(j), and 660.160(g); or

(iii) NMFS, the observer provider, or the observer determines the vessel is inadequate or unsafe pursuant to vessel responsibilities to maintain safe conditions as specified at §§ 660.140(h), 660.150(j), and 660.160(g).

(7) Require, pressure, coerce, or threaten an observer to perform duties normally performed by crew members, including, but not limited to, cooking, washing dishes, standing watch, vessel maintenance, assisting with the setting or retrieval of gear, or any duties associated with the processing of fish, from sorting the catch to the storage of the finished product.

(8) Fail to meet the vessel responsibilities and observer coverage requirements specified at §§ 660.140(h), 660.150(j), 660.160(g), 660.216, or 660.316.

(9) Fail to meet the observer provider responsibilities specified at §§ 660.140(h), 660.150(j), 660.160(g), 660.216, or 660.316.

* * * * *

■ 4. In § 660.16, revise paragraph (a) and the table in paragraph (c) and add paragraphs (d) and (e) to read as follows:

**§ 660.16 Groundfish Observer Program.**

(a) *General.* Vessel owners, operators, and managers are jointly and severally responsible for their vessel's compliance with observer requirements specified in this section and within §§ 660.140, 660.150, 660.160, 660.216, or 660.316.

* * * * *

(c) * * *

| West Coast groundfish fishery | Regulation section | Observer program branch office |
|---|---|---|
| (1) Shorebased IFQ Program—Trawl Fishery | § 660.140(h) | West Coast Groundfish. |
| (2) MS Coop Program—Whiting At-sea Trawl Fishery | § 660.150(j). | |
| A) Motherships | | A) At-Sea Hake. |
| B) Catcher Vessels | | B) West Coast Groundfish. |
| (3) C/P Coop Program—Whiting At-sea Trawl Fishery | § 660.160(g) | At-Sea Hake. |
| (4) Fixed Gear Fisheries | § 660.216. | |
| A) Harvester vessels | | A) West Coast Groundfish. |
| B) Processing vessels | | B) West Coast Groundfish. |
| (5) Open Access Fisheries | § 660.316. | |
| A) Harvester vessels | | A) West Coast Groundfish. |
| B) Processing vessels | | B) West Coast Groundfish. |

(d) *Observer certifications and responsibilities.* For the Shorebased IFQ Program see § 660.140(h), for the MS Coop Program see § 660.150(j), and, for the C/P Coop Program see § 660.160(g).

(e) *Application process to become an observer provider.* See § 660.18.

■ 5. In § 660.17:

■ a. Revise the section heading;

■ b. Remove paragraphs (b) and (d);

■ c. Redesignate paragraph (a) as (d), paragraph (c) as (e), and paragraph (e) as (f).

■ d. Revise newly redesignated paragraphs (d), (e), (f)(1)(vii), (f)(2), (f)(4) through (6), (f)(8)(i)(B), (C), and (F), (f)(9)(ii), and (f)(11) through (13);

■ e. Add paragraphs (a) through (c) and (g) to read as follows.

**§ 660.17 Catch monitor program.**

(a) *General.* The first receiver site license holder, the first receiver site license authorized representative, facility operators and managers are jointly and severally responsible for the first receiver being in compliance with catch monitor requirements specified in this section and at § 660.140 (i).

(b) *Purpose.* The purpose of the Catch Monitor Program is to, among other related matters, confirm that the IFQ landings are accurately sorted, weighed and reported on electronic fish tickets.

(c) *Catch monitor coverage requirements.* Catch monitor coverage requirements for the Shorebased IFQ Program are specified at § 660.140(i).

(d) *Catch monitor certification and responsibilities.* Catch monitor certification authorizes an individual to fulfill duties as specified by NMFS while under the employ of a catch monitor provider.

(1) *Catch monitor training certification.* A training certification signifies the successful completion of the training course required to obtain catch monitor certification. This certification expires when the catch monitor has not been deployed and performed sampling duties as required by the Catch Monitor Program Office for a period of time, specified by the Catch Monitor Program, after his or her most recent debriefing. The certification is renewed by successful completion of the training course.

(2) *Catch Monitor Program annual briefing.* Each catch monitor must attend a briefing prior to his or her first deployment within any calendar year subsequent to a year in which a training certification is obtained. To maintain a certification, a catch monitor must successfully complete any required briefing specified by the Catch Monitor Program. All briefing attendance, performance, and conduct standards required by the Catch Monitor Program must be met prior to any deployment.

(3) *Catch monitor certification requirements.* NMFS may certify individuals who:

(i) Are employed by a catch monitor provider at the time of the issuance of the certification and qualified, as described at paragraph (f)(1)(i) through (viii) of this section and have provided proof of qualifications to NMFS, through the catch monitor provider.

(ii) Have successfully completed catch monitor certification training.

(A) Successful completion of training by an applicant consists of meeting all attendance and conduct standards; meeting all performance standards for assignments, tests, and other evaluation tools; and completing all other training requirements established by the Catch Monitor Program.

(B) If a candidate fails training, he or she will be notified in writing on or before the last day of training. The notification will indicate: The reasons the candidate failed the training; whether the candidate can retake the training, and under what conditions.

(iii) Have not been decertified as an observer or catch monitor under provisions in §§ 660.17(g), and 660.140(h)(6), 660.150(j)(5), 660.160(g)(5) or 679.53(c).

(4) *Maintaining the validity of a catch monitor certification.* After initial issuance, a catch monitor must keep their certification valid by meeting all of the following requirements specified below:

(i) Successfully perform their assigned duties as described in the Catch Monitor Manual or other written instructions from the Catch Monitor Program.

(ii) Accurately record their data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

(iii) Consistent with NOAA data confidentiality guidance, not disclose data and observations made on board a vessel to any person except the owner or operator of the observed vessel, an authorized state or OLE officer, NMFS or the Catch Monitor Program; and, not disclose data and observations made at a first receiver to any person other than the first receiver site license holder, the first receiver site license authorized representative, facility operators and managers, an authorized state or OLE officer, NMFS or the Catch Monitor Program.

(iv) Successfully complete any required briefings as prescribed by the Catch Monitor Program.

(v) Successful completion of a briefing by a catch monitor consists of meeting all attendance and conduct standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of training for assignments, tests, and other evaluation tools; and completing all other briefing requirements established by the Catch Monitor Program.

(vi) Successfully meet all debriefing expectations including catch monitor performance standards and reporting for assigned debriefings.

(vii) Submit all data and information required by the Catch Monitor Program within the program's stated guidelines.

(viii) Have been deployed as a catch monitor within the 12 months prior to any required briefing, unless otherwise authorized by the Catch Monitor Program.

(e) *Catch monitor standards of behavior.* Catch monitors must do the following:

(1) Perform authorized duties as described in training and instructional manuals or other written and oral instructions provided by the Catch Monitor Program.

(2) Accurately record and submit the required data, which includes fish species composition, identification, sorting, and weighing information.

(3) Write complete reports, and report accurately any observations of suspected violations of regulations.

(4) Returns phone calls, emails, text messages, or other forms of communication within the time specified by the Catch Monitor Program.

(5) Not disclose data and observations made on board a vessel to any person except the owner or operator of the observed vessel, an authorized officer, NMFS or the Catch Monitor Program; and, not disclose data and observations made at a first receiver to any person other than the first receiver site license holder, the first receiver site license authorized representative, facility operators and managers an authorized officer, NMFS or the Catch Monitor Program.

(f) * * *

(1) * * *

(vii) Have had health and physical fitness exams and been found to be fit for the job duties and work conditions;

(A) Physical fitness exams shall be conducted by a medical doctor who has been provided with a description of the job duties and work conditions and who provides a written conclusion regarding the candidate's fitness relative to the required duties and work conditions. A signed and dated statement from a licensed physician that he or she has physically examined a catch monitor or

catch monitor candidate. The statement must confirm that, based on that physical examination, the catch monitor or catch monitor candidate does not have any health problems or conditions that would jeopardize that individual's safety or the safety of others while deployed, or prevent the catch monitor or catch monitor candidate from performing his or her duties satisfactorily. The physician's statement must be submitted to the Catch Monitor Program office prior to certification of a catch monitor. The physical exam must have occurred during the 12 months prior to the catch monitor's or catch monitor candidate's deployment.

(B) Copies of ''certificates of insurance,'' that names the Catch Monitor Program Coordinator as the ''certificate holder,'' shall be submitted to the Catch Monitor Program Office by February 1 of each year. The certificates of insurance shall verify the following coverage provisions and state that the insurance company will notify the certificate holder if insurance coverage is changed or canceled.

(*1*) Coverage under the U.S. Longshore and Harbor Workers' Compensation Act ($1 million minimum).

(*2*) States Worker's Compensation as required.

(*3*) Commercial General Liability.

* * * * *

(2) *Catch Monitor conduct and behavior.* A catch monitor provider must develop and maintain a policy addressing conduct and behavior for their employees that serve as catch monitors.

(i) The policy shall address the following behavior and conduct regarding:

(A) Catch monitor use of alcohol;

(B) Catch monitor, possession, or distribution of illegal drugs; and

(C) Sexual contact with personnel off the vessels or processing facility to which the catch monitor is assigned, or with any vessel or processing plant personnel who may be substantially affected by the performance or non-performance of the catch monitor's official duties.

(ii) A catch monitor provider shall provide a copy of its conduct and behavior policy to each observer candidate and to the Catch Monitor Program by February 1 of each year.

* * * * *

(4) *Catch monitors provided to a first receiver.* (i) Must have a valid catch monitor certification;

(ii) Must not have informed the catch monitor provider prior to the time of assignment that he or she is experiencing a mental illness or a physical ailment or injury developed since submission of the physician's statement, as required in paragraph (f)(1)(vii)(A) of this section that would prevent him or her from performing his or her assigned duties; and

(iii) Must have successfully completed all Catch Monitor Program required training and briefing before assignment.

(5) *Respond to industry requests for catch monitors.* A catch monitor provider must provide a catch monitor for assignment pursuant to the terms of the contractual relationship with the first receiver to fulfill first receiver requirements for catch monitor coverage under § 660.140(i)(1). An alternate catch monitor must be supplied in each case where injury or illness prevents the catch monitor from performing his or her duties or where the catch monitor resigns prior to completion of his or her duties. If the catch monitor provider is unable to respond to an industry request for catch monitor coverage from a first receiver for whom the catch monitor provider is in a contractual relationship due to the lack of available catch monitors, the catch monitor provider must report it to NMFS at least 4 hours prior to the expected assignment time.

(6) *Ensure that catch monitors complete duties in a timely manner.* Catch monitor providers must ensure that catch monitors employed by that catch monitor provider do the following in a complete and timely manner:

(i) Submit to NMFS all data, logbooks and reports as required under the Catch Monitor Program deadlines.

(ii) Report for his or her scheduled debriefing and complete all debriefing responsibilities.

* * * * *

(8) * * *

(i) * * *

(B) Has Internet access for Catch Monitor Program communications and data submission;

(C) Remains available to OLE and the Catch Monitor Program until the completion of the catch monitors' debriefing.

* * * * *

(F) While under contract with a catch monitor provider, each catch monitor shall be provided with accommodations in accordance with the contract between the catch monitor and the catch monitor provider. If the catch monitor provider is responsible for providing accommodations under the contract with the catch monitor, the accommodations must be at a licensed hotel, motel, bed and breakfast, or other accommodations that have an assigned bed for each catch monitor that no other person may be assigned to for the duration of that catch monitor's stay.

* * * * *

(9) * * *

(ii) Not exceed catch monitor assignment limitations and workload as outlined in § 660.140(i)(3)(ii).

* * * * *

(11) *Maintain communications with the Catch Monitor Program office.* A catch monitor provider must provide all of the following information by electronic transmission (email), fax, or other method specified by NMFS.

(i) *Catch monitor training, briefing, and debriefing registration materials.* This information must be submitted to the Catch Monitor Program at least 10 business days prior to the beginning of a scheduled catch monitor certification training or briefing session.

(A) Training registration materials consist of the following:

(*1*) Date of requested training;

(*2*) A list of catch monitor candidates that includes each candidate's full name (i.e., first, middle and last names), date of birth, and gender;

(*3*) A copy of each candidate's academic transcripts and resume;

(*4*) A statement signed by the candidate under penalty of perjury which discloses the candidate's criminal convictions;

(B) Briefing registration materials consist of the following:

(*1*) Date and type of requested briefing session;

(*2*) List of catch monitors to attend the briefing session, that includes each catch monitor's full name (first, middle, and last names);

(C) The Catch Monitor Program will notify the catch monitor provider which catch monitors require debriefing and the specific time period the catch monitor provider has to schedule a date, time, and location for debriefing. The catch monitor provider must contact the Catch Monitor Program within 5 business days by telephone to schedule debriefings.

(*1*) Catch monitor providers must immediately notify the Catch Monitor Program when catch monitors end their contract earlier than anticipated.

(*2*) [Reserved]

(ii) *Catch monitor provider contracts.* If requested, catch monitor providers must submit to the Catch Monitor Program a completed and unaltered copy of each type of signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract) between the catch monitor provider and those entities requiring catch monitor services under § 660.140(i)(1). Catch monitor

providers must also submit to the Catch Monitor Program upon request, a completed and unaltered copy of the current or most recent signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract and any agreements or policies with regard to catch monitor compensation or salary levels) between the catch monitor provider and the particular entity identified by the Catch Monitor Program or with specific catch monitors. The copies must be submitted to the Catch Monitor Program via email, fax, or mail within 5 business days of the request. Signed and valid contracts include the contracts a catch monitor provider has with:

(A) First receivers required to have catch monitor coverage as specified at paragraph § 660.140(i)(1); and

(B) Catch monitors.

(iii) *Change in catch monitor provider management and contact information.* A catch monitor provider must submit to the Catch Monitor Program any change of management or contact information as required at § 660.18(h).

(iv) *Catch monitor status report.* Each Tuesday, catch monitor providers must provide the Catch Monitor Program with an updated list of deployments per Catch Monitor Program protocol. Deployment information includes provider name, catch monitor last name, catch monitor first name, trip start date, trip end date, status of catch monitor, vessel name and vessel identification number, date monitored offload, and first receiver assignment.

(v) *Informational materials.* Catch monitor providers must submit to NMFS, if requested, copies of any information developed and used by the catch monitor providers and distributed to first receivers, including, but not limited to, informational pamphlets, payment notification, and description of catch monitor duties.

(vi) *Other reports.* Reports of the following must be submitted in writing to the Catch Monitor Program by the catch monitor provider via fax or email address designated by the Catch Monitor Program within 24 hours after the catch monitor provider becomes aware of the information:

(A) Any information regarding possible catch monitor harassment;

(B) Any information regarding any action prohibited under § 660.12(f);

(C) Any catch monitor illness or injury that prevents the catch monitor from completing any of his or her duties described in the catch monitor manual; and

(D) Any information, allegations or reports regarding catch monitor conflict of interest or breach of the standards of behavior described in catch monitor provider policy.

(12) *Replace lost or damaged gear.* Lost or damaged gear issued to a catch monitor by NMFS must be replaced by the catch monitor provider. All replacements must be provided to NMFS and be in accordance with requirements and procedures identified in writing by the Catch Monitor Program.

(13) *Confidentiality of information.* A catch monitor provider must ensure that all records on individual catch monitor performance received from NMFS under the routine use provision of the Privacy Act (5 U.S.C. 552a) or as otherwise required by law remain confidential and are not further released to anyone outside the employ of the catch monitor provider company to whom the catch monitor was contracted except with written permission of the catch monitor.

(g) *Certification and decertification procedures for catch monitors.* (1) *Catch monitor certification official.* The Regional Administrator (or a designee) will designate a NMFS catch monitor certification official who will make decisions on whether to issue or deny catch monitor certification.

(2) *Agency determinations on catch monitor certifications.* (i) *Issuance of certifications.* Certification may be issued upon determination by the catch monitor certification official that the candidate has successfully met all requirements for certification as specified in § 660.17(d).

(ii) *Denial of a certification.* The catch monitor certification official will issue a written determination identifying the reasons for denial of a certification.

(3) *Limitations on conflict of interest for catch monitors.* (i) Catch monitors must not have a direct financial interest, other than the provision of observer or catch monitor services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California, including but not limited to:

(A) Any ownership, mortgage holder, or other secured interest in a vessel, first receiver, shorebased or floating stationary processor facility involved in the catching, taking, harvesting or processing of fish;

(B) Any business involved with selling supplies or services to any vessel, first receiver, shorebased or floating stationary processing facility; or

(C) Any business involved with purchasing raw or processed products from any vessel, first receiver, shorebased or floating stationary processing facilities.

(ii) Must not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from anyone who either conducts activities that are regulated by NMFS or has interests that may be substantially affected by the performance or nonperformance of the catch monitor's official duties.

(iii) May not serve as a catch monitor at any shoreside or floating stationary processing facility owned or operated where a person was previously employed in the last two years.

(iv) May not solicit or accept employment as a crew member or an employee of a vessel, or shoreside processor while employed by a catch monitor provider.

(v) Provisions for remuneration of catch monitors under this section do not constitute a conflict of interest.

(4) *Catch monitor decertification.* (i) *Catch monitor decertification review official.* The Regional Administrator (or a designee) will designate a catch monitor decertification review official(s), who will have the authority to review certifications and issue IADs of decertification.

(ii) *Causes for decertification.* The catch monitor decertification official may initiate decertification proceedings when it is alleged that any of the following acts or omissions have been committed:

(A) Failed to satisfactorily perform the specified duties and responsibilities;

(B) Failed to abide by the specified standards of conduct;

(C) Upon conviction of a crime or upon entry of a civil judgment for:

(*1*) Commission of fraud or other violation in connection with obtaining or attempting to obtain certification, or in performing the duties and responsibilities specified in this section;

(*2*) Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(*3*) Commission of any other offense indicating a lack of integrity or honesty that seriously and directly affects the fitness of catch monitors.

(iii) *Issuance of IAD.* Upon determination that decertification is warranted, the catch monitor decertification official will issue a written IAD. The IAD will identify the specific reasons for the action taken. Decertification is effective 30 calendar days after the date on the IAD, unless there is an appeal.

(iv) *Appeals.* A certified catch monitor who receives an IAD that suspends or revokes his or her catch

monitor certification may appeal the determination within 30 calendar days after the date on the IAD to the Office of Administrative Appeals pursuant to § 660.19.

6. Revise § 660.18 to read as follows.

**§ 660.18 Observer and catch monitor provider permits and endorsements.**

(a) *Provider permits.* Persons seeking to provide observer or catch monitor services must obtain a provider permit from NMFS before providing certified catch monitors or certified observers for the Shorebased IFQ Program, the MS Coop Program, the C/P Coop Program, or for processing vessels in the fixed gear or open access fisheries. There are two types of endorsements for provider permits, an observer endorsement and a catch monitor endorsement. Provider permits must have at least one endorsement and it must be appropriate for the services being provided. Provider permits are obtained through an application process and must be renewed annually to remain valid in the following year. A provider permit expires if it is not renewed or when services have not been provided for 12 consecutive months.

(b) *Application process to become an observer or catch monitor provider.* (1) *New provider applications.* An applicant seeking a provider permit may submit an application at any time during the calendar year. Any provider permit issued during a given year will expire on December 31. Applications must be submitted by fax or mail to the West Coast Region Fisheries Permits Office 7600 Sand Point Way NE Seattle, WA, 98115. Only complete applications will be considered for approval by the review board.

(2) *Contents of provider application.* A complete application for a provider permit shall contain the following:

(i) A statement indicating which endorsement the applicant is seeking: observer provider, catch monitor provider or both endorsements. A single application may be used to apply for both endorsements.

(ii) Description of the management, organizational structure, and ownership structure of the applicant's business, including identification by name and general function of all controlling management interests in the company, including but not limited to owners, board members, officers, authorized agents, and other employees. List all office locations and their business mailing address, business phone and fax number, email addresses. If the applicant is a corporation, the articles of incorporation must be provided. If the applicant is a partnership, the partnership agreement must be provided.

(iii) *Provider contact information.* (A) Name of applicant organization. If the applicant organization is United States business entity, include the state registration number.

(B) The primary business mailing address, phone and fax numbers where the owner(s) can be contacted for official correspondence.

(iv) A narrative statement describing relevant direct or indirect prior experience or qualifications the applicant may have that would enable them to be a successful provider.

(A) For applicants seeking an observer provider endorsement, the applicant should describe experience in placing individuals in remote field and/or marine work environments. This includes, but is not limited to, recruiting, hiring, deployment, and personnel administration.

(B) For applicants seeking a catch monitor provider endorsement, a narrative statement should identify prior relevant experience in recruiting, hiring, deploying, and providing support for individuals in marine work environments in the groundfish fishery or other fisheries of similar scale.

(v) A narrative description of the applicant's ability to carry out the required responsibilities and duties as described at §§ 660.140(h), 660.150(j), and 660.160(g) for observer providers and/or § 660.17(f) for catch monitor providers.

(vi) A statement signed under penalty of perjury from each owner, or owners, board members, and officers if a corporation, that they have no conflict of interest as described in § 660.18(c)(3).

(vii) A statement signed under penalty of perjury from each owner, or owners, board members, and officers if a corporation, describing any criminal convictions, Federal contracts they have had and the performance rating they received on the contract, and previous decertification action while working as an observer, observer provider, or catch monitor provider.

(viii) NMFS may request additional information or clarification from the applicants.

(c) *Application evaluation.* Complete applications will be forwarded to Observer program and or the Catch Monitor Program for review and evaluation.

(1) A provider permit application review board will be established and be comprised of at least three members. The review board will evaluate applications submitted under paragraph (a) of this section. If the applicant is a corporation, the review board also will evaluate the application criteria for each owner, or owners, board members, and officers.

(2) The provider permit application will, at a minimum, be evaluated on the following criteria:

(i) The applicant's ability to carry out the responsibilities and relevant experience and qualifications.

(ii) Satisfactory performance ratings on any Federal contracts held by the applicant.

(iii) Absence of any conflict of interest as defined for providers.

(iv) Absence of any relevant criminal convictions related to:

(A) Embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property, or

(B) The commission of any other crimes of dishonesty, as defined by state law or Federal law, that would seriously and directly affect the fitness of an applicant in providing observer services under this section;

(v) Absence of any history of decertification as an observer provider;

(3) *Limitations on conflict of interest for providers.* Providers must not have a direct financial interest, other than the provision of observer or catch monitor services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California, including but not limited to:

(i) Any ownership, mortgage holder, or other secured interest in a vessel, first receiver, shorebased or floating stationary processor facility involved in the catching, taking, harvesting or processing of fish;

(ii) Any business involved with selling supplies or services to any vessel, first receiver, shorebased or floating stationary processing facility; or

(iii) Any business involved with purchasing raw or processed products from any vessel, first receiver, shorebased or floating stationary processing facilities.

(4) *Existing providers.* Businesses that provided observers and/or catch monitors in the 12 months prior to [*EFFECTIVE DATE OF FINAL RULE*] will be issued a provider permit without submission of an application. This permit will be effective through December 31, 2014.

(i) Providers who deployed catch monitors in the Shorebased IFQ Program in the 12 months prior to [*EFFECTIVE DATE OF FINAL RULE*] will be issued a provider permit with a catch monitor provider endorsement

effective through December 31, 2014, except that a change in ownership of an existing catch monitor provider after January 1, 2014, requires a new permit application under this section.

(ii) Providers who deployed certified observers in the Pacific Coast groundfish fishery in the 12 months prior to [*EFFECTIVE DATE OF FINAL RULE*] will be issued a provider permit with an observer provider endorsement effective through December 31, 2014, except that a change in ownership of an existing observer provider after January 1, 2014, requires a new permit application under this section.

(iii) To receive a provider permit for 2015 and beyond, the existing providers must follow the provider permit renewal process set forth in this section.

(d) *Agency determination on an application.* NMFS will send a written determination to the applicant. If an application is approved, NMFS will issue a provider permit with the approved endorsements. If an application is denied, the basis for denial will be explained in the written determination.

(e) *Effective dates.* The provider permit will be valid from the effective date identified on the permit until the permit expiration date of December 31. The provider permit must be renewed prior to expiration to remain valid at the start of the following year.

(f) *Expiration of the provider permit.* (1) *Expiration due to inactivity.* (i) A provider permit and endorsements will expire after a period of 12 continuous months during which no observers or catch monitors are deployed by the provider in the Pacific coast groundfish fishery.

(ii) For permits that are endorsed for both observers and catch monitors, the observer provider endorsement will expire after a period of 12 continuous months during which no observers are deployed by the provider and the catch monitor provider endorsement will expire after a periods of 12 continuous months during which no catch monitors are deployed by the provider.

(iii) The Regional Administrator will provide written notice to a provider if NMFS' deployment records indicate that observer or catch monitors have not been deployed as described in paragraph (f)(1)(i) and (ii) of this section. If, after the provider has had an opportunity to respond to the notice, NMFS concludes that expiration criteria have been met, it will issue an IAD finding that the permit expired. A provider that receives an IAD of permit expiration may appeal under § 660.19. A provider that appeals an IAD will be issued an extension of the expiration date of the permit until after the final resolution of the appeal.

(2) *Expiration due to failure to renew.* Provider permits must be renewed every calendar year. Failure to renew will result in expiration of the provider permit on December 31.

(3) *Obtaining a new permit or endorsement following an expiration or voided permit.* A person holding an expired or void permit or endorsement may reapply for a new provider permit or endorsement at any time consistent with § 660.18(b).

(g) *Provider permit renewal process.* To remain in effect in the following year, provider permits must be renewed prior to the permit expiration date.

(1) NMFS will mail a provider permit renewal form to existing permit holders on or about October 1 each year.

(2) Providers who want to have their permits effective for January 1 of the following calendar year must submit their complete renewal form to NMFS by November 30. For those permitted providers who do not submit a complete renewal form by November 30, NMFS may not be able to issue a new provider permit by January 1of the following calendar year, and will issue the new provider permit as soon as practicable. If a provider fails to renew the provider permit, the provider permit will expire on December 31.

(3) Permitted providers as required under §§ 660.140, 660.150, and 660.160 for the trawl fisheries will be required to provide the following information relative to the 12 months prior to submission of a renewal: for catch monitor endorsed providers, the total number of individual catch monitors that attended training, attended briefings, and deployed to a first reviewer; and for observer endorsed providers, the total number of individual observers that attended training, attended briefings, and deployed to a vessel. The renewed permit will not be approved until NMFS has received all of the information described in paragraph (g) of this section.

(h) *Transferability.* Neither a provider permit nor the endorsements are transferable.

(1) *Change in ownership or provider contact information.* (i) Within 15 days of a change in the management, organizational structure, and ownership structure involving a person being added to the ownership-providers must notify NMFS SFD Permits Office and provide the identification by name and general function of all controlling of the applicant's business, including identification by name and general function of all controlling management interests in the company, including but not limited to owners, board members, officers, authorized agents, and other employees. If the provider is a corporation, the articles of incorporation must be provided. If the provider is a partnership, the partnership agreement must be provided.

(ii) Within 30 days of a change in provider contact information the provider must notify NMFS SFD Permits Office and provide the new contact information.

(i) *Provider permit sanctions.* Procedures governing sanctions of permits are found at subpart D of 15 CFR part 904.

(j) *Permit fees.* The Regional Administrator may charge fees to cover administrative expenses related to issuance of permits including initial issuance, renewal replacement, and appeals.

■ 7. Add § 660.19 to read as follows:

**§ 660.19 Appeals process for catch monitors, observers, and provider permits.**

(a) *Allowed appeals.* This section describes the procedure for appealing IADs described at §§ 660.17(g), 660.18(f), 660.140(h), 660.150(j), and 660.160(g) for catch monitor decertification, observer decertification and provider permit expirations due to inactivity. Any person whose interest is directly and adversely affected by an IAD may file a written appeal. For purposes of this section, such person will be referred to as the ''applicant.''

(b) *Appeals process.* In cases where the applicant disagrees with the IAD, the applicant may appeal that decision. Final decisions on appeals of IADs will be made in writing by the Regional Administrator or designee acting on behalf of the Secretary of Commerce and will state the reasons therefore.

(1) *Submission of appeals.* (i) The appeal must be in writing and comply with paragraph (b) of this section.

(ii) Appeals must be mailed or faxed to: National Marine Fisheries Service, West Coast Region, Sustainable Fisheries Division, ATTN: Appeals, 7600 Sand Point Way NE., Seattle, WA, 98115; Fax: 206–526–6426; or delivered to National Marine Fisheries Service at the same address.

(2) *Timing of appeals.* The appeal must be filed within 30 calendar days after the determination is issued. The IAD becomes the final decision of the Regional Administrator or designee acting on behalf of the Secretary of Commerce if no appeal is filed within 30 calendar days. The time period to submit an appeal begins with the date on the IAD. If the last day of the time period is a Saturday, Sunday, or Federal

holiday, the time period will extend to the close of business on the next business day.

(3) *Address of record.* The address used by the applicant in initial correspondence to NMFS concerning the application will be the address used by NMFS for the appeal. Notifications and correspondence associated with all actions affecting the applicant will be mailed to the address of record unless the applicant provides NMFS, in writing, an address change. NMFS bears no responsibility if NMFS sends a notification or correspondence to the address of record and it is not received because the applicant's actual address has changed without notification to NMFS.

(4) *Statement of reasons for appeals.* Applicants must submit a full written statement in support of the appeal, including a concise statement of the reasons the IAD determination has a direct and adverse effect on the applicant and should be reversed or modified. The appellate officer will limit his/her review to the issues stated in the appeal; all issues not set out in the appeal will be waived.

(5) *Decisions on appeals.* The Regional Administrator or designee will issue a final written decision on the appeal which is the final decision of the Secretary of Commerce.

■ 8. In § 660.60, revise paragraph (c)(1)(iv) to read as follows:

**§ 660.60 Specifications and management measures.**

* * * * *

(c) * * *

(1) * * *

(iv) *List of IFQ species documented on Observer Program reporting form.* As specified at § 660.140(h)(1)(i), to be exempt from observer coverage while docked in port depends on documentation of specified retained IFQ species on the Observer Program reporting form. The list of IFQ species documented on the Observer Program form may be modified on a biennial or more frequent basis under routine management measures at § 660.60(c)(1).

* * * * *

■ 9. In § 660.112,

■ a. Add paragraph (a)(3)(iv);

■ b. Revise paragraph (a)(4);

■ c. Remove paragraph (b)(1)(xiii);

■ d. Redesignate paragraphs (b)(1)(xiv), (b)(1)(xv), (b)(1)(xvi), and (b)(1)(xvii) as (b)(1)(xiii), (b)(1)(xiv), (b)(1)(xv), and (b)(1)(xvi), respectively, and revise newly redesignated paragraphs (b)(1)(xiii) and (b)(1)(xiv); and

■ e. Revise paragraphs (d)(12), (d)(14), and (d)(15) to read as follows:

**§ 660.112 Trawl fishery—prohibitions.**

* * * * *

(a) * * *

(3) * * *

(iv) Fail to submit cease fishing reports specified at §§ 660.113(c), 660.150(c), 660.160(c).

* * * * *

(4) *Observers.* * * * *

(i) Fish in the Shorebased IFQ Program, the MS Coop Program, or the C/P Coop Program without observer coverage.

(ii) Fish in the Shorebased IFQ Program, the MS Coop Program, or the C/P Coop Program if the vessel is inadequate or unsafe for observer deployment as described at § 660.12(e).

(iii) Fail to maintain observer coverage in port as specified at § 660.140(h)(1)(i).

* * * * *

(b) * * *

(1) * * *

(xiii) Discard or attempt to discard IFQ species/species group at sea unless the observer has documented or estimated the discards.

(xiv) Begin a new fishing trip until all fish from an IFQ landing have been offloaded from the vessel, consistent with § 660.12(a)(11).

* * * * *

(d) * * *

(12) Sort or discard any portion of the catch taken by a catcher vessel in the MS Coop Program before the catcher vessel observer completes sampling of the catch, except for minor operational amounts of catch lost by a catcher vessel provided the observer has accounted for the discard (i.e., a maximized retention fishery).

* * * * *

(14) Take deliveries without a valid scale inspection report signed by an authorized scale inspector on board the MS vessel.

(15) Sort, process, or discard catch delivered to MS vessels before the catch is weighed on a scale that meets the requirements of § 660.15(b), including the daily test requirements.

* * * * *

■ 10. In § 660.140,

■ a. Revise paragraphs (b)(2)(iv), (b)(2)(vi), (b)(2)(viii);

■ b. Revise paragraphs (h)(1), (h)(2)(i)(B), (h)(2)(ii)(B), (h)(3) through (4), (h)(5)(ii)(B)(*1*) and (*3*), (h)(5)(iii)(D), (h)(5)(iv)(A) and (B), (h)(5)(v), (h)(5)(vii)(A)(*2*) through (*5*), (h)(5)(ix), (h)(5)(xi) through (xv), (h)(6)(i), (h)(6)(iii)(A), and (h)(6)(v) through (ix);

■ c. Add paragraph (h)(2)(xi); and

■ d. Revise paragraphs (i)(2), (i)(3)(ii), (j)(2)(ii) through (iv), (j)(3)(i), and (j)(4) to read as follows:

**§ 660.140 Shorebased IFQ Program.**

* * * * *

(b) * * *

(2) * * *

(iv) Provide unrestricted access to all areas where fish are or may be sorted or weighed to catch monitors, NMFS staff, NMFS-authorized personnel, or authorized officers at any time when a delivery of IFQ species, or the processing of those species, is taking place.

* * * * *

(vi) Retain and make available to catch monitors, NMFS staff, NMFS-authorized personnel, or authorized officers, all printed output from any scale used to weigh catch, and any hand tally sheets, worksheets, or notes used to determine the total weight of any species.

* * * * *

(viii) Ensure that sorting and weighing is completed prior to catch leaving the area that can be monitored from the observation area described in paragraph (i) of this section.

* * * * *

(h) * * * (1) *Observer coverage requirements.* (i) *Coverage.* The following observer coverage pertains to certified observers obtained from an observer provider permitted by NMFS.

(A) Any vessel participating in the Shorebased IFQ Program:

(*1*) Must carry a certified observer on any fishing trip from the time the vessel leaves port and until the completion of landing (until all catch from that fishing trip has been offloaded—see landing at §§ 660.11 and 660.60(h)(2)).

(*2*) Must carry an observer at any time the vessel is underway in port, including transit between delivery points when fish is offloaded at more than one IFQ first receiver.

(*3*) Is exempt from the requirement to maintain observer coverage as specified in paragraph (h) of this section while remaining docked in port when the observer makes available to the catch monitor an Observer Program reporting form documenting the weight and number of bocaccio, yelloweye rockfish, canary rockfish, and cowcod retained during that trip and which documents any discrepancy the vessel operator and observer may have in the weights and number of the overfished species, unless modified inseason under routine management measures at § 660.60(c)(1).

(B) Any vessel 125 ft (38.1 m) LOA or longer that is engaged in at-sea processing must carry two certified observers, and any vessel shorter than 125 ft (38.1 m) LOA that is engaged in at-sea processing must carry one certified observer, each day that the

vessel is used to take, retain, receive, land, process, or transport groundfish.

(ii) *Observer deployment limitations and workload.* An observer must not be deployed for more than 22 calendar days in a calendar month. The Observer Program may issue waivers to allow observers to work more than 22 calendar days per month when it's anticipated one trip will last over 20 days or for issues with observer availability due to illness or injury of other observers. If an observer is unable to perform their duties for any reason, the vessel is required to be in port within 36 hours of the last haul sampled by the observer.

(iii) *Refusal to board.* Any boarding refusal on the part of the observer or vessel must be immediately reported to the Observer Program and OLE by the observer provider. The observer must be available for an interview with the Observer Program or OLE if necessary.

(2) * * *

(i) * * *

(B) Accommodations and food for trips of 24 hours or more must be equivalent to those provided for the crew and must include berthing space, a space that is intended to be used for sleeping and is provided with installed bunks and mattresses. A mattress or futon on the floor or a cot is not acceptable if a regular bunk is provided to any crew member, unless other arrangements are approved in advance by the Regional Administrator or designee.

(ii) * * *

(B) Have on board a valid Commercial Fishing Vessel Safety Decal that certifies compliance with regulations found in 33 CFR chapter I and 46 CFR chapter I, a certificate of compliance issued pursuant to 46 CFR 28.710 or a valid certificate of inspection pursuant to 46 U.S.C. 3311. Maintain safe conditions on the vessel for the protection of observer(s) including adherence to all USCG and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel, and provisions at §§ 600.725 and 600.746 of this chapter.

* * * * *

(xi) *Housing on vessel in port.* During all periods an observer is housed on a vessel, the vessel operator must ensure that at least one crew member is aboard.

(3) *Procurement of observer services.* Owners of vessels required to carry observers under paragraph (h)(1) of this section must arrange for observer services from an observer provider, except that:

(i) Vessels are required to procure observer services directly from the Observer Program when NMFS has determined and given notification that the vessel must carry NMFS staff or an individual authorized by NMFS in lieu of an observer provided by an observer provider.

(ii) Vessels are required to procure observer services directly from the Observer Program and an observer provider when NMFS has determined and given notification that the vessel must carry NMFS staff and/or individuals authorized by NMFS, in addition to an observer provided by an observer provider.

(4) *Application to become an observer provider.* See § 660.18.

* * * * *

(5) * * *

(ii) * * *

(B) * * *

(*1*) That the observer will return all phone calls, emails, text messages, or other forms of communication within the time specified by the Observer Program;

* * * * *

(*3*) That every observer completes a basic cardiopulmonary resuscitation/first aid course prior to the end of the West Coast Groundfish Observer Training class.

(iii) * * *

(D) Immediately report to the Observer Program Office and the OLE any refusal to board an assigned vessel.

(iv) * * * (A) Must have a valid West Coast Groundfish observer certification with the required endorsements;

(B) Must not have informed the observer provider prior to the time of embarkation that he or she is experiencing a mental illness or a physical ailment or injury developed since submission of the physician's statement, as required in paragraph (h)(5)(xi)(B) of this section that would prevent him or her from performing his or her assigned duties; and

* * * * *

(v) *Respond to industry requests for observers.* An observer provider must provide an observer for deployment pursuant to the terms of the contractual relationship with the vessel to fulfill vessel requirements for observer coverage under paragraphs (h)(5)(xi)(D) of this section. An alternate observer must be supplied in each case where injury or illness prevents an observer from performing his or her duties or where an observer resigns prior to completion of his or her duties. If the observer provider is unable to respond to an industry request for observer coverage from a vessel for whom the observer provider is in a contractual relationship due to the lack of available observers by the estimated embarking time of the vessel, the observer provider must report it to NMFS at least 4 hours prior to the vessel's estimated embarking time.

* * * * *

(vii) * * *

(A) * * *

(*2*) Has a check-in system in which the observer is required to contact the observer provider each time they depart and return to port on a vessels.

(*3*) Remains available to OLE and the Observer Program until the conclusion of debriefing.

(*4*) Receives all necessary transportation, including arrangements and logistics to the initial location of deployment, to all subsequent vessel assignments during that deployment, and to and from the location designated for an observer to be interviewed by the Observer Program; and

(*5*) Receives lodging, per diem, and any other services necessary to observers assigned to fishing vessels.

(*i*) An observer under contract may be housed on a vessel to which he or she is assigned: Prior to their vessel's initial departure from port; for a period not to exceed 24 hours following the completion of an offload when the observer has duties and is scheduled to disembark; or for a period not to exceed 24 hours following the vessel's arrival in port when the observer is scheduled to disembark.

(*ii*) Otherwise, each observer between vessels, while still under contract with an observer provider, shall be provided with accommodations in accordance with the contract between the observer and the observer provider. If the observer provider is responsible for providing accommodations under the contract with the observer, the accommodation must be at a licensed hotel, motel, bed and breakfast, or other shoreside accommodations that has an assigned bed for each observer that no other person may be assigned to for the duration of that observer's stay. Additionally, no more than four beds may be in any room housing observers at accommodations meeting the requirements of this section.

* * * * *

(ix) *Verify vessel's Commercial Fishing Vessel Safety Decal.* An observer provider must ensure that the observer completes a current observer vessel safety checklist, and verify that a vessel has a valid USCG Commercial Fishing Vessel Safety Decal as required under paragraph (h)(2)(ii)(B) of this section prior to the observer embarking on the first trip and before an observer may get underway aboard the vessel. The provider must submit all vessel

safety checklists to the Observer Program, as specified by Observer Program. One of the following acceptable means of verification must be used to verify the decal validity:

(A) An employee of the observer provider, including the observer, visually inspects the decal aboard the vessel and confirms that the decal is valid according to the decal date of issuance; or

(B) The observer provider receives a hard copy of the USCG documentation of the decal issuance from the vessel owner or operator.

* * * * *

(xi) *Maintain communications with the Observer Program Office.* An observer provider must provide all of the following information by electronic transmission (email), fax, or other method specified by NMFS.

(A) *Observer training, briefing, and debriefing registration materials.* This information must be submitted to the Observer Program Office at least 10 business days prior to the beginning of a scheduled West Coast groundfish observer certification training or briefing session.

(*1*) Training registration materials consist of the following:

(*i*) Date of requested training;

(*ii*) A list of observer candidates that includes each candidate's full name (i.e., first, middle and last names), date of birth, and gender;

(*iii*) A copy of each candidate's academic transcripts and resume;

(*iv*) A statement signed by the candidate under penalty of perjury which discloses the candidate's criminal convictions;

(*v*) Length of each observer's contract.

(*2*) Briefing registration materials consist of the following:

(*i*) Date and type of requested briefing session;

(*ii*) List of observers to attend the briefing session, that includes each observer's full name (first, middle, and last names);

(*iii*) Length of each observer's contract.

(*3*) *Debriefing.* The Observer Program will notify the observer provider which observers require debriefing and the specific time period the observer provider has to schedule a date, time, and location for debriefing. The observer provider must contact the Observer Program within 5 business days by telephone to schedule debriefings.

(*i*) Observer providers must immediately notify the observer program when observers end their contract earlier than anticipated.

(*ii*) [Reserved]

(B) *Physical examination.* A signed and dated statement from a licensed physician that he or she has physically examined an observer or observer candidate. The statement must confirm that, based on that physical examination, the observer or observer candidate does not have any health problems or conditions that would jeopardize that individual's safety or the safety of others while deployed, or prevent the observer or observer candidate from performing his or her duties satisfactorily. The statement must declare that, prior to the examination, the physician was made aware of the duties of the observer and the dangerous, remote, and rigorous nature of the work by reading the NMFS-prepared information. The physician's statement must be submitted to the Observer Program Office prior to certification of an observer. The physical exam must have occurred during the 12 months prior to the observer's or observer candidate's deployment.

(C) *Certificates of insurance.* Copies of ''certificates of insurance,'' that name the Northwest Fisheries Science Center Observer Program manager as the ''certificate holder,'' shall be submitted to the Observer Program Office by February 1 of each year. The certificates of insurance shall verify the following coverage provisions and state that the insurance company will notify the certificate holder if insurance coverage is changed or canceled.

(*1*) Maritime Liability to cover ''seamen's'' claims under the Merchant Marine Act (Jones Act) and General Maritime Law ($1 million minimum).

(*2*) Coverage under the U.S. Longshore and Harbor Workers' Compensation Act ($1 million minimum).

(*3*) States Worker's Compensation as required.

(*4*) Commercial General Liability.

(D) *Observer provider contracts.* If requested, observer providers must submit to the Observer Program Office a completed and unaltered copy of each type of signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract) between the observer provider and those entities requiring observer services under paragraph (h)(1)(i) of this section. Observer providers must also submit to the Observer Program Office, upon request, a completed and unaltered copy of the current or most recent signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract and any agreements or policies with regard to observer compensation or salary levels) between the observer provider and the particular entity identified by the Observer Program or with specific observers. The copies must be submitted to the Observer Program Office via email, fax, or mail within 5 business days of the request. Signed and valid contracts include the contracts an observer provider has with:

(*1*) Vessels required to have observer coverage as specified at paragraph (h)(1)(i) of this section; and

(*2*) Observers.

(E) *Change in observer provider management and contact information.* An observer provider must submit to the Observer Program Office any change of management or contact information as required at § 660.18(h).

(F) *Biological samples.* The observer provider must ensure that biological samples are stored/handled properly prior to delivery/transport to NMFS.

(G) *Observer status report.* Observer providers must provide NMFS with an updated list of observer trips per Observer Program protocol. Trip information includes observer provider name, observer last name, observer first name, trip start date, trip end date, status of observer, vessel name, and vessel identification number.

(H) *Other information.* Observer providers must submit to NMFS, if requested, copies of any information developed and used by the observer providers distributed to vessels, such as informational pamphlets, payment notification, description of observer duties, etc.

(I) *Other reports.* Reports of the following must be submitted in writing to the Observer Program Office by the observer provider via fax or email address designated by the Observer Program Office within 24 hours after the observer provider becomes aware of the information:

(*1*) Any information regarding possible observer harassment;

(*2*) Any information regarding any action prohibited under § 660.12(e); § 660.112(a)(4); or § 600.725(o), (t) and (u) of this chapter;

(*3*) Any concerns about vessel safety or marine casualty under 46 CFR 4.05–1(a)(1) through (7);

(*4*) Any observer illness or injury that prevents the observer from completing any of his or her duties described in the observer manual; and

(*5*) Any information, allegations or reports regarding observer conflict of interest or breach of the standards of behavior described in observer provider policy.

(xii) *Replace lost or damaged gear.* Lost or damaged gear issued to an

observer by NMFS must be replaced by the observer provider. All replacements must be provided to NMFS and be in accordance with requirements and procedures identified in writing by the Observer Program Office.

(xiii) *Maintain confidentiality of information.* An observer provider must ensure that all records on individual observer performance received from NMFS under the routine use provision of the Privacy Act (U.S.C. 552a) or as otherwise required by law remain confidential and are not further released to anyone outside the employ of the observer provider company to whom the observer was contracted except with written permission of the observer.

(xiv) *Limitations on conflict of interest.* Observer providers:

(A) Must not have a direct financial interest, other than the provision of observer or catch monitor services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California, including, but not limited to:

(*1*) Any ownership, mortgage holder, or other secured interest in a vessel or shoreside processor facility involved in the catching, taking, harvesting or processing of fish;

(*2*) Any business involved with selling supplies or services to any vessel or shoreside processors participating in a fishery managed pursuant to an FMP in the waters off the coasts of Alaska, California, Oregon, and Washington; or

(*3*) Any business involved with purchasing raw or processed products from any vessel or shoreside processor participating in a fishery managed pursuant to an FMP in the waters off the coasts of Alaska, California, Oregon, and Washington.

(B) Must assign observers without regard to any preference by representatives of vessels other than when an observer will be deployed.

(C) Must not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value except for compensation for providing observer services from anyone who conducts fishing or fish processing activities that are regulated by NMFS, or who has interests that may be substantially affected by the performance or non-performance of the official duties of observer providers.

(xv) *Observer conduct and behavior.* An observer provider must develop and maintain a policy addressing observer conduct and behavior for their employees that serve as observers.

(A) The policy shall address the following behavior and conduct regarding:

(*1*) Observer use of alcohol;

(*2*) Observer use, possession, or distribution of illegal drugs in violation of applicable law; and;

(*3*) Sexual contact with personnel of the vessel or processing facility to which the observer is assigned, or with any vessel or processing plant personnel who may be substantially affected by the performance or non-performance of the observer's official duties.

(B) An observer provider shall provide a copy of its conduct and behavior policy by February 1 of each year, to: observers, observer candidates and the Observer Program Office.

* * * * *

(6) * * * (i) *Applicability.* Observer certification authorizes an individual to fulfill duties as specified in writing by the Observer Program Office while under the employ of an observer provider and according to certification requirements as designated under paragraph (h)(6)(iii) of this section.

* * * * *

(iii) * * * (A) *Initial certification.* NMFS may certify individuals who, in addition to any other relevant considerations:

(*1*) Are employed by an permitted observer provider at the time of the of the certification is issued;

(*2*) Have provided, through their observer provider:

(*i*) Information identified by NMFS at § 679.52(b) of this chapter regarding an observer candidate's health and physical fitness for the job;

(*ii*) Meet all observer candidate education and health standards as specified in § 679.52(b) of this chapter; and

(*iii*) Have successfully completed NMFS-approved training as prescribed by the Observer Program. Successful completion of training by an observer applicant consists of meeting all attendance and conduct standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of training for assignments, tests, and other evaluation tools; and completing all other training requirements established by the Observer Program.

(*iv*) Have not been decertified under paragraph (h)(6)(ix) of this section, or pursuant to § 679.53(c) of this chapter.

* * * * *

(v) *Issuance of an observer certification.* An observer certification may be issued upon determination by the observer certification official that the candidate has successfully met all requirements for certification as specified at paragraph (h)(6)(iii) of this section. The following endorsements as prescribed by the Observer Program must be obtained in addition to observer certification.

(A) *West Coast Groundfish Observer Program training endorsement.* A training endorsement signifies the successful completion of the training course required to obtain observer certification. This endorsement expires when the observer has not been deployed and performed sampling duties as required by the Observer Program Office for a period of time, specified by the Observer Program, after his or her most recent debriefing. The Observer can renew the endorsement by successfully completing training once more.

(B) *West Coast Groundfish Observer Program annual general endorsement.* Each observer must obtain an annual general endorsement to their certification prior to his or her first deployment within any calendar year subsequent to a year in which a training endorsement is obtained. To obtain an annual general endorsement, an observer must successfully complete the annual briefing, as specified by the Observer Program. All briefing attendance, performance, and conduct standards required by the Observer Program must be met.

(C) *West Coast Groundfish Observer Program deployment endorsement.* Each observer who has completed an initial deployment, as defined by the Observer Program, after receiving a training endorsement or annual general endorsement, must complete all applicable debriefing requirements specified by the Observer Program. A deployment endorsement is issued to observers who meet the performance standards specified by the Observer Program. A deployment endorsement must be obtained prior to any subsequent deployments for the remainder of that calendar year. If a deployment endorsement is not issued, certification training must be repeated.

(vi) *Maintaining the validity of an observer certification.* After initial issuance, an observer must keep their certification valid by meeting all of the following requirements specified below:

(A) Successfully perform their assigned duties as described in the observer manual or other written instructions from the Observer Program.

(B) Accurately record their sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

(C) Not disclose collected data and observations made on board the vessel or in the processing facility to any person except the owner or operator of the observed vessel or an authorized officer or NMFS.

(D) Successfully complete any required trainings or briefings as prescribed by the Observer Program.

(E) Successful completion of briefing by an observer applicant consists of meeting all attendance and conduct standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of briefing for assignments, tests, and other evaluation tools; and completing all other briefing requirements established by the Observer Program.

(F) Hold current basic cardiopulmonary resuscitation/first aid certification as per American Red Cross Standards.

(G) Successfully meet Observer Program performance standards reporting for assigned debriefings or interviews.

(H) Submit all data and information required by the Observer Program within the program's stated guidelines.

(I) Meet the minimum annual deployment period of 3 months at least once every 12 months.

(vii) *Limitations on conflict of interest.* Observers:

(A) Must not have a direct financial interest, other than the provision of observer services or catch monitor services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California, including but not limited to:

(*1*) Any ownership, mortgage holder, or other secured interest in a vessel, shore-based or floating stationary processor facility involved in the catching, taking, harvesting or processing of fish;

(*2*) Any business involved with selling supplies or services to any vessel, shore-based or floating stationary processing facility; or

(*3*) Any business involved with purchasing raw or processed products from any vessel, shore-based or floating stationary processing facilities.

(B) Must not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from anyone who either conducts activities that are regulated by NMFS in the Pacific coast or North Pacific regions or has interests that may be substantially affected by the performance or nonperformance of the observers' official duties.

(C) May not serve as observers on any vessel or at any shore-based or floating stationary processor owned or operated by a person who employed the observer in the last two years.

(D) May not solicit or accept employment as a crew member or an employee of a vessel or shore-based or floating stationary processor while employed by an observer provider.

(E) Provisions for remuneration of observers under this section do not constitute a conflict of interest.

(viii) *Standards of behavior.* Observers must:

(A) Perform their duties as described in the observer manual or other written instructions from the Observer Program Office.

(B) Accurately record their sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to the conservation of marine resources of their environment.

(C) Not disclose collected data and observations made on board the vessel to any person except the owner or operator of the observed vessel, an authorized officer, or NMFS.

(ix) *Suspension and decertification.* (A) *Suspension and decertification review official.* The Regional Administrator (or a designee) will designate an observer suspension and decertification review official(s), who will have the authority to review observer certifications and issue IAD of observer certification suspension and/or decertification.

(B) *Causes for suspension or decertification.* In addition to any other supported basis connected to an observer's job performance, the suspension and decertification official may initiate suspension or decertification proceedings against an observer:

(*1*) When it is alleged that the observer has not met applicable standards, including any of the following:

(*i*) Failed to satisfactorily perform duties as described or directed by the Observer Program; or

(*ii*) Failed to abide by the standards of conduct for observers, including conflicts of interest;

(*2*) Upon conviction of a crime or upon entry of a civil judgment for:

(*i*) Commission of fraud or other violation in connection with obtaining or attempting to obtain certification, or in performing the duties as specified in writing by the NMFS Observer Program;

(*ii*) Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(*iii*) Commission of any other offense indicating a lack of integrity or honesty that seriously and directly affects the fitness of observers.

(C) *Issuance of an IAD.* Upon determination that suspension or decertification is warranted, the suspension/decertification official will issue a written IAD to the observer via certified mail at the observer's most current address provided to NMFS. The IAD will identify whether a certification is suspended or revoked and will identify the specific reasons for the action taken. Decertification is effective 30 calendar days after the date on the IAD, unless there is an appeal.

(D) *Appeals.* A certified observer who receives an IAD that suspends or revokes his or her observer certification may appeal the determination within 30 calendar days after the date on the IAD to the Office of Administrative Appeals pursuant to § 660.19.

(i) * * *

(2) *Procurement of catch monitor services.* Owners or managers of each IFQ first receiver must arrange for catch monitor services from a catch monitor provider prior to accepting IFQ landings.

* * * * *

(3) * * *

(ii) The working hours of each individual catch monitor will be limited as follows: the time required for a catch monitor to conduct monitoring duties must not exceed 14 consecutive hours in any 24-hour period with a maximum of 12 hours being work other than the summary and submission of catch monitor data. In the same 24-hour period a catch monitor must have a break that is a minimum of 8 consecutive hours.

* * * * *

(j) * * *

(2) * * *

(ii) *Printed record.* All scales identified in the catch monitoring plan accepted by NMFS during the first receiver site license application process, must produce a printed record as specified at § 660.15(c).

(iii) *Scales that may be exempt from printed report.* An IFQ first receiver that receives no more than 200,000 pounds of groundfish in any calendar month will be exempt from the requirement to produce a printed record provided that:

(A) The first receiver has not previously operated under a catch monitoring plan where a printed record was required;

(B) The first receiver ensures that all catch is weighed; and

(C) The catch monitor, NMFS staff, or authorized officer can verify that all catch is weighed.

(iv) *Retention of printed records.* An IFQ first receiver must maintain printouts on site until the end of the fishing year during which the printouts were made consistent with § 660.113(a)(2).

* * * * *

(3) * * *

(i) *General.* Ensure that all IFQ landings are sorted and weighed as specified at § 660.130(d) and in accordance with an approved catch monitoring plan.

* * * * *

(4) *Scale tests.* All testing must meet the scale test standards specified at § 660.15(c).

* * * * *

■ 11. In § 660.150,

■ a. Revise paragraphs (b)(1)(ii), (j)(1)(i), (j)(1)(ii)(A), (j)(1)(iii), (j)(2)(i)(A), (j)(2)(i)(B)(*2*), (j)(2)(ii) introductory text, (j)(2)(ii)(B), (j)(2)(iii), (j)(2)(ix)(A) introductory text, (j)(2)(x) introductory text, (j)(3), (j)(4), and (j)(5);

■ b. Add paragraph (j)(2)(xi) to read as follows:

**§ 660.150 Mothership (MS) Coop Program.**

* * * * *

(b) * * * (1) * * *

(ii) *MS vessel responsibilities.* The owner and operator of a *MS* vessel must:

(A) *Recordkeeping and reporting.* Maintain a valid declaration as specified at § 660.13(d); and, maintain and submit all records and reports specified at § 660.113(c) including, economic data, scale tests records, cease fishing reports, and cost recovery.

(B) *Observers.* As specified at paragraph (j) of this section, procure observer services, maintain the appropriate level of coverage, and meet the vessel responsibilities.

(C) *Catch weighing requirements.* The owner and operator of a MS vessel must: Ensure that all catch is weighed in its round form on a NMFS-approved scale that meets the requirements described in section § 660.15(b);

* * * * *

(j) * * * (1) * * * (i) *Coverage.* The following observer coverage pertains to certified observers obtained from an observer provider permitted by NMFS.

(A) *MS vessels.* Any vessel registered to an MS permit 125 ft (38.1 m) LOA or longer must carry two certified observers, and any vessel registered to an MS permit shorter than 125 ft (38.1 m) LOA must carry one certified observer, each day that the vessel is used to take, retain, receive, land, process, or transport groundfish.

(B) *Catcher vessels.* Any vessel delivering catch to any MS vessel must carry one certified observer each day that the vessel is used to take groundfish.

(ii) * * * (A) *MS vessels.* The time required for the observer to complete sampling duties must not exceed 12 consecutive hours in each 24-hour period.

* * * * *

(iii) *Refusal to board.* Any boarding refusal on the part of the observer or vessel must be reported to the Observer Program and OLE by the observer provider. The observer must be available for an interview with the Observer Program or OLE if necessary.

* * * * *

(2) * * *

(i) * * * (A) *MS vessels.* Provide accommodations and food that are equivalent to those provided for officers, engineers, foremen, deck-bosses or other management level personnel of the vessel.

(B) * * *

(*2*) Accommodations and food for trips of 24 hours or more must be equivalent to those provided for the crew and must include berthing space, a space that is intended to be used for sleeping and is provided with installed bunks and mattresses. A mattress or futon on the floor or a cot is not acceptable if a regular bunk is provided to any crew member, unless other arrangements are approved in advance by the Regional Administrator or designee.

* * * * *

(ii) *Safe conditions.* MS vessels and catcher vessels must:

* * * * *

(B) Have on board a valid Commercial Fishing Vessel Safety Decal that certifies compliance with regulations found in 33 CFR chapter I and 46 CFR chapter I, a certificate of compliance issued pursuant to 46 CFR 28.710 or a valid certificate of inspection pursuant to 46 U.S.C. 3311. Maintain safe conditions on the vessel for the protection of observer(s) including adherence to all USCG and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel, and provisions at §§ 600.725 and 600.746 of this chapter.

(iii) *Computer hardware and software.* MS vessels must:

(A) Provide hardware and software pursuant to regulations at §§ 679.51(e)(iii)(B) of the chapter.

(B) Provide the observer(s) access to a computer required under paragraph (j)(2)(iii)(A) of this section, and that is connected to a communication device that provides a point-to-point connection to the NMFS host computer.

(C) Ensure that the MS vessel has installed the most recent release of NMFS data entry software or other approved software prior to the vessel receiving, catching or processing IFQ species.

(D) Ensure that the communication equipment required in paragraph (j)(2)(iii) of this section and that is used by observers to enter and transmit data, is fully functional and operational. ''Functional'' means that all the tasks and components of the NMFS supplied, or other approved, software described at paragraph (j)(2)(iii) of this section and the data transmissions to NMFS can be executed effectively aboard the vessel by the communications equipment.

* * * * *

(ix) * * * (A) *MS vessels.* To allow the observer to carry out required duties, the vessel owner must provide an observer sampling station that meets the following requirements:

* * * * *

(x) *Transfer at sea.* Observers may be transferred at-sea between MS vessels, between MS vessels and C/P vessels, or between a MS vessel and a catcher vessel. Transfers at-sea between catcher vessels is prohibited. For transfers, both vessels must:

* * * * *

(xi) *Housing on vessel in port.* During all periods an observer is housed on a vessel, the vessel operator must ensure that at least one crew member is aboard.

* * * * *

(3) *Procurement of observer services.* (i) *MS vessels.* Owners of vessels required to carry observers under paragraph (j)(1)(i) of this section must arrange for observer services from an observer provider, except that:

(A) Vessels are required to procure observer services directly from the Observer Program when NMFS has determined and given notification that the vessel must carry NMFS staff or an individual authorized by NMFS in lieu of an observer provided by an observer provider.

(B) Vessels are required to procure observer services directly from the Observer Program and an observer provider when NMFS has determined and given notification that the vessel must carry NMFS staff and/or individuals authorized by NMFS, in addition to an observer provided by an observer provider.

(ii) *Catcher vessels.* Owners of vessels required to carry observers under paragraph (j)(1)(i) of this section must arrange for observer services from an observer provider, except that:

(A) Vessels are required to procure observer services directly from the Observer Program when NMFS has determined and given notification that the vessel must carry NMFS staff or an individual authorized by NMFS in lieu of an observer provided by an observer provider.

(B) Vessels are required to procure observer services directly from the Observer Program and an observer provider when NMFS has determined and given notification that the vessel must carry NMFS staff and/or individuals authorized by NMFS, in addition to an observer provided by an observer provider.

(4) *Observer provider responsibilities.* (i) Provide qualified candidates to serve as observers. Observer providers must provide qualified candidates to serve as observers. To be qualified, a candidate must have:

(A) A Bachelor's degree or higher from an accredited college or university with a major in one of the natural sciences;

(B) Successfully completed a minimum of 30 semester hours or equivalent in applicable biological sciences with extensive use of dichotomous keys in at least one course;

(C) Successfully completed at least one undergraduate course each in math and statistics with a minimum of 5 semester hours total for both; and

(D) Computer skills that enable the candidate to work competently with standard database software and computer hardware.

(ii) *Hiring an observer candidate.* (A) *MS vessels.* (*1*) The observer provider must provide the candidate a copy of NMFS-provided pamphlets, information and other literature describing observer duties (i.e. the At-Sea Hake Observer Program's Observer Manual) prior to hiring the candidate. Observer job information is available from the Observer Program Office's Web site at *http://www.nwfsc.noaa.gov/research/divisions/fram/observer/index.cfm.*

(*2*) The observer provider must have a written contract or a written contract addendum that is signed by the observer and observer provider prior to the observer's deployment with the following clauses:

(*i*) That the observer will return all phone calls, emails, text messages, or other forms of communication within the time specified by the Observer Program;

(*ii*) That the observer inform the observer provider prior to the time of embarkation if he or she is experiencing any new mental illness or physical ailments or injury since submission of the physician's statement as required as a qualified observer candidate that would prevent him or her from performing their assigned duties.

(B) *Catcher vessels.* (*1*) Provide the candidate a copy of NMFS-provided pamphlets, information and other literature describing observer duties, for example, the West Coast Groundfish Observer Program's sampling manual. Observer job information is available from the Observer Program Office's Web site at *http://www.nwfsc.noaa.gov/research/divisions/fram/observer/index.cfm.*

(*2*) The observer provider must have a written contract or a written contract addendum that is signed by the observer and observer provider prior to the observer's deployment with the following clauses:

(*i*) That the observer will return all phone calls, emails, text messages, or other forms of communication within the time specified by the Observer Program;

(*ii*) That the observer inform the observer provider prior to the time of embarkation if he or she is experiencing any new mental illness or physical ailments or injury since submission of the physician's statement as required as a qualified observer candidate that would prevent him or her from performing their assigned duties; and

(*iii*) That the observer completes a basic cardiopulmonary resuscitation/first aid course prior to the end of the Observer Program Training class.

(iii) *Ensure that observers complete duties in a timely manner.* (A) *MS vessels.* An observer provider must ensure that observers employed by that observer provider do the following in a complete and timely manner:

(*1*) Submit to NMFS all data, logbooks, and reports as required by the observer manual;

(*2*) Report for his or her scheduled debriefing and complete all debriefing responsibilities;

(*3*) Return all sampling and safety gear to the Observer Program Office;

(*4*) Submit all biological samples from the observer's deployment by the completion of the electronic vessel and/or processor survey(s); and

(*5*) Immediately report to the Observer Program Office and the OLE any refusal to board an assigned vessel.

(B) *Catcher vessels.* An observer provider must ensure that observers employed by that observer provider do the following in a complete and timely manner:

(*1*) Submit to NMFS all data, logbooks, and reports and biological samples as required under the Observer Program policy deadlines;

(*2*) Report for his or her scheduled debriefing and complete all debriefing responsibilities;

(*3*) Return all sampling and safety gear to the Observer Program Office; and

(*4*) Immediately report to the Observer Program Office and the OLE any refusal to board an assigned vessel.

(iv) *Observers provided to vessel.* (A) *MS vessels.* Observers provided to MS vessels:

(*1*) Must have a valid North Pacific groundfish observer certification with required endorsements and an At-Sea Hake Observer Program endorsement;

(*2*) Must not have informed the observer provider prior to the time of embarkation that he or she is experiencing a mental illness or a physical ailment or injury developed since submission of the physician's statement that would prevent him or her from performing his or her assigned duties; and

(*3*) Must have successfully completed all NMFS required training and briefing before deployment.

(B) *Catcher vessels.* Observers provided to catcher vessels:

(*1*) Must have a valid West Coast Groundfish observer certification with the required endorsements;

(*2*) Must have not informed the observer provider prior to the time of embarkation that he or she is experiencing a mental illness or a physical ailment or injury developed since submission of the physician's statement (required in paragraph (j)(4)(xi)(B)(*2*) of this section) that would prevent him or her from performing his or her assigned duties; and,

(*3*) Must have successfully completed all NMFS required training and briefing before deployment.

(v) *Respond to industry requests for observers.* An observer provider must provide an observer for deployment pursuant to the terms of the contractual relationship with the vessel to fulfill vessel requirements for observer coverage specified at paragraph (j)(1)(i) of this section. An alternate observer must be supplied in each case where injury or illness prevents an observer from performing his or her duties or where the observer resigns prior to completion of his or her duties. If the observer provider is unable to respond to an industry request for observer coverage from a vessel for whom the observer provider is in a contractual relationship due to lack of available observers by the estimated embarking time of the vessel, the observer provider must report it to the Observer Program at least 4 hours prior to the vessel's estimated embarking time.

(vi) *Provide observer salaries and benefits.* An observer provider must provide to its observer employees salaries and any other benefits and personnel services in accordance with the terms of each observer's contract.

(vii) *Provide observer deployment logistics.* (A) *MS vessels.* An observer provider must provide to each of its observers under contract:

(*1*) All necessary transportation, including arrangements and logistics, to the initial location of deployment, to all subsequent vessel assignments during that deployment, and to and from the location designated for an observer to be interviewed by the Observer Program; and

(*2*) Lodging, per diem, and any other services necessary to observers assigned to fishing vessels.

(*3*) An observer under contract may be housed on a vessel to which he or she is assigned:

(*i*) Prior to their vessel's initial departure from port;

(*ii*) For a period not to exceed 24 hours following the completion of an offload when the observer has duties and is scheduled to disembark; or

(*iii*) For a period not to exceed 24 hours following the vessel's arrival in port when the observer is scheduled to disembark.

(*iv*) An observer under contract who is between vessel assignments must be provided with shoreside accommodations pursuant to the terms of the contract between the observer provider and the observers. If the observer provider is responsible for providing accommodations under the contract with the observer, the accommodations must be at a licensed hotel, motel, bed and breakfast, or other shoreside accommodations for the duration of each period between vessel or shoreside assignments. Such accommodations must include an assigned bed for each observer and no other person may be assigned that bed for the duration of that observer's stay. Additionally, no more than four beds may be in any room housing observers at accommodations meeting the requirements of this section.

(B) *Catcher vessels.* An observer provider must ensure each of its observers under contract:

(*1*) Has an individually assigned mobile or cell phone, in working order, for all necessary communication. An observer provider may alternatively compensate observers for the use of the observer's personal cell phone or pager for communications made in support of, or necessary for, the observer's duties.

(*2*) Has a check-in system in which the observer is required to contact the observer provider each time they depart and return to port on a vessel.

(*3*) Remains available to OLE and the Observer Program until the conclusion of debriefing.

(*4*) Receives all necessary transportation, including arrangements and logistics to the initial location of deployment, to all subsequent vessel assignments during that deployment, and to and from the location designated for an observer to be interviewed by the Observer Program; and

(*5*) Receives lodging, per diem, and any other services necessary to observers assigned to fishing vessels.

(*i*) An observer under contract may be housed on a vessel to which he or she is assigned: Prior to their vessel's initial departure from port; for a period not to exceed 24 hours following the completion of an offload when the observer has duties and is scheduled to disembark; or for a period not to exceed 24 hours following the vessel's arrival in port when the observer is scheduled to disembark.

(*ii*) Otherwise, each observer between vessels, while still under contract with an observer provider, shall be provided with accommodations in accordance with the contract between the observer and the observer provider. If the observer provider is responsible for providing accommodations under the contract with the observer, the accommodations must be at a licensed hotel, motel, bed and breakfast, or other shoreside accommodations that has an assigned bed for each observer that no other person may be assigned to for the duration of that observer's stay. Additionally, no more than four beds may be in any room housing observers at accommodations meeting the requirements of this section.

(viii) *Observer deployment limitations.* (A) *MS vessels.* Unless alternative arrangements are approved by the Observer Program Office, an observer provider must not:

(*1*) Deploy an observer on the same vessel more than 90 days in a 12-month period;

(*2*) Deploy an observer for more than 90 days in a single deployment;

(*3*) Include more than four vessels assignments in a single deployment, or

(*4*) Disembark an observer from a vessel before that observer has completed his or her sampling or data transmission duties.

(B) *Catcher vessels.* Unless alternative arrangements are approved by the Observer Program Office, an observer provider must not deploy an observer on the same vessel more than 90 calendar days in a 12-month period.

(ix) *Verify vessel's Commercial Fishing Vessel Safety Decal.* An observer provider must ensure that the observer completes an observer vessel safety checklist, and verify that a vessel has a valid USCG Commercial Fishing Vessel Safety Decal as required under paragraph (j)(2)(ii)(B) of this section prior to the observer embarking on the first trip and before an observer may get underway aboard the vessel. The provider must submit all vessel safety checklists to the Observer Program, as specified by Observer Program policy. One of the following acceptable means of verification must be used to verify the decal validity:

(A) The observer provider or employee of the observer provider, including the observer, visually inspects the decal aboard the vessel and confirms that the decal is valid according to the decal date of issuance; or

(B) The observer provider receives a hard copy of the USCG documentation of the decal issuance from the vessel owner or operator.

(x) *Maintain communications with observers.* An observer provider must have an employee responsible for observer activities on call 24 hours a day to handle emergencies involving observers or problems concerning observer logistics, whenever observers are at sea, in transit, or in port awaiting vessel reassignment.

(xi) *Maintain communications with the Observer Program Office.* An observer provider must provide all of the following information by electronic transmission (email), fax, or other method specified by NMFS.

(A) *Motherships.* (*1*) *Training and briefing registration materials.* The observer provider must submit training and briefing registration materials to the Observer Program Office at least 5 business days prior to the beginning of a scheduled observer at-sea hake training or briefing session.

(*i*) *Registration materials.* Registration materials consist of the date of requested training or briefing with a list of observers including each observer's full name (i.e., first, middle and last names).

(*ii*) *Projected observer assignments.* Prior to the observer's completion of the training or briefing session, the observer provider must submit to the Observer Program Office a statement of projected observer assignments that include the observer's name; vessel, gear type, and vessel/processor code; port of embarkation; and area of fishing.

(*2*) *Observer debriefing registration.* The observer provider must contact the At-Sea Hake Observer Program within 5 business days after the completion of an

observer's deployment to schedule a date, time and location for debriefing. Observer debriefing registration information must be provided at the time of debriefing scheduling and must include the observer's name, cruise number, vessel name(s) and code(s), and requested debriefing date.

(*3*) *Observer provider contracts.* If requested, observer providers must submit to the Observer Program Office a completed and unaltered copy of each type of signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract) between the observer provider and those entities requiring observer services under paragraph (j)(1)(i) of this section. Observer providers must also submit to the Observer Program Office upon request, a completed and unaltered copy of the current or most recent signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract and any agreements or policies with regard to observer compensation or salary levels) between the observer provider and the particular entity identified by the Observer Program or with specific observers. The copies must be submitted to the Observer Program Office via fax or mail within 5 business days of the request. Signed and valid contracts include the contracts an observer provider has with:

(*i*) Vessels required to have observer coverage as specified at paragraph (j)(1)(i) of this section; and

(*ii*) Observers.

(*4*) *Change in observer provider management and contact information.* Observer providers must submit notification of any other change to provider contact information, including but not limited to, changes in contact name, phone number, email address, and address.

(*5*) *Other reports.* Reports of the following must be submitted in writing to the At-Sea Hake Observer Program Office by the observer provider via fax or email address designated by the Observer Program Office within 24 hours after the observer provider becomes aware of the information:

(*i*) Any information regarding possible observer harassment;

(*ii*) Any information regarding any action prohibited under § 660.12(e); § 660.112(a)(4); or § 600.725(o), (t) and (u) of this chapter;

(*iii*) Any concerns about vessel safety or marine casualty under 46 CFR 4.05–1(a)(1) through (7);

(*iv*) Any observer illness or injury that prevents the observer from completing any of his or her duties described in the observer manual; and

(*v*) Any information, allegations or reports regarding observer conflict of interest or breach of the standards of behavior described in observer provider policy.

(B) *Catcher vessels.* An observer provider must provide all of the following information by electronic transmission (email), fax, or other method specified by NMFS.

(*1*) *Observer training, briefing, and debriefing registration materials.* This information must be submitted to the Observer Program Office at least 10 business days prior to the beginning of a scheduled West Coast groundfish observer certification training or briefing session.

(*i*) Training registration materials consist of the following: Date of requested training; a list of observer candidates that includes each candidate's full name (i.e., first, middle and last names), date of birth, and gender; a copy of each candidate's academic transcripts and resume; a statement signed by the candidate under penalty of perjury which discloses the candidate's criminal convictions; and length of observer contract.

(*ii*) Briefing registration materials consist of the following: Date and type of requested briefing session; list of observers to attend the briefing session, that includes each observer's full name (first, middle, and last names); and length of observer contract.

(*iii*) The Observer Program will notify the observer provider which observers require debriefing and the specific time period the observer provider has to schedule a date, time, and location for debriefing. The observer provider must contact the Observer Program within 5 business days by telephone to schedule debriefings. Observer providers must immediately notify the Observer Program when observers end their contract earlier than anticipated.

(*2*) *Physical examination.* A signed and dated statement from a licensed physician that he or she has physically examined an observer or observer candidate. The statement must confirm that, based on that physical examination, the observer or observer candidate does not have any health problems or conditions that would jeopardize that individual's safety or the safety of others while deployed, or prevent the observer or observer candidate from performing his or her duties satisfactorily. The statement must declare that, prior to the examination, the physician was made aware of the duties of the observer and the dangerous, remote, and rigorous nature of the work by reading the NMFS-prepared information. The physician's statement must be submitted to the Observer Program Office prior to certification of an observer. The physical exam must have occurred during the 12 months prior to the observer's or observer candidate's deployment.

(*3*) *Certificates of insurance.* Copies of ''certificates of insurance,'' that names the Northwest Fisheries Science Center Observer Program manager as the ''certificate holder,'' shall be submitted to the Observer Program Office by February 1 of each year. The certificates of insurance shall verify the following coverage provisions and state that the insurance company will notify the certificate holder if insurance coverage is changed or canceled.

(*i)* Maritime Liability to cover ''seamen's'' claims under the Merchant Marine Act (Jones Act) and General Maritime Law ($1 million minimum).

(*ii*) Coverage under the U.S. Longshore and Harbor Workers' Compensation Act ($1 million minimum).

(*iii*) States Worker's Compensation as required.

(*iv*) Commercial General Liability.

(*4*) *Observer provider contracts.* If requested, observer providers must submit to the Observer Program Office a completed and unaltered copy of each type of signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract) between the observer provider and those entities requiring observer services under paragraph (j)(1)(i) of this section. Observer providers must also submit to the Observer Program Office upon request, a completed and unaltered copy of the current or most recent signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract and any agreements or policies with regard to observer compensation or salary levels) between the observer provider and the particular entity identified by the Observer Program or with specific observers. The copies must be submitted to the Observer Program Office via fax or mail within 5 business days of the request. Signed and valid contracts include the contracts an observer provider has with:

(*i*) Vessels required to have observer coverage as specified at paragraph (j)(1)(i) of this section; and

(*ii*) Observers.

(*5*) *Change in observer provider management and contact information.* An observer provider must submit to the Observer Program office any change of

management or contact information as required at § 660.18(f).

(*6*) *Biological samples.* The observer provider must ensure that biological samples are stored/handled properly prior to delivery/transport to NMFS.

(*7*) *Observer status report.* Observer providers must provide NMFS with an updated list of observer trip per Observer Program protocol. Trip information includes observer provider name, observer last name, observer first name, trip start date, trip end date, status of observer, vessel name, and vessel identification number.

(*8*) *Other information.* An observer provider must submit to NMFS, if requested, copies of any information developed and used by the observer providers distributed to vessels, such as informational pamphlets, payment notification, description of observer duties, etc.

(*9*) *Other reports.* Reports of the following must be submitted in writing to the Observer Program Office by the observer provider via fax or email address designated by the Observer Program Office within 24 hours after the observer provider becomes aware of the information:

(*i*) Any information regarding possible observer harassment;

(*ii*) Any information regarding any action prohibited under § 660.12(e); § 660.112(a)(4); or § 600.725(o), (t) and (u) of this chapter;

(*iii*) Any concerns about vessel safety or marine casualty under 46 CFR 4.05–1(a)(1) through (7);

(*iv*) Any observer illness or injury that prevents the observer from completing any of his or her duties described in the observer manual; and

(*v*) Any information, allegations or reports regarding observer conflict of interest or breach of the standards of behavior described in observer provider policy.

(xii) *Replace lost or damaged gear.* Lost or damaged gear issued to an observer by NMFS must be replaced by the observer provider. All replacements must be provided to NMFS and be in accordance with requirements and procedures identified in writing by the Observer Program Office.

(xiii) *Maintain confidentiality of information.* An observer provider must ensure that all records on individual observer performance received from NMFS under the routine use provision of the Privacy Act under 5 U.S.C. 552a or as otherwise required by law remain confidential and are not further released to anyone outside the employ of the observer provider company to whom the observer was contracted except with written permission of the observer.

(xiv) *Limitations on conflict of interest.* Observer providers must meet limitations on conflict of interest. Observer providers:

(A) Must not have a direct financial interest, other than the provision of observer services or catch monitor services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California, including but not limited to:

(*1*) Any ownership, mortgage holder, or other secured interest in a vessel, or shoreside processor facility involved in the catching, taking, harvesting or processing of fish,

(*2*) Any business involved with selling supplies or services to any vessel or shoreside processors participating in a fishery managed pursuant to an FMP in the waters off the coasts of Alaska, California, Oregon, and Washington, or

(*3*) Any business involved with purchasing raw or processed products from any vessel or shoreside processor participating in a fishery managed pursuant to an FMP in the waters off the coasts of Alaska, California, Oregon, and Washington.

(B) Must assign observers without regard to any preference by representatives of vessels other than when an observer will be deployed.

(C) Must not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value except for compensation for providing observer services from anyone who conducts fishing or fish processing activities that are regulated by NMFS in the Pacific coast or North Pacific regions, or who has interests that may be substantially affected by the performance or nonperformance of the official duties of observer providers.

(xv) *Observer conduct and behavior.* An observer provider must develop and maintain a policy addressing observer conduct and behavior for their employees that serve as observers. The policy shall address the following behavior and conduct regarding:

(A) Observer use of alcohol;

(B) Observer use, possession, or distribution of illegal drugs in violation of applicable law; and

(C) Sexual contact with personnel of the vessel or processing facility to which the observer is assigned, or with any vessel or processing plant personnel who may be substantially affected by the performance or non-performance of the observer's official duties.

(D) An observer provider shall provide a copy of its conduct and behavior policy by February 1 of each year, to: Observers, observer candidates and the Observer Program Office.

(xvi) *Refusal to deploy an observer.* Observer providers may refuse to deploy an observer on a requesting vessel if the observer provider has determined that the requesting vessel is inadequate or unsafe pursuant to those regulations described at § 600.746 of this chapter or U.S. Coast Guard and other applicable rules, regulations, statutes, or guidelines pertaining to safe operation of the vessel.

(5) *Observer certification and responsibilities.* (i) *Applicability.* Observer certification authorizes an individual to fulfill duties as specified in writing by the NMFS Observer Program Office while under the employ of a NMFS-permitted observer provider and according to certification endorsements as designated under paragraph (j)(6)(iii) of this section.

(ii) *Observer certification official.* The Regional Administrator will designate a NMFS observer certification official who will make decisions for the Observer Program Office on whether to issue or deny observer certifications and endorsements.

(iii) *Certification requirements.* (A) *Initial certification.* NMFS may certify individuals who, in addition to any other relevant considerations:

(*1*) Are employed by an observer provider company permitted pursuant to § 660.16 at the time of the issuance of the certification;

(*2*) Have provided, through their observer provider:

(*i*) Information identified by NMFS at § 679.52(b) of this chapter regarding an observer candidate's health and physical fitness for the job;

(*ii*) Meet all observer education and health standards as specified in § 679.52(b) of this chapter and

(*iii*) Have successfully completed NMFS-approved training as prescribed by the Observer Program. Successful completion of training by an observer applicant consists of meeting all attendance and conduct standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of training for assignments, tests, and other evaluation tools; and completing all other training requirements established by the Observer Program.

(*iv*) Have not been decertified under paragraph (j)(5)(ix) of this section, or pursuant to § 679.53(c) of this chapter.

(B) [Reserved]

(iv) *Denial of a certification.* The NMFS observer certification official will issue a written determination denying observer certification if the candidate

fails to successfully complete training, or does not meet the qualifications for certification for any other relevant reason.

(v) *Issuance of an observer certification.* An observer certification will be issued upon determination by the observer certification official that the candidate has successfully met all requirements for certification as specified at paragraph (j)(6)(iii) of this section. The following endorsements must be obtained, in addition to observer certification, in order for an observer to deploy.

(A) *MS vessels.* (*1*) *North Pacific Groundfish Observer Program certification training endorsement.* A certification training endorsement signifies the successful completion of the training course required to obtain observer certification. This endorsement expires when the observer has not been deployed and performed sampling duties as required by the Observer Program Office for a period of time, specified by the Observer Program, after his or her most recent debriefing. The observer can renew the endorsement by successfully completing certification training once more.

(*2*) *North Pacific Groundfish Observer Program annual general endorsements.* Each observer must obtain an annual general endorsement to their certification prior to his or her first deployment within any calendar year subsequent to a year in which a certification training endorsement is obtained. To obtain an annual general endorsement, an observer must successfully complete the annual briefing, as specified by the Observer Program. All briefing attendance, performance, and conduct standards required by the Observer Program must be met.

(*3*) *North Pacific Groundfish Observer Program deployment endorsements.* Each observer who has completed an initial deployment after certification or annual briefing must receive a deployment endorsement to their certification prior to any subsequent deployments for the remainder of that year. An observer may obtain a deployment endorsement by successfully completing all pre-cruise briefing requirements. The type of briefing the observer must attend and successfully complete will be specified in writing by the Observer Program during the observer's most recent debriefing.

(*4*) *At-Sea Hake Observer Program endorsements.* A Pacific whiting fishery endorsement is required for purposes of performing observer duties aboard vessels that process groundfish at sea in the Pacific whiting fishery. A Pacific whiting fishery endorsement to an observer's certification may be obtained by meeting the following requirements:

(*i*) Have a valid North Pacific groundfish observer certification;

(*ii*) Receive an evaluation by NMFS for his or her most recent deployment that indicated that the observer's performance met Observer Program expectations for that deployment; successfully complete any required briefings as prescribed by the Observer Program; and comply with all of the other requirements of this section.

(B) *Catcher vessels.* The following endorsements as prescribed by the Observer Program must be obtained in addition to observer certification, in order for an observer to deploy.

(*1*) *West Coast Groundfish Observer Program training endorsement.* A training endorsement signifies the successful completion of the training course required to obtain observer certification. This endorsement expires when the observer has not been deployed and performed sampling duties as required by the Observer Program office for a period of time, specified by the Observer Program, after his or her most recent debriefing. The observer can renew the endorsement by successfully completing training once more.

(*2*) *West Coast Groundfish Observer Program annual general endorsement.* Each observer must obtain an annual general endorsement to their certification prior to his or her first deployment within any calendar year subsequent to a year in which a training certification endorsement is obtained. To obtain an annual general endorsement, an observer must successfully complete the annual briefing, as specified by the Observer Program. All briefing attendance, performance, and conduct standards required by the Observer Program must be met.

(*3*) *West Coast Groundfish Observer Program deployment endorsement.* Each observer who has completed an initial deployment, as defined by the Observer Program, after receiving a training endorsement or annual general endorsement, must complete all applicable debriefing requirements specified by the Observer Program. A deployment endorsement is issued to observers who meet the performance standards specified by the Observer Program. A deployment endorsement must be obtained prior to any subsequent deployments for the remainder of that calendar year. If a deployment endorsement is not issued, certification training must be repeated.

(vi) *Maintaining the validity of an observer certification.* After initial issuance, an observer must keep their certification valid by meeting all of the following requirements specified below:

(A) *MS vessels.* (*1*) Successfully perform their assigned duties as described in the observer manual or other written instructions from the Observer Program.

(*2*) Accurately record their sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

(*3*) Not disclose collected data and observations made on board the vessel or in the processing facility to any person except the owner or operator of the observed vessel or an authorized officer or NMFS.

(*4*) Successfully complete any required briefings as prescribed by the At-Sea Hake Observer Program.

(*5*) Successful completion of briefing by an observer applicant consists of meeting all attendance and conduct standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of training for assignments, tests, and other evaluation tools; and completing all other briefing requirements established by the Observer Program.

(*6*) Successfully meet all debriefing expectations including meeting Observer Program performance standards reporting for assigned debriefings or interviews.

(*7*) Submit all data and information required by the Observer Program within the program's stated guidelines.

(B) *Catcher vessels.* After initial issuance, an observer must keep their certification valid by meeting all of the following requirements specified below:

(*1*) Successfully perform their assigned duties as described in the observer manual or other written instructions from the Observer Program.

(*2*) Accurately record their sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

(*3*) Not disclose collected data and observations made on board the vessel or in the processing facility to any person except the owner or operator of the observed vessel or an authorized officer or NMFS.

(*4*) Successfully complete any required trainings or briefings as prescribed by the Observer Program.

(*5*) Successful completion of briefing by an observer applicant consists of meeting all attendance and conduct

standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of training for assignments, tests, and other evaluation tools; and completing all other briefing requirements established by the Observer Program.

(*6*) Hold current basic cardiopulmonary resuscitation/first aid certification as per American Red Cross Standards.

(*7*) Successfully meet all expectations in all debriefings including reporting for assigned debriefings or interviews and meeting program standards.

(*8*) Submit all data and information required by the observer program within the program's stated guidelines.

(*9*) Meet the minimum annual deployment period of 3 months at least once every 12 months.

(vii) *Limitations on conflict of interest.* Observers:

(A) Must not have a direct financial interest, other than the provision of observer services or catch monitor services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California, including but not limited to:

(*1*) Any ownership, mortgage holder, or other secured interest in a vessel, shore-based or floating stationary processor facility involved in the catching, taking, harvesting or processing of fish;

(*2*) Any business involved with selling supplies or services to any vessel, shore-based or floating stationary processing facility; or

(*3*) Any business involved with purchasing raw or processed products from any vessel, shore-based or floating stationary processing facilities.

(B) Must not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from anyone who either conducts activities that are regulated by NMFS in the Pacific coast or North Pacific regions or has interests that may be substantially affected by the performance or nonperformance of the observers' official duties.

(C) May not serve as observers on any vessel or at any shore-based or floating stationary processor owned or operated by a person who employed the observer in the last two years.

(D) May not solicit or accept employment as a crew member or an employee of a vessel or shore-based or floating stationary processor while employed by an observer provider.

(E) Provisions for remuneration of observers under this section do not constitute a conflict of interest.

(viii) *Standards of behavior.* Observers must:

(A) Perform their assigned duties as described in the observer manual or other written instructions from the Observer Program Office.

(B) Accurately record their sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

(C) Not disclose collected data and observations made on board the vessel to any person except the owner or operator of the observed vessel, an authorized officer, or NMFS.

(D) Not disclose collected data and observations made on board the vessel to any person except the owner or operator of the observed vessel, an authorized officer, or NMFS.

(ix) *Suspension and decertification.* (A) *Suspension and decertification review official.* The Regional Administrator (or a designee) will designate an observer suspension and decertification review official(s), who will have the authority to review observer certifications and issue IADs of observer certification suspension and/or decertification.

(B) *Causes for suspension or decertification.* The suspension/decertification official may initiate suspension or decertification proceedings against an observer:

(*1*) When it is alleged that the observer has not met applicable standards, including any of the following:

(*i*) Failed to satisfactorily perform duties of observers as specified in writing by the NMFS Observer Program; or

(*ii*) Failed to abide by the standards of conduct for observers, including conflicts of interest;

(*2*) Upon conviction of a crime or upon entry of a civil judgment for:

(*i*) Commission of fraud or other violation in connection with obtaining or attempting to obtain certification, or in performing the duties as specified in writing by the NMFS Observer Program;

(*ii*) Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(*iii*) Commission of any other offense indicating a lack of integrity or honesty that seriously and directly affects the fitness of observers.

(C) *Issuance of an IAD.* Upon determination that suspension or decertification is warranted, the suspension/decertification official will issue a written IAD to the observer via certified mail at the observer's most current address provided to NMFS. The IAD will identify whether a certification is suspended or revoked and will identify the specific reasons for the action taken. Decertification is effective 30 calendar days after the date on the IAD, unless there is an appeal.

(D) *Appeals.* A certified observer who receives an IAD that suspends or revokes his or her observer certification may appeal the determination within 30 calendar days after the date on the IAD to the Office of Administrative Appeals pursuant to § 660.19.

* * * * *

■ 12. In § 660.160,

■ a. Revise paragraphs (b)(1)(ii) introductory text, (b)(1)(ii)(C), (g)(1), (g)(2)(ii)(B), (g)(2)(iii), (g)(2)(ix) introductory text, and (g)(3);

■ b. Add paragraph (g)(2)(xi);

■ c. Remove paragraph (g)(4);

■ d. Redesignate paragraphs (g)(5) and (g)(6) as (g)(4) and (g)(5);

■ e. Revise newly redesignated paragraphs (g)(4)(ii), (g)(4)(iii)(A) and (E), (g)(4)(iv) and (v), (g)(4)(vii), (g)(4)(ix), (g)(4)(xi) through (xvi), (g)(5)(i) and (ii), (g)(5)(iii)(A)(*2*), (g)(5)(v)(D), (g)(5)(vi), (g)(5)(vii)(A), and (g)(5)(viii) and (ix) to read as follows:

**§ 660.160 Catcher/processor (C/P) Coop Program.**

* * * * *

(b) * * *

(1) * * *

(ii) *C/P vessel responsibilities.* The owner and operator of a C/P vessel must:

* * * * *

(C) *Catch weighing requirements.* The owner and operator of a C/P vessel must ensure that all catch is weighed in its round form on a NMFS-approved scale that meets the requirements described in § 660.15(b).

* * * * *

(g) * * * (1) *Observer coverage requirements.* (i) *Coverage.* The following observer coverage pertains to certified observers obtained from an observer provider permitted by NMFS. Any vessel registered to a C/P-endorsed limited entry trawl permit that is 125 ft (38.1 m) LOA or longer must carry two certified observers, and any vessel registered to a C/P-endorsed limited entry trawl permit that is shorter than 125 ft (38.1 m) LOA must carry one certified observer, each day that the vessel is used to take, retain, receive, land, process, or transport groundfish.

(ii) *Observer workload.* The time required for the observer to complete

sampling duties must not exceed 12 consecutive hours in each 24-hour period.

(iii) *Refusal to board.* Any boarding refusal on the part of the observer or vessel must be reported to the Observer Program and OLE by the observer provider. The observer must be available for an interview with the Observer Program or OLE if necessary.

(2) * * *

(ii) * * *

(B) Have on board a valid Commercial Fishing Vessel Safety Decal that certifies compliance with regulations found in 33 CFR chapter I and 46 CFR chapter I, a certificate of compliance issued pursuant to 46 CFR 28.710 or a valid certificate of inspection pursuant to 46 U.S.C. 3311. Maintain safe conditions on the vessel for the protection of observer(s) including adherence to all USCG and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel, and provisions at §§ 600.725 and 600.746 of this chapter.

(iii) *Computer hardware and software.* C/P vessels must:

(A) Provide hardware and software pursuant to regulations at § 679.51(e)(iii)(B) of this chapter.

(B) Provide the observer(s) access to a computer required under paragraph (g)(2)(iii) of this section that is connected to a communication device that provides a point-to-point connection to the NMFS host computer.

(C) Ensure that the C/P vessel has installed the most recent release of NMFS data entry software, or other approved software prior to the vessel receiving, catching or processing IFQ species.

(D) Ensure that the communication equipment required in paragraph (g)(2)(iii) of this section and used by observers to enter and transmit data, is fully functional and operational. ''Functional'' means that all the tasks and components of the NMFS supplied, or other approved, software described at paragraph (g)(2)(iii) of this section and the data transmissions to NMFS can be executed effectively aboard the vessel by the communications equipment.

* * * * *

(ix) *Sampling station and operational requirements for C/P vessels.* This paragraph (g)(2)(ix) contains the requirements for observer sampling stations. To allow the observer to carry out the required duties, the vessel owner must provide an observer sampling station that meets the following requirements:

* * * * *

(xi) *Housing on vessel in port.* During all periods an observer is housed on a vessel, the vessel operator must ensure that at least one crew member is aboard.

* * * * *

(3) *Procurement of observer services.* Owners of vessels required to carry observers under paragraph (g)(1) of this section must arrange for observer services from an observer provider permitted by NMFS, except that:

(i) Vessels are required to procure observer services directly from the Observer Program when NMFS has determined and given notification that the vessel must carry NMFS staff or an individual authorized by NMFS in lieu of an observer provided by an observer provider.

(ii) Vessels are required to procure observer services directly from the Observer Program and an observer provider when NMFS has determined and given notification that the vessel must carry NMFS staff and/or individuals authorized by NMFS, in addition to an observer provided by an observer provider.

* * * * *

(4) * * *

(ii) *Hiring an observer candidate.* (A) The observer provider must provide the candidate a copy of NMFS-provided pamphlets, information and other literature describing observer duties (i.e. the At-Sea Hake Observer Program's Observer Manual) prior to hiring an observer candidate. Observer job information is available from the Observer Program Office's Web site at *http://www.nwfsc.noaa.gov/research/divisions/fram/observer/index.cfm.*

(B) The observer provider must have a written contract or a written contract addendum that is signed by the observer and observer provider prior to the observer's deployment with the following clauses:

(*1*) That the observer will return all phone calls, emails, text messages, or other forms of communication within the time specified by the Observer Program;

(*2*) That the observer inform the observer provider prior to the time of embarkation if he or she is experiencing any new mental illness or physical ailments or injury since submission of the physician's statement as required as a qualified observer candidate that would prevent him or her from performing their assigned duties.

(iii) * * *

(A) Submit to NMFS all data, logbooks and reports as required by the observer manual;

* * * * *

(E) Immediately report to the Observer Program Office and the OLE any refusal to board an assigned vessel.

(iv) *Observers provided to vessel.* Observers provided to C/P vessels:

(A) Must have a valid North Pacific groundfish observer certification with required endorsements and an At-Sea Hake Observer Program endorsement;

(B) Must not have informed the observer provider prior to the time of embarkation that he or she is experiencing a mental illness or a physical ailment or injury developed since submission of the physician's statement that would prevent him or her from performing his or her assigned duties; and

(C) Must have successfully completed all NMFS required training and briefing before deployment.

(v) *Respond to industry requests for observers.* An observer provider must provide an observer for deployment as requested pursuant to the contractual relationship with the vessel to fulfill vessel requirements for observer coverage specified under paragraph (g)(1) of this section. An alternate observer must be supplied in each case where injury or illness prevents the observer from performing his or her duties or where the observer resigns prior to completion of his or her duties. If the observer provider is unable to respond to an industry request for observer coverage from a vessel for whom the observer provider is in a contractual relationship due to lack of available observers by the estimated embarking time of the vessel, the observer provider must report it to the Observer Program at least 4 hours prior to the vessel's estimated embarking time.

* * * * *

(vii) *Provide observer deployment logistics.* An observer provider must provide to each of its observers under contract:

(A) All necessary transportation, including arrangements and logistics, to the initial location of deployment, to all subsequent vessel assignments during that deployment, and to and from the location designated for an observer to be interviewed by the Observer Program; and

(B) Lodging, per diem, and any other services necessary to observers assigned to fishing vessels.

(*1*) An observer under contract may be housed on a vessel to which he or she is assigned:

(*i*) Prior to their vessel's initial departure from port;

(*ii*) For a period not to exceed 24 hours following the completion of an offload when the observer has duties and is scheduled to disembark; or

(*iii*) For a period not to exceed 24 hours following the vessel's arrival in

port when the observer is scheduled to disembark.

(*2*) [Reserved]

(C) An observer under contract who is between vessel assignments must be provided with shoreside accommodations in accordance with the contract between the observer and the observer provider. If the observer provider is providing accommodations, it must be at a licensed hotel, motel, bed and breakfast, or other shoreside accommodations for the duration of each period between vessel or shoreside assignments. Such accommodations must include an assigned bed for each observer and no other person may be assigned that bed for the duration of that observer's stay. Additionally, no more than four beds may be in any room housing observers at accommodations meeting the requirements of this section.

* * * * *

(ix) *Verify vessel's Commercial Fishing Vessel Safety Decal.* An observer provider must ensure that the observer completes an observer vessel safety checklist, and verify that a vessel has a valid USCG Commercial Fishing Vessel Safety decal as required under paragraph (h)(2)(ii)(B) of this section prior to the observer embarking on the first trip and before an observer may get underway aboard the vessel. The provider must submit all vessel safety checklists to the Observer Program, as specified by Observer Program policy. One of the following acceptable means of verification must be used to verify the decal validity:

(A) The observer provider or employee of the observer provider, including the observer, visually inspects the decal aboard the vessel and confirms that the decal is valid according to the decal date of issuance; or

(B) The observer provider receives a hard copy of the USCG documentation of the decal issuance from the vessel owner or operator.

* * * * *

(xi) *Maintain communications with the Observer Program Office.* An observer provider must provide all of the following information by electronic transmission (email), fax, or other method specified by NMFS.

(A) *Observer training and briefing.* Observer training and briefing registration materials must be submitted to the Observer Program Office at least 5 business days prior to the beginning of a scheduled observer at-sea hake training or briefing session. Registration materials consist of the following: The date of requested training or briefing with a list of observers including each observer's full name (i.e., first, middle and last names).

(B) *Observer debriefing registration.* The observer provider must contact the Observer Program within 5 business days after the completion of an observer's deployment to schedule a date, time and location for debriefing. Observer debriefing registration information must be provided at the time of debriefing scheduling and must include the observer's name, cruise number, vessel name(s) and code(s), and requested debriefing date.

(C) *Observer provider contracts.* If requested, observer providers must submit to the Observer Program Office a completed and unaltered copy of each type of signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract) between the observer provider and those entities requiring observer services under paragraph (g)(1) of this section. Observer providers must also submit to the Observer Program Office upon request, a completed and unaltered copy of the current or most recent signed and valid contract (including all attachments, appendices, addendums, and exhibits incorporated into the contract and any agreements or policies with regard to observer compensation or salary levels) between the observer provider and the particular entity identified by the Observer Program or with specific observers. The copies must be submitted to the Observer Program Office via fax or mail within 5 business days of the request. Signed and valid contracts include the contracts an observer provider has with:

(*1*) Vessels required to have observer coverage as specified at paragraph (g)(1) of this section; and

(*2*) Observers.

(D) *Change in observer provider management and contact information.* Observer providers must submit notification of any other change to provider contact information, including but not limited to, changes in contact name, phone number, email address, and address.

(E) *Other reports.* Reports of the following must be submitted in writing to the Observer Program Office by the observer provider via fax or email address designated by the Observer Program Office within 24 hours after the observer provider becomes aware of the information:

(*1*) Any information regarding possible observer harassment;

(*2*) Any information regarding any action prohibited under §§ 660.12(e), 660.112 or 600.725(o), (t) and (u) of this chapter;

(*3*) Any concerns about vessel safety or marine casualty under 46 CFR 4.05–1(a)(1) through (7);

(*4*) Any observer illness or injury that prevents the observer from completing any of his or her duties described in the observer manual; and

(*5*) Any information, allegations or reports regarding observer conflict of interest or breach of the standards of behavior described in observer provider policy.

(xii) *Replace lost or damaged gear.* Lost or damaged gear issued to an observer by NMFS must be replaced by the observer provider. All replacements must be provided to NMFS and be in accordance with requirements and procedures identified in writing by the Observer Program Office.

(xiii) *Maintain confidentiality of information.* An observer provider must ensure that all records on individual observer performance received from NMFS under the routine use provision of the Privacy Act (5 U.S.C. 552a) or other applicable law remain confidential and are not further released to anyone outside the employ of the observer provider company to whom the observer was contracted except with written permission of the observer.

(xiv) *Limitations on conflict of interest.* An observer provider must meet limitations on conflict of interest. Observer providers:

(A) Must not have a direct financial interest, other than the provision of observer services or catch monitor services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California, including but not limited to:

(*1*) Any ownership, mortgage holder, or other secured interest in a vessel or shoreside processor facility involved in the catching, taking, harvesting or processing of fish;

(*2*) Any business involved with selling supplies or services to any vessel or shoreside processors participating in a fishery managed pursuant to an FMP in the waters off the coasts of Alaska, California, Oregon, and Washington; or

(*3*) Any business involved with purchasing raw or processed products from any vessel or shoreside processor participating in a fishery managed pursuant to an FMP in the waters off the coasts of Alaska, California, Oregon, and Washington.

(B) Must assign observers without regard to any preference by representatives of vessels other than when an observer will be deployed.

(C) Must not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value except for compensation for providing observer services from anyone who conducts fishing or fish processing activities that are regulated by NMFS, or who has interests that may be substantially affected by the performance or nonperformance of the official duties of observer providers.

(xv) *Observer conduct and behavior.* An observer provider must develop and maintain a policy addressing observer conduct and behavior for their employees that serve as observers. The policy shall address the following behavior and conduct:

(A) Observer use of alcohol;

(B) Observer use, possession, or distribution of illegal drugs in violation of applicable law; and

(C) Sexual contact with personnel of the vessel or processing facility to which the observer is assigned, or with any vessel or processing plant personnel who may be substantially affected by the performance or non-performance of the observer's official duties.

(D) An observer provider shall provide a copy of its conduct and behavior policy by February 1 of each year, to observers, observer candidates, and the Observer Program Office.

(xvi) *Refusal to deploy an observer.* Observer providers may refuse to deploy an observer on a requesting vessel if the observer provider has determined that the requesting vessel is inadequate or unsafe pursuant to those regulations described at § 600.746 of this chapter or U.S. Coast Guard and other applicable rules, regulations, statutes, or guidelines pertaining to safe operation of the vessel.

(5) * * * (i) *Applicability.* Observer certification authorizes an individual to fulfill duties as specified in writing by the Observer Program Office while under the employ of an observer provider and according to certification endorsements as designated under paragraph (g)(5)(iii) of this section.

(ii) *Observer certification official.* The Regional Administrator will designate a NMFS observer certification official who will make decisions for the Observer Program Office on whether to issue or deny observer certifications and endorsements.

(iii) * * *

(A) * * *

(*2*) Have provided, through their observer provider:

(*i*) Information set forth at § 679.52(b) of this chapter regarding an observer candidate's health and physical fitness for the job;

(*ii*) Meet all observer education and health standards as specified in § 679.52(b) of this chapter; and

(*iii*) Have successfully completed NMFS-approved training as prescribed by the Observer Program. Successful completion of training by an observer applicant consists of meeting all attendance and conduct standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of training for assignments, tests, and other evaluation tools; and completing all other training requirements established by the Observer Program.

(*iv*) Have not been decertified under paragraph (g)(5)(ix) of this section, or pursuant to § 679.53(c) of this chapter.

* * * * *

(v) * * *

(D) *At-Sea Hake Observer Program endorsements.* A Pacific whiting fishery endorsement is required for purposes of performing observer duties aboard vessels that process groundfish at sea in the Pacific whiting fishery. A Pacific whiting fishery endorsement to an observer's certification may be obtained by meeting the following requirements:

(*1*) Have a valid North Pacific groundfish observer certification;

(*2*) Receive an evaluation by NMFS for his or her most recent deployment that indicated that the observer's performance met Observer Program expectations for that deployment;

(*3*) Successfully complete any required briefings as prescribed by the Observer Program; and

(*4*) Comply with all of the other requirements of this section.

(vi) *Maintaining the validity of an observer certification.* After initial issuance, an observer must keep their certification valid by meeting all of the following requirements specified below:

(A) Successfully perform their assigned duties as described in the observer manual or other written instructions from the Observer Program.

(B) Accurately record their sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

(C) Not disclose collected data and observations made on board the vessel or in the processing facility to any person except the owner or operator of the observed vessel or an authorized officer or NMFS.

(D) Successfully complete any required briefings as prescribed by the At-Sea Hake Observer Program.

(E) Successful completion of briefing by an observer applicant consists of meeting all attendance and conduct standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of training for assignments, tests, and other evaluation tools; and completing all other briefing requirements established by the Observer Program.

(F) Successfully meet all debriefing expectations including meeting Observer Program performance standards reporting for assigned debriefings or interviews.

(G) Submit all data and information required by the Observer Program within the program's stated guidelines.

(vii) *Limitations on conflict of interest.* Observers:

(A) Must not have a direct financial interest, other than the provision of observer services or catch monitor services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, Alaska state waters, or in a Pacific Coast fishery managed by either the state or Federal Governments in waters off Washington, Oregon, or California, including but not limited to:

(*1*) Any ownership, mortgage holder, or other secured interest in a vessel, shore-based or floating stationary processor facility involved in the catching, taking, harvesting or processing of fish;

(*2*) Any business involved with selling supplies or services to any vessel, shore-based or floating stationary processing facility; or

(*3*) Any business involved with purchasing raw or processed products from any vessel, shore-based or floating stationary processing facilities.

* * * * *

(viii) *Standards of behavior.* Observers must:

(A) Perform their assigned duties as described in the observer manual or other written instructions from the Observer Program Office.

(B) Accurately record their sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

(C) Not disclose collected data and observations made on board the vessel to any person except the owner or operator of the observed vessel, an authorized officer, or NMFS.

(ix) *Suspension and decertification.* (A) *Suspension and decertification review official.* The Regional Administrator (or a designee) will designate an observer suspension and decertification review official(s), who will have the authority to review

observer certifications and issue IADs of observer certification suspension and/or decertification.

(B) *Causes for suspension or decertification.* The suspension/decertification official may initiate suspension or decertification proceedings against an observer:

(*1*) When it is alleged that the observer has committed any acts or omissions of any of the following: Failed to satisfactorily perform the duties of observers as specified in writing by the Observer Program; or failed to abide by the standards of conduct for observers (including conflicts of interest);

(*2*) Upon conviction of a crime or upon entry of a civil judgment for: Commission of fraud or other violation in connection with obtaining or attempting to obtain certification, or in performing the duties as specified in writing by the Observer Program; commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; or commission of any other offense indicating a lack of integrity or honesty that seriously and directly affects the fitness of observers.

(C) *Issuance of an IAD.* Upon determination that suspension or decertification is warranted, the suspension/decertification official will issue a written IAD to the observer via certified mail at the observer's most current address provided to NMFS. The IAD will identify whether a certification is suspended or revoked and will identify the specific reasons for the action taken. Decertification is effective 30 calendar days after the date on the IAD, unless there is an appeal.

(D) *Appeals.* A certified observer who receives an IAD that suspends or revokes the observer certification may appeal the determination within 30 calendar days after the date on the IAD to the Office of Administrative Appeals pursuant to § 660.19.

* * * * *

■ 13. In § 660.216, revise paragraphs (a) through (d), (e)(2), (e)(3)(i), and (f) to read as follows:

**§ 660.216 Fixed gear fishery—observer requirements.**

(a) *Observer coverage requirements.* (1) *Harvesting vessels.* When NMFS notifies the owner, operator, permit holder, or the manager of a harvesting vessel of any requirement to carry an observer, the harvesting vessel may not be used to fish for groundfish without carrying an observer.

(2) *Processing vessels.* Unless specified otherwise by the Observer Program, any vessel 125 ft (38.1 m) LOA or longer that is engaged in at-sea processing must carry two certified observers procured from a permitted observer provider, and any vessel shorter than 125 ft (38.1 m) LOA that is engaged in at-sea processing must carry one certified observer procured from an permitted observer provider, each day that the vessel is used to take, retain, receive, land, process, or transport groundfish. Owners of vessels required to carry observers under this paragraph (a)(2) must arrange for observer services from a permitted observer provider except when the Observer Program has determined and given notification that the vessel must carry NMFS staff or an individual authorized by NMFS in addition to or in lieu of an observer provided by a permitted observer provider.

(b) *Notice of departure basic rule.* At least 24 hours (but not more than 36 hours) before departing on a fishing trip, a harvesting vessel that has been notified by NMFS that it is required to carry an observer, or that is operating in an active sampling unit, must notify NMFS (or its designated agent) of the vessel's intended time of departure.

(1) *Optional notice—weather delays.* A harvesting vessel that anticipates a delayed departure due to weather or sea conditions may advise NMFS of the anticipated delay when providing the basic notice described in paragraph (b) of this section. If departure is delayed beyond 36 hours from the time the original notice is given, the vessel must provide an additional notice of departure not less than 4 hours prior to departure, in order to enable NMFS to place an observer.

(2) *Optional notice—back-to-back fishing trips.* A harvesting vessel that intends to make back-to-back fishing trips (i.e., trips with less than 24 hours between offloading from one trip and beginning another), may provide the basic notice described in paragraph (b) of this section for both trips, prior to making the first trip. A vessel that has given such notice is not required to give additional notice of the second trip.

(c) *Cease fishing report.* Within 24 hours of ceasing the taking and retaining of groundfish, vessel owners, operators, or managers must notify NMFS or its designated agent that fishing has ceased. This requirement applies to any harvesting and processing vessel that is required to carry an observer, or that is operating in a segment of the fleet that NMFS has identified as an active sampling unit.

(d) *Waiver.* The West Coast Regional Administrator (or designee) may provide written notification to the vessel owner stating that a determination has been made to temporarily waive coverage requirements because of circumstances that are deemed to be beyond the vessel's control.

(e) * * *

(2) *Safe conditions.* Maintain safe conditions on the vessel for the protection of observer(s) including adherence to all USCG and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel, and provisions at §§ 600.725 and 600.746 of this chapter. Have on board a valid Commercial Fishing Vessel Safety Decal that certifies compliance with regulations found in 33 CFR chapter I and 46 CFR chapter I, a certificate of compliance issued pursuant to 46 CFR 28.710 or a valid certificate of inspection pursuant to 46 U.S.C. 3311.

(3) *Observer communications.* Facilitate observer communications by:

(i) *Observer use of equipment.* Allowing observer(s) to use the vessel's communication equipment and personnel, on request, for the entry, transmission, and receipt of work-related messages, at no cost to the observer(s), the observer provider or NMFS.

* * * * *

(f) *Observer sampling station.* This paragraph (f) contains the requirements for observer sampling stations. The vessel owner must provide an observer sampling station that complies with this section so that the observer can carry out required duties.

(1) *Accessibility.* The observer sampling station must be available to the observer at all times.

(2) *Location.* The observer sampling station must be located within 4 m of the location from which the observer samples unsorted catch. Unobstructed passage must be provided between the observer sampling station and the location where the observer collects sample catch.

■ 14. In § 660.316, revise paragraphs (a) through (d), (e)(2), (e)(3)(i), and (f) to read as follows:

**§ 660.316 Open access fishery—observer requirements.**

(a) *Observer coverage requirements.* (1) *Harvesting vessels.* When NMFS notifies the owner, operator, permit holder, or the manager of a harvesting vessel of any requirement to carry an observer, the harvesting vessel may not be used to fish for groundfish without carrying an observer.

(2) *Processing vessels.* Unless specified otherwise by the Observer Program, any vessel 125 ft (38.1 m) LOA

or longer that is engaged in at-sea processing must carry two certified observers procured from a permitted observer provider, and any vessel shorter than 125 ft (38.1 m) LOA that is engaged in at-sea processing must carry one certified observer procured from a permitted observer provider, each day that the vessel is used to take, retain, receive, land, process, or transport groundfish. Owners of vessels required to carry observers under this paragraph (a)(2) must arrange for observer services from a permitted observer provider except when the Observer Program has determined and given notification that the vessel must carry NMFS staff or an individual authorized by NMFS in addition to or in lieu of an observer provided by a permitted observer provider.

(b) *Notice of departure—basic rule.* At least 24 hours (but not more than 36 hours) before departing on a fishing trip, a harvesting vessel that has been notified by NMFS that it is required to carry an observer, or that is operating in an active sampling unit, must notify NMFS (or its designated agent) of the vessel's intended time of departure. Notice will be given in a form to be specified by NMFS.

(1) *Optional notice—weather delays.* A harvesting vessel that anticipates a delayed departure due to weather or sea conditions may advise NMFS of the anticipated delay when providing the basic notice described in paragraph (b) of this section. If departure is delayed beyond 36 hours from the time the original notice is given, the vessel must provide an additional notice of departure not less than 4 hours prior to departure, in order to enable NMFS to place an observer.

(2) *Optional notice—back-to-back fishing trips.* A harvesting vessel that intends to make back-to-back fishing trips (i.e., trips with less than 24 hours between offloading from one trip and beginning another), may provide the basic notice described in paragraph (b) of this section for both trips, prior to making the first trip. A vessel that has given such notice is not required to give additional notice of the second trip.

(c) *Cease fishing report.* Within 24 hours of ceasing the taking and retaining of groundfish, vessel owners, operators, or managers must notify NMFS or its designated agent that fishing has ceased. This requirement applies to any harvesting or processing vessel that is required to carry an observer, or that is operating in a segment of the fleet that NMFS has identified as an active sampling unit.

(d) *Waiver.* The West Coast Regional Administrator (or designate) may provide written notification to the vessel owner stating that a determination has been made to temporarily waive coverage requirements because of circumstances that are deemed to be beyond the vessel's control.

(e) * * * * *

(2) *Safe conditions.* Maintain safe conditions on the vessel for the protection of observer(s) including adherence to all USCG and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel, and provisions at §§ 600.725 and 600.746 of this chapter. Have on board a valid Commercial Fishing Vessel Safety Decal that certifies compliance with regulations found in 33 CFR chapter I and 46 CFR chapter I, a certificate of compliance issued pursuant to 46 CFR 28.710 or a valid certificate of inspection pursuant to 46 U.S.C. 3311.

(3) * * *

(i) *Observer use of equipment.* Allowing observer(s) to use the vessel's communication equipment and personnel, on request, for the entry, transmission, and receipt of work-related messages, at no cost to the observer(s), observer provider or NMFS.

* * * * *

(f) *Observer sampling station.* This paragraph (f) contains the requirements for observer sampling stations. The vessel owner must provide an observer sampling station that complies with this section so that the observer can carry out required duties.

(1) *Accessibility.* The observer sampling station must be available to the observer at all times.

(2) *Location.* The observer sampling station must be located within 4 m of the location from which the observer samples unsorted catch. Unobstructed passage must be provided between the observer sampling station and the location where the observer collects sample catch.

[FR Doc. 2014–02576 Filed 2–18–14; 8:45 am]

BILLING CODE 3510–22–P