CURRENT HABITAT ISSUES

Situation: The Habitat Committee (HC) will meet Monday, April 5, 2004, to develop recommendations on the following agenda items:

C.6 Groundfish Essential Fish Habitat(EFH) Environmental Impact Statement (EIS)
C.13 Bycatch Monitoring Program Draft Programmatic EIS

At the March meeting, the Council approved a letter on summer spills in the Columbia River, with some edits. That letter is included as Attachment 1. In addition, the HC has proposed two letters for Council approval. Attachment 2 is a letter on Federal Energy Regulatory Commission (FERC) hydropower relicensing in the Klamath basin, and Attachment 3 is a letter regarding NMFS' rulemaking on EFH. A letter on the NMFS Biological Opinion on the federal hydropower system in the Columbia Basin has been postponed until June, following the expected release of a draft Biological Opinion by NMFS in May.

The HC's complete agenda is provided in Ancillary F.

Council Action:

1. Consider comments and recommendations developed by the HC at the April meeting.

Reference Materials:

1. Exhibit E.1.a, Attachment 1: Letter regarding summer spill requirements in the Columbia River.
2. Exhibit E.1.a, Attachment 2: Letter regarding FERC relicensing in Klamath River.
3. Exhibit E.1.a, Supplemental Attachment 3: Letter regarding rulemaking on EFH.

Agenda Order:

a. Report of the HC — Stuart Ellis
b. Reports and Comments of Advisory Bodies
c. Public Comment
d. **Council Action:** Consider HC Recommendations

PFMC
04/23/04

(Letterhead)

April 6, 2004

Ms. Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First St., N.E.
Washington, D.C. 20426

Re: PacifiCorp Klamath River Hydroelectric Project FERC-2082

Dear Ms. Salas:

The Pacific Fisheries Management Council (Council) is concerned that the final license application for the FERC-2082 hydroelectric project does not address anadromous fish passage, nor does it adequately address the impacts of the Klamath hydroelectric facilities and operations upon the fisheries resources of the Klamath River downstream of the project, an area that has been identified as Essential Fish Habitat by the Pacific Fisheries management Council.

The Council, through the Magnuson-Stevens Fishery Conservation and Management Act of 1976 and subsequent amendments, is charged by Congress to advise the U.S. Secretary of Commerce in the management of Pacific West Coast anadromous and marine fish stocks and provide recommendations that minimize the impacts of federal actions on the essential fish habitat (EFH) of Council-managed species. The Council has sent several previous letters to you regarding FERC relicensing procedures. The Council currently makes harvest management recommendations for Klamath River fall chinook salmon and has identified Klamath River spring chinook as a key stock for which management objectives may be developed in the future. The Council identified and described EFH for chinook and coho salmon in 1999 under Amendment 14 to the Pacific Coast Salmon Fishery Management Plan. In the Klamath Basin, EFH has been designated for the mainstem Klamath River and its tributaries from its mouth to Iron Gate Dam and upstream to Lewiston Dam on the Trinity River, and includes the water quantity and quality conditions necessary for successful adult migration and holding, spawning, egg-to-fry survival, fry rearing, smolt migration, and estuarine rearing of juvenile coho and chinook salmon.

The fisheries resources of the Klamath River have undergone a major decline during the past century from numerous land and water management activities. The degradation of fisheries habitat and resultant decline in abundance of Klamath Basin fisheries resources has led to the listing of coho salmon under the Federal and California Endangered Species Acts, as well as the curtailment of fisheries along the Pacific Coast from the Columbia River to south of San Francisco to protect Klamath Basin origin Chinook. Among the factors which have contributed to the decline of the anadromous fisheries resources of the Klamath River, is the construction and continued operation of PacifiCorp's Klamath River Hydroelectric Project.

The Klamath River Hydroelectric Project was constructed beginning in 1918, with no anadromous fish passage facilities, even though primary spring chinook spawning and rearing grounds existed above the dams, as well as considerable habitat for other anadromous fish populations. The Council notes that the current final license application for PacifiCorp's Klamath River Hydroelectric Project contains no provisions for anadromous fish passage, which causes us great concern. The Council believes that anadromous fish passage should be included within the final license agreement, and that dam removal and/or project decommissioning should be examined in detail in an EIS. This is in accordance with the recommendations of the National Research Council's recent report regarding the Klamath Basin, which recommended serious and detailed studies on the removal of Iron Gate Dam.

The Council is extremely concerned that PacifiCorp appears to have determined that fish re-introduction to the upper basin is not feasible at this time based on computer model runs which PacifiCorp has acknowledged are not complete, and only include habitat within the Hydroelectric Project area itself. The Council believes that it is up to the appropriate State and Federal Agencies to determine the effectiveness of reintroduction of anadromous fish to the upper Klamath Basin, and it is PacifiCorp's obligation to provide passage to facilitate the re-introduction if required by conditioning agencies under their respective authorities. PacifiCorp appears to have pre-determined that fish passage is not warranted or feasible.

The Council is concerned that PacifiCorp has never mitigated for the loss of fall Chinook or other anadromous species from the Klamath River above its Copco facilities. Elimination of these stocks without mitigation has reduced the abundance of populations, and continues to hinder restoration of those populations, that the Council is responsible for managing. Because of this, the Council believes that PacifiCorp needs to begin analyses that seriously, and in detail, look at the relative costs and benefits of a variety of fish passage options, including full volitional up and downstream passage, and dam removal at some or all facilities.

Hatchery operations are also a concern for the Council, as hatchery production is a significant contributor to harvestable stocks from the Klamath River. We note that PacifiCorp has proposed to increase the proportion of coded wire tag marking of juvenile fall-run Chinook salmon from its current level to a constant fractional marking rate of 25%. We believe that this is a significant and overdue step in the right direction that will assist the Council in its duty to manage the harvest of Klamath River fisheries. We commend PacifiCorp for making this proposed change in hatchery operations.

However, other aspects of hatchery management as proposed under PacifiCorp's final license application cause us great concern. For example, spring Chinook salmon, which used to inhabit the Klamath River below Copco before the construction of Iron Gate Dam in 1961, have disappeared from this portion of the river, yet no mitigation, hatchery or otherwise is proposed. Likewise, mitigation for steelhead has also been a failure. Steelhead returns to Iron Gate Hatchery, have dwindled since the program began in the early 1960's. While the Council doesn't manage steelhead, steelhead are an important component of West Coast ecosystems, and of utmost importance to the states and tribes. Because PacifiCorp has determined that hatchery mitigation for steelhead is not "feasible" (in their judgment), fish passage must be vigorously pursued as a mitigation option. Unfortunately, the final license application makes it clear that PacifiCorp does not intend to analyze or pursue fish passage any further.

Finally, the Council is concerned with the lack of in-depth analysis of Klamath River Hydroelectric Project impacts to salmon below Iron Gate Dam. Despite its voluminous size, it is difficult to find any place in the final license application where historic, current, or future impacts to anadromous fish stocks including EFH are included. PacifiCorp has performed certain analyses regarding water quality, geomorphology, fish disease, and other studies that extend downstream, but has not related these to historic, current, or future impacts to anadromous fish. For example, water quality analyses performed by PacifiCorp indicate that water temperatures during the migration and spawning period for fall Chinook salmon are approximately 9°F higher on average than pre-project conditions. Yet, the implications of this significant impact to adult salmon survival, egg viability, and run timing are not addressed. This oversight must be corrected by PacifiCorp so that reasonable protection, mitigation and enhancement measures can be devised. Similar analyses for other impacts to anadromous fisheries stocks in other resource areas, such as geomorphology, are also lacking.

The Council notes, that although the Hydroelectric Project affects EFH, and hatchery operations have a profound effect on wild stocks under the PFMC's management, no direct discussion of these effects can be found in the final license application.

The Council also notes that there is substantial information missing from the final license application to ascertain impacts to anadromous fisheries, and that PacifiCorp has not provided enough information to devise reasonable protection, mitigation and enhancement measures. The Council urges FERC, in the absence of information necessary to determine the impacts of the Klamath River Hydroelectric Project, to take a conservative stance toward impacts to Klamath Basin fisheries resources. In other words, if PacifiCorp has refused to develop information called for by management agencies, FERC should err on the side of the resource.

The PFMC urges the FERC to consider the importance of the Klamath Basin fisheries resource to coastal communities along the Pacific Coast as well as the Klamath River, and to ensure that the health of these resources is addressed in any future licenses for the Klamath River Basin.

Sincerely,

(PFMC)

Exhibit E.1.a
Attachment 1
April 2004

PACIFIC FISHERY MANAGEMENT COUNCIL

7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

CHAIRMAN
Donald Hansen

EXECUTIVE DIRECTOR
Donald O. McIsaac

Telephone: 503-820-2280
Toll Free: 866-806-7204
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March 23, 2003

Mr. Robert Lohn
Regional Administrator
National Marine Fisheries Service
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115-0070

Dear Mr. Lohn:

The Pacific Fishery Management Council (Pacific Council) has been advised that the Bonneville Power Administration (BPA) is proposing to reduce or eliminate its program of providing summer spill at the Columbia River Federal Hydropower Projects. This program was included as a requirement in the 2000 Biological Opinion (hydrosystem BiOp) allowing take of salmon stocks listed under the Endangered Species Act by the Columbia River hydropower system. Spill has been shown to provide higher juvenile survival than other means of passage and, as such, represents an improvement in essential fish habitat (EFH) for several Columbia River salmon stocks managed by the Pacific Council under the Magnuson-Stevens Act (MSA). The Pacific Council's Habitat Committee notes that an analysis prepared for the Columbia Basin Fish and Wildlife Authority indicates the no-summer-spill option will result in a system-wide loss of large numbers of adult chinook, in comparison to the hydrosystem BiOp spill program. On the basis of concerns about impacts to salmon EFH under the MSA, the Council wishes to express its grave concern about potential relaxation of current hydrosystem BiOp standards until it has been updated under legal remand.

In public forums convened by BPA to discuss alternative summer spill options, it has been suggested that additional mortality due to spill reduction can be offset by further reductions in fisheries. The Council does not believe that increased mortality from reduced summer spill should be offset by reductions in fisheries. Significant constraints face ocean fisheries again in 2004 due to the need to minimize impacts to Snake River fall chinook. These constraints, required by a different Biological Opinion that has not been relaxed, will be more severe in 2004 than most prior years, even though the incidence of Snake River fall chinook is extremely low in fisheries managed by the Pacific Council.

The Pacific Council urges the National Marine Fisheries Service to take actions necessary to continue the summer spill program until all sources of mortality are comprehensively reviewed.

Sincerely,

Donald K. Hansen
Chairman

cc: Pacific Council Members
Steve Wright, Administrator, Bonneville Power Administration
Colonel Richard W. Hobernicht, District Engineer, U.S. Army Corps of Engineers, Portland District
William McDonald, Regional Administrator, U.S. Bureau of Reclamation
David Allen, Regional Director, U.S. Fish and Wildlife Service
Steve Crow, Executive Director, Northwest Power and Conservation Council
Pacific Council Habitat Committee
Pacific Council Salmon Advisory Subpanel

(Letterhead)

Date

Ms. Magalie R. Salas
Secretary
Federal Energy Regulatory Commission
888 First St., N.E.
Washington, D.C. 20426

Re: PacifiCorp Klamath River Hydroelectric Project P-2082

Dear Ms. Salas:

The Pacific Fisheries Management Council is concerned that the Final License Application (FLA) for the above-mentioned hydroelectric project does not address anadromous fish passage, nor does it adequately address the impacts of the Klamath hydroelectric facilities upon the fisheries resources of the Klamath River downstream of the project, an area that has been identified as Essential Fish Habitat by the Pacific Fisheries management Council.

The Council, through the Magnuson-Stevens Fishery Conservation and Management Act of 1976 and subsequent amendments, is charged by Congress to advise the U.S. Secretary of Commerce in the management of Pacific West Coast anadromous and marine fish stocks and provide recommendations that minimize the impacts of federal actions on the essential fish habitat (EFH) of Council-managed species. The Council currently makes harvest management recommendations for Klamath River fall chinook salmon and has identified Klamath River spring chinook as a key stock for which management objectives may be developed in the future. The Council identified and described EFH for chinook and coho salmon in 1999 under Amendment 14 to the Pacific Coast Salmon Fishery Management Plan. In the Klamath Basin, EFH has been designated for the mainstem Klamath River and its tributaries from its mouth to Iron Gate Dam and upstream to Lewiston Dam on the Trinity River, and includes the water quantity and quality conditions necessary for successful adult migration and holding, spawning, egg-to-fry survival, fry rearing, smolt migration, and estuarine rearing of juvenile coho and chinook salmon.

The fisheries resources of the Klamath River have undergone a major decline during the past century from numerous land and water management activities. The degradation of fisheries habitat and resultant decline in abundance of Klamath Basin fisheries resources has led to the listing of coho salmon under the Federal and California Endangered Species Acts, as well as the curtailment of fisheries along the Pacific Coast from the Columbia River to south of San Francisco to protect Klamath Basin origin Chinook. Among the factors which have contributed to the decline of the anadromous fisheries resources of the Klamath River, is the construction and continued operation of PacifiCorp=s Klamath River Hydroelectric Project[1].

[1] *Klamath River Basin Fisheries Task Force Long-Range Plan*. NRC 2003. *Endangered and Threatened Fishes of the Klamath River Basin; Causes of the Decline and Strategies for Recovery* NRC Press, October 2003.

The Klamath River Hydroelectric Project was constructed beginning in 1918, with no anadromous fish passage facilities, even though primary spring chinook spawning and rearing grounds existed above the dams, as well as considerable habitat for other anadromous fish populations. We note that the current Final License Application (FLA) for PacifiCorp=s Klamath River Hydroelectric Project contains no provisions for anadromous fish passage, which causes us great concern. The PFMC believes that anadromous fish passage should be included within the final license agreement, and that dam removal and/or project decommissioning should be examined in detail in an EIS. This is in accordance with the recommendations of the National Research Council=s recent report[2] regarding the Klamath Basin, which recommended serious and detailed studies on the removal of Iron Gate Dam.

The PFMC is extremely concerned that PacifiCorp appears to have determined that fish re-introduction to the upper basin is not feasible at this time based on computer model runs which PacifiCorp has acknowledged are not complete, and only include habitat within the Hydroelectric Project area itself[3]. The PFMC believes that it is up to the appropriate State and Federal Agencies to determine the effectiveness of reintroduction of anadromous fish to the upper Klamath Basin, and it is PacifiCorp=s obligation to provide passage to facilitate the re-introduction if required by conditioning agencies under their respective authorities. PacifiCorp appears to have taken on the task of determining the overall effectiveness of fish passage, and that causes the PFMC great concern.

The PFMC is concerned that PacifiCorp has never mitigated for the loss of fall Chinook or other anadromous species from the Klamath River above its Copco facilities[4]. Elimination of these stocks with no mitigation has reduced the abundance of populations, and continues to hinder restoration of those populations, that we are responsible for managing. Because of this, the PFMC believes that PacifiCorp needs to begin analyses that seriously, and in detail, look at the relative costs and benefits of a variety of fish passage options, including full volitional up and downstream passage, and dam removal at some or all facilities.

Hatchery operations are also a concern for the PFMC, as hatchery production is a significant contributor to harvestable stocks from the Klamath River. We note that PacifiCorp has proposed to increase the proportion of marking of juvenile fall-run Chinook salmon from its current level to 25%. We believe that this is a significant and overdue step in the right direction that will assist the PFMC in its duty to manage the harvest of Klamath River fisheries. We commend PacifiCorp for making this proposed change in hatchery operations.

However, other aspects of hatchery management as proposed under PacifiCorp=s FLA cause us great concern. For example, spring Chinook salmon, which used to inhabit the Klamath River below Copco before the construction of Iron Gate Dam in 1961, have disappeared from this portion of the river, yet no mitigation, hatchery or otherwise is proposed. Likewise, mitigation for steelhead has also been a failure. Steelhead returns to Iron Gate Hatchery, have dwindled since the program began in the early 1960=s. Because PacifiCorp has determined that hatchery mitigation for steelhead is not Afeasible@ (in their judgment), fish passage must be vigorously pursued as a mitigation option. Unfortunately, the FLA makes it clear that PacifiCorp does not intend to analyze or pursue fish passage any further.

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[2] NRC 2003. *Endangered and Threatened Fishes of the Klamath River Basin; Causes of the Decline and Strategies for Recovery* NRC Press, October 2003. .

[3] Apparently, no consideration was given in the model runs presented in the FLA as to the large amounts of habitat that would be available above Upper Klamath Lake.

[4] Iron Gate Hatchery=s stated mitigation purpose is for lost habitat between Iron Gate Dam and the Copco complex.

Finally, the PFMC is concerned with the lack of in-depth analysis of Klamath River Hydroelectric Project impacts to salmon below Iron Gate Dam. Despite its voluminous size, it is difficult to find any place in the FLA where historic, current, or future impacts to anadromous fish stocks including EFH are included. PacifiCorp has performed certain analyses regarding water quality, geomorphology, fish disease, and other studies that extend downstream, but has not related these to historic, current, or future impacts to anadromous fish. For example, water quality analyses performed by PacifiCorp indicate that water temperatures during the migration and spawning period for fall Chinook salmon are approximately 9EF higher on average than pre-project conditions. Yet, the implications of this significant impact to adult salmon survival, egg viability, and run timing are not addressed. This oversight must be corrected by PacifiCorp so that reasonable protection, mitigation and enhancement measures (PM&E's) can be devised. Similar analyses for other impacts to anadromous fisheries stocks in other resource areas, such as geomorphology, are also lacking.

The PFMC notes, that although the Hydroelectric Project affects EFH, and hatchery operations have a profound effect on wild stocks under the PFMC=s management, no direct discussion of these effects can be found in the FLA.

The PFMC notes that there is substantial information missing from the FLA to ascertain impacts to anadromous fisheries, and that PacifiCorp has not provided enough information to devise reasonable PM&E's. The PFMC urges FERC, in the absence of information necessary to determine the impacts of the Klamath River Hydroelectric Project, to take a conservative stance toward impacts to Klamath Basin fisheries resources. In other words, if PacifiCorp has refused to develop information called for by management agencies, FERC should err on the side of the resource.

The PFMC urges the FERC to consider the importance of the Klamath Basin fisheries resource to coastal communities along the Pacific Coast as well as the Klamath River, and to ensure that the health of these resources is addressed in any future licenses for the Klamath River Basin.

Sincerely,

(PFMC)

DRAFT LETTER

April 5, 2004

Mr. Rolland A. Schmitten, Director
Office of Habitat Conservation
NOAA Fisheries
F/HC - EFH ANPR
1315 East-West Highway
Silver Spring, Maryland 20910

Re: Proposed rulemaking regarding essential fish habitat guidelines

Dear Mr. Schmitten:

The Pacific Fishery Management Council (Council) takes this opportunity to comment on the Advance Notice of Proposed Rulemaking addressing potential revisions to the essential fish habitat (EFH) guidelines. Our comments support a continuation of a strong EFH policy to protect our fishery resources.

The existing EFH guidelines provide NOAA Fisheries and the Council the only means to act proactively through consultation with other agencies to protect the habitat needed by their managed resources. The Council believes that collaborative and proactive efforts to conserve habitat will help avoid future species listings and overfishing designations.

The Council appreciates the existing guidance provided by NOAA Fisheries on Habitat Areas of Particular Concern (HAPCs) and thinks that designation of HAPCs should be further encouraged and supported to focus consultations most effectively. We also believe that the EFH consultation process is not cumbersome or unreasonable, especially as it can be included as a part of other consultations (e.g. Endangered Species Act, National Environmental Policy Act). The consultation process will in fact be greatly eased by the GIS-based information that is now being developed by most of the Councils and that will soon be available online to other federal agencies and the public at large.

The Council does not advocate any major revisions to the EFH guidelines. We suggest the following changes to make the guidelines more effective in protecting and improving productivity of fish habitat.

1. The action agencies now determine when they may have adverse impacts and need to consult. The rule should better define adverse effects to clarify and strengthen the triggering mechanism and requirements for consultation.

2. Federal agencies are supposed to respond in writing within 30 days as to their proposed actions to address recommendations provided by NOAA Fisheries or the Council. This statutory requirement is not consistently or frequently adhered to. Please consider strengthing the guidelines by adding non-compliance penalties.

3. We recommend you ask for the use of best available scientific data when designating EFH. The Level 1 through Level 4 considerations are not particularly realistic given the state of our fishery knowledge and research capabilities. Councils and NOAA Fisheries normally have only Level 1 and some Level 2 information. We recommend NOAA Fisheries "mine" existing survey data to assure that relative abundance and productivity information is used in the EFH designations.

4. The Council urges clarification of the "practicability" standard.

5. The Council urges you to maintain current guidance for habitat protection to assure priority is always given to avoidance of impacts rather than minimization or mitigation of impacts. This concern is especially important in areas designated as HAPCs and in areas of EFH that provide habitat important to stocks that are listed under the ESA or that are rebuilding, have low fecundity, sporadic recruitment, or are long-lived. Mitigation for unavoidable impacts should be located in the vicinity of the impact, if possible, and should focus on restoring ecosystem functions that have been adversely impacted.

6. The Council supports and emphasizes the need to maintain and strengthen the section regarding degraded or inaccessible aquatic habitats (600.815 (a) (F)). We recommend the rules allow designation of EFH (or potential EFH) in historic habitat areas where there is reasonable potential for restoration of important ecosystem functions. There are proposals in both estuarine and riverine environments (such as the Cargill salt ponds in San Francisco Bay, or above dams such as Iron Gate on the Klamath, Round Butte on the Deschutes, Hells Canyon on the Snake River, and Chief Joseph on the Columbia), where restoration is planned or where passage could be a requirement of FERC relicensing. Without such consideration, important options for restoring habitat could be lost. For example, failure to designate EFH above currently impassable dams could be used as an argument not to provide restoration above those dams.

Thank you for the opportunity to comment. We strongly support the existing EFH rules and requirements for consultation. The rule takes a proactive approach to protecting, enhancing, and conserving EFH to avoid species declines and listings. We look forward to working with you and your staff on any potential guideline revisions. Please feel free to contact us if you have any questions.

Sincerely,

Donald K. Hansen
Chairman

OCEANA

2501 M STREET NW, SUITE 300 WASHINGTON, DC 20037 202.833.3900 WWW.OCEANA.ORG

March 24, 2004

The Honorable Donald L. Evans
Secretary
United States Department of Commerce
14th Street and Constitution Avenue, NW
Room 5851
Washington, D.C. 20230-0001

Re: Rulemaking Petition to Protect Deep-Sea Coral and Sponge Habitat

Dear Secretary Evans:

Marine scientists are discovering extraordinary, fragile, and ecologically-important colonies of deep-sea corals and sponges in nearly every region of the United States' exclusive economic zone (EEZ). Researchers report that these deep-sea coral and sponge colonies support entire ecosystems of fish and invertebrates, including commercially-managed species. The high diversity of marine life in some of these coral and sponge ecosystems is comparable to shallow, warm-water, coral reef ecosystems. Many of these colonies are truly ancient, growing for many hundreds and even thousands of years.

As these communities are comprised of long-lived, slow-growing organisms, they are especially vulnerable to destructive fishing practices like the use of bottom-tending mobile fishing gear[1] (bottom trawling) that damage and destroy these sensitive biological systems (NRC 2002). These ancient and slow-growing communities are not protected adequately under existing fishery management plans (FMPs), nor would they be under pending rulemakings that do not take into account the most recent scientific data. Ongoing efforts to designate essential fish habitat (EFH) are proceeding so slowly that without immediate protection, many of these sensitive habitats will suffer irreparable harm.

In light of recent scientific discoveries about the nature and extent of deep-sea coral and sponge habitats, and the immediate threats they face, existing law requires you to take strong steps to protect these habitats from destructive fishing practices. Accordingly, Oceana requests, pursuant to 5 U.S.C. §553(e), that the Department of Commerce, through the National Marine Fisheries Service (NMFS), initiate immediate rulemaking to

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[1] "Bottom-tending mobile fishing gear" includes dredges, beam and otter trawls, and other mobile fishing gear that is dragged along the ocean floor.

protect deep-sea coral and sponge habitats in the United States' EEZ by taking the following measures:

1. Identify, map, and list all known areas containing high concentrations of deep-sea coral and sponge habitat;[2]
2. Designate all known areas containing high concentrations of deep-sea coral and sponge habitat both as EFH and "habitat areas of particular concern" (HAPC) and close these HAPC to bottom trawling;
3. Identify all areas not fished within the past three years with bottom-tending mobile fishing gear, and close these areas to bottom trawling;
4. Monitor bycatch to identify areas of deep-sea coral and sponge habitat that are currently fished, establish appropriate limits or caps on bycatch of deep-sea coral and sponge habitat, and immediately close areas to bottom trawling where these limits or caps are reached, until such time as the areas can be mapped, identified as EFH and HAPC, and permanently protected;
5. Establish a program to identify new areas containing high concentrations of deep-sea coral and sponge habitat through bycatch monitoring, surveys, and other methods, designate these newly discovered areas as EFH and HAPC, and close them to bottom trawling;
6. Enhance monitoring infrastructure, including observer coverage, vessel monitoring systems, and electronic logbooks for vessels fishing in areas where they might encounter high concentrations of deep-sea coral and sponge habitat (including encountering HAPC);
7. Increase enforcement and penalties to prevent deliberate destruction of deep-sea coral and sponge habitat and illegal fishing in already closed areas; and
8. Fund and initiate research to identify, protect, and restore damaged deep-sea coral and sponge habitat.

Oceana is prepared to assist you in carrying out these measures in any way it can.

I. Federal Law Requires the National Oceanic and Atmospheric Administration (NOAA) to Identify and Protect Essential Fish Habitat and Habitat Areas of Particular Concern

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires fishery management plans prepared by the Secretary and Regional Fishery Management Councils to identify essential fish habitat and habitat areas of particular concern. EFH is defined as "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." 16 USC §1802(10). HAPC are areas that: (1) provide important ecological functions; (2) are sensitive to human-induced environmental

[2] "Deep-sea coral and sponge habitat" includes all habitat containing high concentrations of either deep-sea coral or deep-sea sponges or both.

degradation; (3) are stressed by development activities; or (4) are a rare habitat type. 50 CFR §600.815(a)(8).

A. National Oceanic and Atmospheric Administration's Duties to Identify Essential Fish Habitat

The Magnuson-Stevens Act requires that FMPs prepared by Fishery Management Councils or the Secretary "describe and identify essential fish habitat based upon guidelines established by the Secretary ..., minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of EFH." 16 USC §1853(a)(7).

The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." 16 USC §1802(10). For the purposes of this definition:

> 'Waters' include aquatic areas and their associated physical, chemical and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; 'substrate' includes sediment, hard-bottom, structures underlying the waters, and associated biological communities; 'necessary' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and 'spawning, breeding, feeding, or growth to maturity' covers a species' full life cycle.

50 CFR §600.10. Therefore, waters or substrate necessary to fish for spawning, breeding, feeding, or growth to maturity must be identified as EFH by NMFS or the Councils, and adverse effects on such habitat caused by fishing must be minimized to the extent practicable.

B. NOAA's Duties to Identify Habitat Areas of Particular Concern

NOAA guidelines provide that:

> FMPs should identify specific types or areas of habitat within EFH as habitat areas of particular concern based on one or more of the following considerations: (i) the importance of the ecological function provided by the habitat, (ii) the extent to which the habitat is sensitive to human-induced environmental degradation, (iii) whether, and to what extent, development activities are, or will be, stressing the habitat type, (iv) the rarity of the habitat type.

50 CFR §600.815(a)(8). Therefore, NMFS or the Councils must identify and designate HAPC within EFH if such areas meet one or more of the four criteria listed in 50 CFR §600.815(a)(8).

II. NOAA's Duties to Evaluate the Effects of Fishing on EFH and HAPC and Minimize Adverse Effects

It is not enough merely to identify EFH and HAPC. NOAA must also ensure that FMPs evaluate the adverse effects of fishing on EFH and minimize and mitigate such adverse effects. The evaluation should consider the effects of each fishing activity on each type of habitat found within the EFH, any adverse effects on EFH, and the cumulative effects of multiple fishing activities on EFH. The evaluation should also give "special attention" to adverse effects on HAPC and identify for possible designation as HAPC "any EFH that is particularly vulnerable to fishing activities." 50 CFR §600.815(a)(2)(i).

FMPs must also "minimize to the extent practicable adverse effects (on EFH) from fishing, and identify other actions to encourage the conservation and enhancement of such habitat." 16 USC §1853(a)(7). NOAA guidelines require the Councils to "prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable, if there is evidence that a fishing activity adversely affects EFH in a manner that is more than minimal and not temporary in nature." 50 CFR §600.815(a)(2)(ii).

Therefore, NMFS and the Councils must identify EFH that is particularly vulnerable to fishing activities for possible designation as HAPC; evaluate adverse effects of fishing on EFH, giving special attention to adverse effects on HAPC; and minimize to the extent practicable adverse effects of fishing on EFH.

III. Areas of Coral and Sponge in Regions Across the Country

Deep-sea coral and sponge communities are found throughout the United States' EEZ. The following gives a short overview of known coral and sponge cover in regions off the mainland United States. Additionally, pinnacles and seamounts are rare and exceptional formations that are essential fish habitat rich with the formation of living seafloor such as corals and sponges. We have sufficient data and information about certain areas, including some seamounts and pinnacles, of particular sensitivity, diversity, and rarity, to designate and protect the areas immediately. These areas, identified in Appendix 1, should be given priority for protection from bottom trawling. The locations of additional unexplored seamounts and pinnacles in Alaskan waters are listed in Appendix 2. As these types of areas have been identified as frequently harboring concentrations of corals and sponges, they should be closed until such time as research has been completed to determine whether they warrant long-term protection as HAPC. It should be noted, however, that neither list is meant to be exhaustive. They simply set forth examples of the types of known areas that exist around the United States that should be given priority when considering HAPC designation.

A. Alaska

Scientists estimate that more than 100 deep-sea coral and sponge species are found in the waters of the North Pacific off Alaska, at least 34 of which are corals (Heifetz 2000). Some areas are so tightly packed with different corals, sponges and other marine life that they have been named "coral gardens" and the "Garden of Eden" (NOAA 2002a).

In the Bering Sea most corals are found on the slope at the edge of the continental shelf and in canyons, but an array of other seafloor habitats also enrich this fertile ocean ecosystem. On the shelf, soft corals, sponges, and other deep-sea invertebrates provide living structure on an otherwise barren seafloor.

The 1600 km volcanic Aleutian Island chain between Alaska and Russia is the longest archipelago in the world. Some of the most nutrient-rich water from the bottom of the Pacific Ocean flows through the rocky passes between the islands on its way to the Bering Sea and Arctic Ocean. The unique combination of rich nutrients and underwater volcanoes has created some of the most diverse and abundant coral habitat left on Earth, with density and diversity comparable to that of coral reefs in the tropics (Stone and Malecha 2003).

The Alexander Archipelago in the Gulf of Alaska contains complex seafloor with abundant red tree corals (*Primnoa* spp.[3]), a variety of sponges, and anemones. Red tree corals can grow two meters high and seven meters wide, can live for hundreds of years, and provide shelter for a wide variety of fish and other marine life (Krieger and Wing 2002). Sea whip groves and coral gardens off Kodiak Island are home to a variety of rockfish, king crab, and other important species. The rich continental slope dives deep to the Aleutian Trench in the western Gulf. Seamounts, or underwater mountains, are scattered throughout the Gulf of Alaska and contain dense coral gardens far out at sea.

Figure 1 depicts known coral and sponge distribution in Alaskan waters, based on NMFS trawl surveys and observer data. Figures 2a-g show the locations of six coral gardens off the Aleutian Islands that were proposed by NMFS for HAPC designation on January 9, 2004. Examples of available research on coral and sponge habitat off Alaska are listed below.

- Freese, J.L. 2003. "Trawl-induced damage to sponges observed from a research submersible." Marine Fisheries Review 63:3 7-13.
- Heifetz, J. 2000. "Coral in Alaska: Distribution, abundance, and species associations." Manuscript presented at the First International Symposium on Deep-sea Corals, Dalhousie University, Halifax, July 30 - August 2, 2000.
- Krieger, K.J. 2001. "Coral (Primnoa) impacted by fishing gear in the Gulf of Alaska." In Willison, J.H., J, Hall, S.E. Gass, E.L.R. Kenchington, M. Butler and

[3] The abbreviation "spp." indicates that the name of a genus has been given, and that there are multiple species within the genus.

P. Doherty, 2001. "Proceedings of the First International Symposium on Deep-Sea Corals." Ecology Action Center.

- Krieger, K.J. and B. Wing 2002. "Megafauna associations with deepwater corals (*Primnoa* spp.) in the Gulf of Alaska." Hydrobiologia 471: 83-90.
- NMFS (National Marine Fisheries Service) 2003. Draft Programmatic Supplemental Groundfish Environmental Impact Statement for Alaska Groundfish Fisheries, September 2003, Tables 3.5-158 and 4.1-8. http://www.fakr.noaa.gov/sustainablefisheries/seis/intro.htm.
- NOAA 2002a. Ocean Explorations: Exploring Alaska's Seamounts. Log at http://oceanexplorer.noaa.gov/explorations/02alaska/logs/jul15/jul15.html.
- Malecha, *et al.* 2002 (DRAFT). "Living substrate in Alaska: Distribution, abundance and species Associations." Manuscript submitted at the Symposium on Effects of Fishing Activities on Benthic Habitats, Tampa, Florida, November 12-14, 2002.
- Stone, R.P. and Malecha, P.W. 2003. "Deep-Sea Coral Habitat in the Aleutian Islands of Alaska." Oral Presentation given at the Second International Symposium on Deep-sea Corals, Erlangen, 2003.

B. Pacific

Scientists have found at least 100 different species of coral along the Pacific shelf and slope from the Bering Sea to Baja, including bamboo, bubblegum, red tree, and black corals (Etnoyer and Morgan 2003). Several underwater islands lie in the deep-waters beyond the California continental shelf. On the largest of these, the Davidson Seamount, scientists using submersibles have found densely packed biological communities consisting mainly of large gorgonian corals and sponges (NOAA 2003).

In the Pacific Northwest, deep underwater canyons like Astoria Canyon, where the Columbia River meets the ocean, are home to a variety of coral and sponge habitats. Hecata Bank off the Oregon coast is a hotspot for black corals. The Olympic Coast National Marine Sanctuary off Washington is also home to a variety of gorgonian corals and other vulnerable fish habitats. Puget Sound contains hydrocorals scattered throughout its various inlets and islands. These complex habitats provide homes for commercially important and overfished species like rockfish.

Submersible dives over the rocky banks along the continental shelf of Oregon in 1987-1990 revealed high abundances of sponges. The ridge-boulder habitat of Heceta Bank provides a solid substrate for a very even distribution of vase sponges. The researchers noted spectacular schools of yellowtail and juvenile rockfish associated with this habitat, comprising hundreds or even thousands of individuals. Daisy Bank consists largely of boulder-cobble habitat, upon which the sponges are even more common and larger (some a meter tall) than at Hecata. This habitat supports rosethorn, sharpchin, and pygmy rockfish, as well as lingcod and juvenile rockfish (Hixon *et al.* 1991, Figure 3).

Off the coast of California, the continental shelf, slope, and canyons are scattered with deep-sea corals. Hydrocorals, gorgonian corals, and black corals are found in high densities in the Channel Islands, Monterey Bay, the Gulf of the Farallones off San Francisco, and the continental slope off Northern California. Hydrocorals and gorgonian sea fans are commonly seen by divers in Southern California. These corals provide shelter for a variety of sea life, including rockfish, crabs, garibaldi, and many others. Some of these corals may be older than the towering redwoods on the adjacent land.

Figures 4 and 5 show coral and sponge occurrence along the Pacific Coast of North America, based on data from NMFS trawl surveys, observer programs (in Alaska), and submersible dives. Examples of available research on coral and sponge habitat in the Pacific are listed below.

- Etnoyer, P and L. Morgan 2003. "Occurrences of habitat forming deep-sea corals in the Northeast Pacific Ocean: A report for NOAA's Office of Habitat Protection." Marine Conservation Biology Institute.
- Hixon, M.A., Tissot, B.N., and W.G. Pearcy 1991. "Fish assemblages of Rocky Banks of the Pacific Northwest." OCS Study MMS 91-0052. Pacific OCS Region, Minerals Management Service.
- Monterey Bay Aquarium Research Institute seabed mapping program, at http://www.mbari.org/data/mapping/seamounts/davidson.htm .
- NMFS 2003b. Unpublished data from RACEBASE, NMFS' trawl survey database.

C. Northeast and Mid-Atlantic

Seventeen species of stony coral have been found in the waters from the Gulf of Maine to Cape Hatteras, 71 percent of which lie in waters deeper than 1000 m (Cairns and Chapman 2001). Red tree and bubblegum corals are common on the Northeast Peak of Georges Bank and on gravel substrate in the Gulf of Maine (Watling and Auster 2004).

Twenty five species of hard and soft coral have been found in the canyons and slope south of Georges Bank (Watling and Auster 2004). In particular, Oceanographer and Lydonia Canyons on Georges Bank harbor many species of coral (Figure 7). The steep sides and hard walls of these canyons have traditionally proven difficult to fish with mobile bottom gear, but improved mechanical, electronic, and fiber technologies could result in the expansion of trawl fisheries into these areas.

Bear Seamount, the westernmost peak of the New England Seamount chain, rises up from the continental slope southeast of Lydonia Canyon. One of four of the peaks in this chain that is located within the United States' EEZ, it rises from a depth of 2000-3000 m to a generally flat summit at around 1100 m below the surface of the North Atlantic. Recent dives on Bear Seamount have discovered various gorgonians including

Paragorgia sp.[4], bamboo coral (*Keratoisis* sp.), and hard corals such as *Caryophyllia ambrosia* and *Flabellum alabastrum*. The fauna associated with Bear Seamount are highly diverse (at least 214 species of invertebrates and 203 species of fish have been discovered so far), and other New England seamounts may also harbor a high diversity of macro-organisms (Moore *et al.* 2002). Indeed, NOAA's 'Mountains in the Sea' exploration in the summer of 2003 discovered corals on Kelvin and Manning Seamounts, the latter so diverse that the lead scientist, Dr Les Watling, noted a greater "coral diversity than I've seen before on any single dive, and that includes Hawaii" (NOAA 2003).

Figures 6 and 7 show the regional scale distribution of known octocorals (previously Alcyonaria) off the northeast United States.

Examples of available research on coral and sponge habitat in the Northeast and Mid-Atlantic are listed below.

- Auster, P.J. 2002. "An underwater tour of oceanographer canyon" CDROM National Undersea Research Center, University of Connecticut, Avery Point.
- Cairns, S.D. and R.E. Chapman 2001. "Biogeographic affinities of the North Atlantic deep-water Scleractinia." In Willison, J.H., J, Hall, S.E. Gass, E.L.R. Kenchington, M. Butler and P. Doherty, 2001. "Proceedings of the First International Symposium on Deep-Sea Corals."
- Moore, J.A., Vecchione, M., Collette, B.B., and R. Gibbons 2002. "The fauna of Bear Seamount (New England Seamount chain), and the presence of "natural invader" species." Paper presented at ICES 2002 Annual Science Conference summarizing the results of cruise DE02-06. CM 2002/M:25.
- NOAA 2003. Ocean Explorations: Mountains in the Sea. Ship's log and other details available at http://oceanexplorer.noaa.gov/explorations/03mountains/welcome.html
- Watling, L, and P.J. Auster 2004 in press. "Distribution of Deepwater Alcyonacea off the Northeast Coast of the United States". Presented at the Second International Symposium on Deep-Sea Corals, Erlangen, 2003.

D. Southeast

Deep-sea corals have been found from between 70 to 1300 meters deep on the outer continental shelf and upper slope in Southeast United States waters (Reed 2002a). Extensive *Lophelia* reefs are being explored off Cape Lookout in North Carolina at 400-500 meters, but there are hundreds of larger unexplored *Lophelia* reefs off the coasts of South Carolina, Georgia, and Florida (Sulak pers.comm.). In 2002, scientists discovered a huge *Lophelia* reef 140 km off the coast of Jacksonville, Florida, roughly 1.6 by 4 km

[4] The abbreviation "sp." is used after a genus name to indicate that the genus, but not the particular species of the specimen, has been identified.

in area, and 150 meters high (NOAA 2002c). There are believed to be 40,000 *Lophelia* mounds covering 360 square km in the vicinity of the reef (Paull *et al.* 2000). Sponges, corals, sea plumes, and other animals have been found covering one area explored at 600 meters (NOAA 2002d).

The deep-sea reefs of *Oculina varicosa*, the ivory tree coral, found in this region are unique in the world (Koenig 2001). Deep-water banks rich with *Oculina varicosa*, *Lophelia pertusa*, *Enallopsammia profunda*, and other live coral and sponge colonies off the coasts of Florida, Georgia, and South Carolina are described and mapped in Reed (2002a).

Figures 8 and 9 show some known locations of corals off the Southeast United States, including *Oculina*, *Lophelia*, and *Enallopsammia*. Examples of available research on coral and sponge habitat in the Southeast are listed below.

- Koenig, C.C. 2001. "Oculina Banks: Habitat, fish populations, restoration, and enforcement." Report to the South Pacific Fishery Management Council December 2001.
- NOAA 2002. Ocean Explorations: Islands in the Stream 2002. Ship's log and more details available at http://oceanexplorer.noaa.gov/explorations/02sab/welcome.html.
- Paull, C.K., A.C.Neumann, B.A. am Ende, W. Ussler III, N.M Rodriguez 2000. "Lithoherms on the Florida-Hatteras slope." Marine Geology 166: 83-101
- Reed, J.K. 2002a. "Comparison of deep-water coral reefs and lithoherms off southeastern USA." Hydrobiologia 471: 57-69.
- Reed, J.K. 2002b. "Deep–water Oculina coral reefs of Florida: biology, impacts, and management." Hydrobiologia 471: 43-55.
- Sulak, K. pers. comm. Presentation to the House Oceans Caucus and NMFS March 14 2003, background materials. Available upon request.

E. Gulf of Mexico

Ancient coral reef structures dot the outer continental shelf off Mississippi, Alabama, and West Florida. Although the original reefs are gone, lush forests of soft corals, black corals, sponges, sea-lilies, and deep-sea stony corals still flourish on the steep pinnacles. Despite the discovery of deep-sea corals in the Gulf of Mexico well over a hundred years ago, our knowledge of their distribution and abundance is poor.

In a recent review article, Schroeder *et al.* (in press) document all known locations of the hard stony corals *Lophelia pertusa* and *Madrepora oculata* in Gulf waters deeper than 200 meters. Both species have been found in waters between 200-850 meters in the Northern Gulf of Mexico (Figure 10). These species appear to be particularly concentrated off the coasts of Louisiana, Mississippi, and Alabama, though the dearth of known coral sites in other areas may reflect lessened research efforts in those areas rather

than fewer corals. Some coral areas have been visibly damaged by trawls, longlines, and anchors (Sulak pers. comm.).

Examples of available research on coral and sponge habitat in the Gulf of Mexico are listed below.

- NOAA 2002b. Ocean Explorations: Gulf of Mexico. Ship's log and more details available at http://oceanexplorer.noaa.gov/explorations/02mexico/logs/oct18/oct18.html.
- Schroeder, W.W., Brooke, S.D., Olson, J.B., Phaneuf, B., McDonough III, J.J. and P. Etnoyer, in press. "Occurrence of deep-water *Lophelia pertusa* and *Madrepora oculata* in the Gulf of Mexico." In, 'Deep-Water Corals and Ecosystems', Freiwald, A. and Roberts, M.J. eds., Springer Publishing, Heidelberg. Proceedings of the 2nd International Symposium on Deep-Sea Corals, Sept 8-13, Erlangen, Germany.
- Sulak, K. pers. comm. Presentation to the House Oceans Caucus and NMFS March 14, 2003, background materials. Available upon request.

IV. Deep-Sea Coral and Sponge Habitats Satisfy the Definition of EFH

Deep-sea coral and sponge species found throughout the country are often associated with other seafloor habitat-forming animals like anemones, crinoids, and bryozoans. Whether solitary, in small communities, or in large reef-like complexes, these species serve important ecological functions by acting as complex structural habitat to fish, invertebrates, and other species living in the deep-sea. Therefore, these deep-sea coral and sponge habitats meet the definition of EFH as "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" under 16 USC §1802(10) and 50 CFR §600.10.

A. Deep-Sea Coral and Sponge Habitats Are EFH Because They Are "Waters" and "Substrate"

Deep-sea coral and sponge habitats meet the definition of "waters" because they are "aquatic areas and their associated physical, chemical and biological properties [are] used by fish" *(see*, e.g., Reed 2002a, Reed 2002b, Fossa *et al.* 2002, Krieger and Wing 2002). More fundamentally, they are also "substrate", because they are "hard-bottom, structures underlying the waters, and associated biologically communities" pursuant to 50 CFR §600.10.

B. Deep-Sea Coral and Sponge Habitats Are EFH Because They Are Necessary to Fish for Spawning, Breeding, Feeding or Growth to Maturity

Deep-sea coral and sponge habitats are "necessary" because they "support a sustainable fishery and the managed species' contribution to a healthy ecosystem," satisfying the

definition set forth at 50 CFR §600.10. Fish are attracted to coral communities to enhance their feeding opportunities, to hide from predators, and for their use as nursery areas (Husebo *et al.* 2002, Krieger and Wing 2002). These functions are crucial to individual species' survival and the long-term sustainability of fish populations and fisheries.

In the North Pacific, rockfish, Atka mackerel, walleye pollock, Pacific cod, Pacific halibut, sablefish, flatfish, crabs, and other economically important fish and shellfish species inhabit areas of deep-sea coral, sponge, and other habitat-forming structures. In Alaska, flatfish are commonly found around sea squirts and bryozoans; cod are found around sea anemones, sea pens, and sea whips; rockfish and Atka mackerel are found around sponges; crabs are found around sea squirts; and other commercial fish species such as sablefish and skates are found around sea pens and sea whips (Malecha *et al.* 2002). Eighty-three percent of the rockfish found in one study were associated with red tree coral in the Gulf of Alaska (Krieger and Wing 2002). Studies have found flatfish, walleye pollock, and Pacific cod commonly caught around soft corals in Alaska (Heifetz 2002). Juvenile and adult species of rockfish, sea stars, nudibranchs, crinoids, basket stars, crabs, shrimp, snails, anemones, and sponges use the coral polyps of deep-sea gorgonian coral in the North Atlantic and North Pacific for food throughout their life cycle (Krieger and Wing 2002).

In the waters off Florida, the dense and diverse Oculina Banks community supports large numbers of fish, forming breeding grounds for gag and scamp grouper, nursery grounds for young snowy grouper, and feeding grounds for many other valuable fish including bass, other groupers, jacks, snappers, porgies, and sharks. Large populations of the commercially important squid, *Illex oxygonius*, have also been observed spawning on these reefs (Reed 2002b).

Deep-sea coral and sponge reefs host dense invertebrate communities, upon which diverse populations of fish species feed. *Lophelia* reefs, associated with large habitat forming invertebrates, such as massive sponges and gorgonians, support high levels of marine-invertebrate biodiversity and commercially-valuable fish populations. Researchers found that commercially-valuable fish species aggregate on deep-sea *Lophelia* coral reefs in Norway, and that fish caught in coral habitats tended to be larger than fish caught in non-coral habitats (Husebo *et al.* 2002).

Because deep-sea coral and sponge habitat in regions throughout the country are waters and substrate, and are necessary to fish for many crucial functions, coral and sponge habitats meet the definition of EFH set forth at 16 USC §1853(a)(7) of the Magnuson-Stevens Act.

V. Deep-Sea Coral and Sponge Habitats Should Be Identified for Possible Designation as HAPC

Deep-sea coral and sponge habitats are exceptionally vulnerable to fishing activities, in particular the destructive effects of bottom trawling and other bottom-tending mobile gears. *See* Section VI. C and D, *infra pp14-17.* All FMPs must contain an evaluation of the potential adverse effects of fishing on EFH and "should identify for possible designation as HAPC any EFH that is particularly vulnerable to fishing activities." 50 CFR 600.815(a)(2)(i). Therefore, deep-sea coral and sponge habitat should be identified for possible designation as HAPC.

VI. Deep-Sea Coral and Sponge Habitats Satisfy the Definition of HAPC

Deep-sea coral and sponge habitats satisfy the definition of habitat areas of particular concern. NOAA has already designated some deep-sea coral and sponge habitat as HAPC in the North Pacific and South Atlantic. Moreover, coral and sponge habitats also satisfy all four criteria set forth at 50 CFR §600.815(a)(8), because they: (1) provide important ecological functions; (2) are extremely sensitive to human-induced environmental degradation; (3) are stressed by development activities; and (4) are a rare habitat type.

A. Deep-Sea Coral and Sponge Habitats Are Recognized as HAPC by NOAA

Deep-sea coral and sponge habitat have been designated by NOAA as HAPC in the North Pacific and off the coast of Florida. In recognizing the importance of coral and sponge habitat in the North Pacific, NOAA has stated that, "coral, sponges, and other living substrata in waters off Alaska already are classified by NOAA Fisheries as Habitat Areas of Particular Concern deserving of special protection because of their importance as habitat and their vulnerability to human impacts." Letter from Dr. William Hogarth, Assistant Administrator of Fisheries, NOAA, to Jim Ayers (Sept. 9, 2002). *See* 64 Fed. Reg. 20216 (Apr. 26, 1999). The Oculina Banks, off the coast of Florida, are also designated as HAPC. 49 Fed. Reg. 29607 (July 23, 1984) (codified at 50 CFR pt. 638, consolidated into 50 CFR pt. 622); 59 Fed. Reg. 27242 (May 26, 1994) (designating the Oculina Experimental Closed Area).

Alaska and the Oculina Banks are arguably the best studied regions of the EEZ with respect to deep-sea corals. It is no coincidence that the better understanding of the communities in these areas has resulted in the realization of their importance both economically and ecologically. NOAA must act quickly to not only designate, but also to protect, known coral and sponge areas in these and other regions as HAPC, and identify and protect other areas for potential HAPC designation before these areas are destroyed.

B. Deep-Sea Coral and Sponge Habitats Provide Important Ecological Functions

Coral species create communities of complex habitats that support extremely high levels of species richness and biological diversity (Reed 2002a, Freiwald 2002), and therefore

provide important ecological functions, such as feeding, breeding, and protection. Therefore, they satisfy the first HAPC criterion. 50 CFR §600.815(a)(8)(i).

Deep-sea coral communities often exhibit high levels of species diversity and contain great numbers of managed species. *Lophelia* provides habitat for animals such as sponges, anemones, bryozoans, gorgonians, worms, fish, mollusks, and crustaceans (Rogers 1999). Scientists have recorded more than 1300 species living on or in *Lophelia* reefs in the northeast Atlantic (Roberts *et al.* 2003). The *Lophelia* reefs on the western edge of the Blake plateau, off the coast of South Carolina and Georgia, support large populations of massive sponges and gorgonians in addition to smaller, less studied macroinvertebrates (Reed 2002a). On the western edge of this plateau, there is an abundance of hydroids, soft corals, echinoderms, actinaria, and ophiuroids. Such diversity, comparable in numbers to some shallow water reefs and seen also in the Oculina Banks (Reed 2002a), is also one reason that the reefs are important feeding, breeding, and nursery grounds for commercially important fish populations.

Deep-sea corals' complex structure serves as important habitat for protecting both juvenile and adult fish. Ten megafaunal groups have been associated with *Primnoa* spp., a deep-water gorgonian coral found in the North Atlantic and North Pacific that grows in a branching tree reaching some 3 meters from the seabed. Organisms including rockfish, sea stars, nudibranchs, crinoids, basket stars, crabs, shrimp, snails, anemones, and sponges use coral habitat for protection as well as food. Diverse species of shrimp, crabs, and rockfish also seek protection among the coral and coral polyps. Shortraker, rougheye, and redbanded rockfish have been documented beneath the corals, while sharpchin and juvenile yelloweye rockfish were among corals, and dusky rockfish were sighted above the corals (Krieger and Wing 2002).

Research has demonstrated that the destruction of deep-sea coral and sponge communities may alter the ecosystems in which they thrive. For example, researchers in the North Pacific have identified *Primnoa* spp. as both important habitat and a source of prey species for fish and invertebrates. The removal of or damage to the *Primnoa* communities may affect the populations of associated species, especially at depths greater than 300 meters, where species depend on *Primnoa* almost exclusively (Krieger and Wing 2002). On a larger scale, because *Primnoa* are important components of the deep-water ecosystem, the removal of these slow-growing corals could cause long-term changes in associated megafauna (Krieger and Wing 2002).

Additionally, researchers have found that species diversity is about three times higher on *Lophelia* reefs in the Northeast Atlantic than in the surrounding soft bottom habitat (UK Biodiversity Group 1999). Extensive *Lophelia* reefs have also recently been discovered in deep-waters in the Gulf of Mexico and off North Carolina (Sulak 2003). Studies show that anthropogenic alteration of a significant portion of *Lophelia* communities may dramatically change the distribution of species diversity along the whole shelf and slope (Fossa *et al.* 2002).

These examples demonstrate that deep-sea coral and sponge communities provide important ecological functions, and therefore constitute HAPC under 50 CFR §600.815(a)(8)(i). They are essential, indeed irreplaceable, components of their ecosystems, upon which thousands of fish and invertebrates depend for feeding, breeding, and protection. If these communities are disrupted or destroyed, the ecological services that they provide will vanish.

C. Deep-Sea Coral and Sponge Habitats Are Extremely Sensitive to Human-Induced Environmental Degradation

Deep-sea coral and sponge habitat are extremely sensitive to human-induced environmental degradation, satisfying the second HAPC criterion set forth at 50 CFR §600.815(a)(8)(ii).

Heavy fishing gear, like bottom trawls, directly kills corals, breaks up reef structure, or buries corals through increased sedimentation (Rogers 1999). Coral not directly destroyed can be killed by infections through wounds in coral tissue (Fossa *et al.* 2002).

Until recently, the biology and ecology of deep-sea corals has been largely unknown, primarily because the corals are found out of sight of humans and in ocean habitats where scientific research is difficult. However, as new threats from trawling emerge, scientists have begun to examine coral and sponge species and the communities they support. Because deep-sea corals are extremely slow growing and build fragile, complex structures, physical alteration of their environments can be extremely harmful and long lasting. Researchers have documented that bottom-tending mobile fishing gear can destroy deep-sea corals with a single trawl (Krieger 2001), and that the recovery of these communities may take hundreds or even thousands of years (Fossa *et al.* 2000 and see information on coral longevity/growth rates below).

A 2001 report on cold-water corals from the Advisory Committee on Ecosystems for the International Council for the Exploration of the Sea stated that the loss of structure-forming organisms caused by bottom trawling may be permanent and can lead to an overall loss of habitat diversity. This loss, in turn, can lead to the local loss of species and species assemblages dependent upon the biological structures. The report further explained that even if the features remain in a fragmented form, the viability of species populations may be compromised (ICES 2001).

The long-lived and slow-growing characteristics of cold-water coral reefs make them especially vulnerable to human-induced degradation (ICES 2001). Specific examples are described below.

- *Oculina varicosa* has an estimated average growth rate of about 1.6 cm a year. At this rate a 1.5 meter high colony may be nearly 100 years old. The *Oculina* reefs

off the coast of central eastern Florida, with a maximum height of 25 meters, are estimated to have a minimum age of 1,526 years (Reed 2002a).

- *Lophelia pertusa* has a growth rate of 4-25 mm a year (Rogers 1999). Off Norway, a dying *Lophelia* reef, about 10 meters thick, was estimated to be between 526 and 2,500 years old (Reed 2002a). It would take hundreds of years to build a colony 5-6.5 meters in diameter, and thousands of years to build a reef structure 10-33 meters thick. Thus, recovery of these communities to regain their ecological functions would take in the order of hundreds to thousands of years (Fossa *et al.* 2002).

- *Primnoa* spp. has a life span of more than 100 years, with a growth rate of approximately 13 mm per year in Alaska (Andrews *et al.* 2002). In 1998, using isotope dating, researchers estimated a 5 cm diameter specimen was about 500 years old (Heikoop *et al.* 1998, cited in Krieger 2001).

- *Paragorgia arborea*, found on both coasts of North America, has been estimated to grow for at least 300-500 years in New Zealand waters (Tracey *et al.* 2003).

- *Keratosis sp.*(bamboo coral), found off the Pacific coast of North America, has been estimated to reach 100-500 years old in New Zealand and Australian waters (Tracey *et al.* 2003).

- The longevity of two other reef-building deep-water corals, *Madrepora oculata* and *Enallopsammia rostrata*, ranges from 200-6000 years (New Zealand waters) and 600-5000 years (North Sea) (Tracey *et al.* 2003). *E. rostrata* is found associated with *Lophelia* reefs in United States waters (Reed 2002a), and *M. oculata* is found in deep waters in the Gulf of Mexico (Schroeder et al. in press).

Sponge communities, often associated with deep-sea corals in the North Pacific, are also extremely sensitive to human-induced degradation from bottom trawling. Sponges can suffer immediate declines through direct removal and further reductions in population densities due to delayed mortality. The damage caused to sponges on the continental shelf break may persist for extended periods of time (Freese 1999). Due to their longevity and slow growth, coral and sponge habitats are extremely sensitive to human-induced environmental degradation and therefore constitute HAPC under 50 CFR §600.815(a)(8)(ii).

D. Deep-Sea Coral and Sponge Habitats Are Stressed by Development Activities

Deep-sea coral and sponge habitats are stressed by development activities such as bottom trawling. Therefore, they satisfy the third HAPC criterion. 50 CFR §600.815(a)(8)(iii). The expansion of fishing fleets into deep-sea environments for the first time has drastically increased anthropogenic threats to deep-sea ecosystems. Deepwater trawlers

now operate to depths of 2,000 meters (Freiwald 2002), and use new technologies, more powerful engines, and gear such as rockhoppers that allow fishing in areas that were once avoided or inaccessible (Koslow *et al.* 2001). In fact it is precisely because fish species aggregate around them that deep-sea coral and sponge habitats are targeted and at risk from destructive fishing practices (Dr Jason Hall-Spencer, quoted in Clarke 2002). Fishermen know that areas with deep-sea corals are good fishing grounds (Fossa *et al.* 2002, and Breeze 1997), and set their gear for different species of fish depending upon the type of coral in the area (Lees 2002).

In fact, destructive fishing practices are the most widespread anthropogenic threat to deep-sea coral and sponge communities. Deep-sea coral and sponge habitats are increasingly imperiled as bottom-tending mobile fishing gear, such as bottom trawls and dredges, flatten these sensitive communities and move further offshore onto the continental slope and into deep-sea canyons, and onto seamounts. The National Academy of Sciences recently found that living habitats such as coral and sponge communities are among the most heavily damaged and the slowest to recover from trawling (NRC 2002).

Bottom trawling and dredging have caused severe mechanical damage to deep-sea *Lophelia* reefs in the Northeast Atlantic, hard-bottom habitats off the Southeastern United States, and deep-water seamounts off New Zealand and Tasmania (Fossa *et al.* 2002, Hall-Spencer *et al.* 2001, Reed 2002b, Koslow *et al.* 2001). In Alaskan waters, NMFS estimates that over one million pounds of deep-sea corals and sponges were removed annually during1997-99 from the seafloor by commercial fishing; more than 90 percent by bottom trawlers (NMFS 2003a).

Research in the Gulf of Alaska demonstrates that a single pass of a bottom trawl can displace boulders and remove or damage large epifaunal invertebrates (Krieger 2001). In addition, the use of bottom trawls with rollers and tickler chains can decimate fragile corals like *Oculina* (Reed 2002b).

After fishing gear is dragged through deep-sea communities, corals not crushed or buried may be harmed indirectly by the disturbance. Corals still standing may have cuts in their tissues that can lead to microbial infections (Fossa *et al.* 2002). Increased sediment loads from the pass of a bottom trawl or dredge can impede the growth of the coral, kill it by smothering, or prevent recolonization by coral larvae (Reed 2002b). All of these indirect impacts reduce coral health.

Bottom trawls are not the only fishing gear that damages deep-sea corals. Longline gear, consisting of miles of fishing line with attached lines to hooks or pots, and gillnetting gear anchored on the bottom with heavy weights, have been observed snagging, covering and damaging deep-water coral (Sulak 2003, Fossa *et al.* 2002). Anchors dropped and dragged along the seafloor can destroy coral communities, as they have done in fragile *Oculina* coral communities (Reed 2002b). Similarly, fishing traps placed on or near the

reefs risk damaging hard and soft corals, while weighted bottom longline and hook and line gear, targeting deep-water species, may entangle corals and break fragile branching species. Researchers in submersibles have witnessed fishing lines entangled over deep-water *Oculina* reefs (Reed 2002b). Fewer than 30 years after the discovery of the unique *Oculina* coral banks off the coast of Florida, fewer than 20 acres of intact reef habitat remains (Koenig 2001).

For these reasons, deep-sea coral and sponge habitats are stressed by development activities, especially bottom trawling, and therefore constitute HAPC under 50 CFR§600.815(a)(8)(iii).

E. Deep-Sea Coral and Sponge Habitats Are Rare Habitat Types

At least some deep-sea coral and sponge habitats are rare habitat types. Therefore, they satisfy the fourth HAPC criterion. 50 CFR §600.815(a)(8)(iv).

The Oculina Banks in the Atlantic off Florida are thought to be unique (Koenig 2001). Deep-water coral reefs and other potential hard-bottom communities not associated with chemosynthetic communities appear to be very rare in deep-water in the Gulf of Mexico (MMS 2000).

Complete, fine-scale maps of deep-water coral habitat in most United States waters are not yet available. However, broad-scale substrate mapping has been completed for much of the East Coast continental shelf and slope. As one of the habitat requirements of most deep-sea corals is a hard substrate, we can use these broad-scale substrate maps as proxies for the maximum likely deep-water coral coverage in the map area. Figure 11 shows the rarity of hard substrates based on broad-scale sampling off the Atlantic Coast (Poppe and Peloni, 2000, in NRC 2002). Of course, deep-water corals have many other habitat requirements (such as specific ranges in temperature, salinity, current flow), so our proxy will almost certainly overestimate the amount of coral, possibly by a very large margin.

For these reasons, at least some deep-sea coral and sponge habitats are rare habitat types, and therefore constitute HAPC under 50 CFR§600.815(a)(8)(iv).

* * *

NOAA has already recognized deep-sea coral and sponge habitat as HAPC in the North Pacific and the Oculina Banks. Other deep-sea coral and sponge habitat also meet the definition of HAPC under NOAA guidelines because they provide important ecological functions, are extremely sensitive to human-induced environmental degradation, are stressed by development activities such as destructive fishing practices, and are a rare habitat type. 50 CFR §600.815(a)(8)(i)-(iv).

VII. The Secretary Must Protect Deep-Sea Coral and Sponge Habitat Designated as EFH and HAPC

As shown above, deep-sea coral and sponge habitats are waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity, and therefore constitute EFH under 16 USC §1802(10). *See supra* pp.10-11, section IV. Deep-sea coral and sponge habitats also constitute HAPC under 50 CFR §600.815(a)(8), because they provide important ecological functions, are extremely sensitive to human-induced environmental degradation, are stressed by development activities like bottom trawling, and are (at least some of them) rare. *See supra* pp.12-18, section VI. Deep-sea coral and sponge are also "particularly vulnerable to fishing activities" within the meaning of 50 CFR §600.815(a)(2)(i). *See supra* pp.14-17, section VI.C-D. Therefore, the Secretary must take action to identify and protect deep-sea coral and sponge habitat. Moreover, because deep-sea corals and sponges are "fish" within the definition of the Magnuson-Stevens Act, they must be protected for their own sake.

A. The Magnuson-Stevens Act Requires NOAA to Identify and Protect EFH/HAPC

The Magnuson-Stevens Act requires that FMPs not only describe and identify EFH/HAPC, but also that FMPs "minimize to the extent practicable adverse effects on such habitats caused by fishing." 16 USC §1853(a)(7). FMPs must evaluate the potential adverse effects of fishing on EFH, including the cumulative effects of multiple fishing activities, giving "special attention" to adverse effects on HAPC. 50 CFR §600.815(a)(2)(i). The Councils, and the Secretary in the Councils' absence, "must act to prevent, mitigate, or minimize any adverse effects from fishing on EFH/HAPC to the extent practicable, if there is evidence that fishing activities adversely affect EFH in a manner that is more than minimal and not temporary in nature." 50 CFR §600.815(a)(2)(ii).

Numerous studies show that fishing practices are destroying deep-sea coral and sponge habitats that are hundreds or thousands of years old. *See supra* pp.14-17, section VI.C-D. Therefore, the adverse effects of fishing on coral and sponge habitats are "more than minimal and not temporary in nature" and must be prevented, mitigated, or minimized. 50 CFR §600.815(a)(2)(ii).

To address the adverse impacts on EFH, FMPs "should identify a range of potential new actions that could be taken … and adopt any new measures that are necessary and practicable." 50 CFR §600.815(a)(2)(ii). "Adverse effects" are defined as "any impact which reduces quality and/or quantity of EFH," including "physical disruption." *Id.* §600.810(a). NOAA must assist the Councils in identifying adverse impacts to EFH/HAPC and actions to ensure the conservation and enhancement of EFH/HAPC for each FMP. *Id.* §600.815(b).

Options for managing adverse effects on EFH/HAPC include, but are not limited to, "prohibitions on fishing activities that cause significant damage to EFH," *id.* §600.815(a)(2)(iv)(A), "closing areas to all fishing or specific equipment types," and "designating zones for use as marine protected areas to limit adverse effects of fishing practices on certain vulnerable or rare areas/species/life stages, *such as those areas designated as habitat areas of particular concern,*" *id.* §600.815(a)(2)(iv)(B) (emphasis added). The most effective way for NOAA to ensure that deep-sea coral and sponge EFH/HAPC are protected from destructive fishing practices is by closing such areas to bottom trawling.

Furthermore, it should be noted that the duty to minimize adverse effects on EFH does not require proof of effects on the productivity of managed species. Consideration of the productivity of commercial species should not be required when creating provisions to minimize adverse effects on EFH. This consideration is not set out in the statute or in the regulations and is counter to the published preamble to the EFH final rule (67 FR 2354) which states, "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. Such a requirement would raise the threshold for action above that set by the Magnuson-Stevens Act." Requiring a link to productivity is anti-precautionary and establishes an unrealistic data requirement that would result in little to no habitat protection due mainly to the paucity of this type of data. Deep- or cold-water corals and sponges are a good example of the importance of following the original text of the regulations. Their geographic and bathymetric locations tend to make studying them particularly difficult, and so data on their importance specifically to managed fish species is still being collected.

B. The Protection of EFH/HAPC Is Practicable

NOAA must protect deep-sea coral and sponge EFH/HAPC, because measures to minimize the adverse effects of fishing on these habitats are practicable. In considering whether measures to minimize the adverse effects of fishing on essential fish habitat are "practicable," the guidelines provide that:

> Councils should consider the nature and extent of the adverse effect on EFH and the long and short-term costs and benefits of potential management measures to EFH, associated fisheries and the nation, consistent with national standard 7. In determining whether management measures are practicable, Councils are not required to perform a formal cost/benefit analysis. 50 CFR §600.815(a)(2)(iii).

National Standard 7 provides that "conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication." 16 USC §1851(a)(7). The costs of closing deep-sea coral and sponge habitat to bottom-tending mobile fishing gear are minimal, especially in view of the long-term benefits, and the measures

requested to protect these habitats are not duplicated in other processes. In fact it is the lack of protection for these habitats that necessitates the filing of this petition.

Considering their importance to many marine species, including commercially valuable species (*see supra* pp.4-10 and 12-14, sections III and VI.B), the long term benefits likely far outweigh any short-term costs of protecting coral and sponge HAPC. These long-term benefits far outweigh Closing coral and sponge habitats that are infrequently fished to destructive fishing practices, such as bottom trawling, imposes little costs to the industry, especially in view of fishing industry claims that vessels do not frequently fish in coral and sponge habitat *(see*, e.g., Jerry Schill, Executive Director of the North Carolina Fisheries Association Inc. quoted in "Trawling blamed for loss of corals", A8 Final Edition, Washington Times, July 15, 2003, and John Gauvin, Director of the Groundfish Forum, speaking at the Symposium On Effects Of Fishing Activities On Benthic Habitats: Linking Geology, Biology, Socioeconomics And Management, Tampa, Florida, November 14, 2002 <is there a transcript avail.?).

Closing coral and sponge HAPC that are more frequently fished also has long-term benefits that outweigh short-term costs, because fisheries outside coral and sponge areas benefit from the protection of essential fish spawning, breeding, and feeding areas. Such protected areas have demonstrated spill-over effects that benefit adjacent commercial and recreational fishing (Roberts 2001, Gell and Roberts 2003).

The practicability of closing deep-sea coral and sponge habitats to bottom-tending mobile fishing gear has also been demonstrated by the recent adoption of similar measures in other jurisdictions. For example, the Norwegian Ministry of Fisheries closed an area of more than 1000 square km at Sula in 1999. Since then, the ministry has closed four other reef areas to fishing. The latest, Tisler reef on the Norway/Sweden border, was discovered in the summer of 2002, and closed in June 2003. The European Commission announced that it has also closed deep-sea coral areas on the Darwin Mounds, off the coast of Scotland, to bottom trawling gear on August 21, 2003. In addition, New Zealand has protected 19 seamounts from trawling as part of its ongoing research program.

The legislative history of the Magnuson-Stevens Act recognizes that by using "practicable," Congress established a very strong mandate, one synonymous with the mandate to avoid or minimize bycatch where "possible." *See, e.g.,* 141 Cong. Rec. H10,225 (Statement of Rep. Farr) (daily ed. Oct. 18, 1995). *See also* Black's Law Dictionary 1172 (6th ed. 1991) (defining "practicable" as "that which may be done, practiced, or accomplished; that which is performable, feasible, possible.").

Case law shows that "impracticability" is a rigorous test. As noted in the regulations, and confirmed in the courts, the term "practicable" rejects a cost-benefit standard in which mere economic cost can be the basis for rejecting an alternative. *See American Textile Mfrs. Inst., Inc. v. Donovan*, 452 United States 490, 514 (1981) (interpreting use of "practicable" synonym "feasible"). Therefore, even if the agency's analysis determines

that a habitat-protection measure is more costly in the short- and long-term, that alone is not a sufficient basis to reject a measure as impracticable. *Id.* at 514 ("Congress was fully aware that the Act would impose real and substantial costs of compliance on industry."); *United Steelworkers of America, AFL-CIO-CLC v. Marshall*, 647 F.2d 1189, 1265 (D.C. Cir. 1980) (citation omitted) (a standard is not economically infeasible because it is "financially burdensome" or even if it "threatens the survival of some companies within an industry"). *See also Friends of Boundary Waters Wilderness v. Thomas*, 53 F.3d 881, 885 (8th Cir. 1995) ("feasible" means physically possible.) *But cf. Conservation Law Foundation v. Evans*, 2004 WL 350626 at * 5 (1st Cir. 2004) ("We think by using the term "practicable" Congress intended rather to allow for the application of agency expertise and discretion in determining how best to manage fishery resources.").

Case law from other statutes confirms that the agency must make a very strong showing to conclude that a measure is impracticable. The term "practicable" is used in the Clean Water Act to require conservation measures to be taken unless the benefit is "wholly out of proportion to the costs . . . ." *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1045 n.52 (D.C. Cir. 1978); *see also Rybachek v. EPA*, 904 F.2d 1276, 1289 (9th Cir. 1990); *Association of Pacific Fisheries v. EPA.*, 615 F.2d 794, 805 (9th Cir. 1980). The Endangered Species Act requirement to take certain actions "to the maximum extent practicable," does not give the agency "unbridled discretion;" rather it "imposes a clear duty on the agency to fulfill the statutory command to the extent that it is feasible or possible." *Fund for Animals v. Babbitt*, 903 F. Supp. 96, 107 (D.D.C. 1995), *opinion amended per settlement agreement by* 967 F. Supp. 6 (D.D.C. 1997).

The plain language of the Magnuson-Stevens Act, its legislative history, NOAA's own regulations, and case law interpreting the term "practicable," all show NOAA's paramount duty to protect coral and sponge habitat by designating such areas as EFH/HAPC and closing it to bottom trawling and other destructive fishing practices.

C. Deep-Sea Coral and Sponge Habitat Must Be Protected for Its Own Sake

The Secretary is required by law to protect deep-sea coral and sponge habitat for its own sake, even if the Secretary does not act on the abundant evidence that deep-sea coral and sponge habitat is crucial for many other organisms in the marine ecosystem. Under the Magnuson-Stevens Act, the term "fish" means "all . . . forms of marine animal and plant life other than marine mammals and birds." 16 USC §1802(12). The term "fishery" means, *inter alia* "one or more stocks of fish." *Id.* §1802(13). Thus corals and sponges are fish that constitute fisheries within the meaning of the Act.

If the Secretary does not protect coral and sponge habitat through existing FMPs, the Magnuson-Stevens Act requires the Secretary and the Councils to promulgate FMPs specifically for the protection of corals and sponges. The Act directs each regional council to prepare a fishery management plan for "each fishery under its authority that

requires conservation and management." 16 USC §1852(h). "[C]onservation and management "refers to all . . .measures . . . which are required to . . . maintain . . . any fishery resource . . . and are designed to ensure that . . . irreversible or long-term adverse effects on fishery resources and the marine environment are avoided." *Id.* §1802(5). As this petition makes clear, measures are needed to maintain coral and sponge habitat and prevent irreversible adverse effects. *See supra* pp.12-18, section VI. If those measures are not promulgated in existing FMPs, the Councils are required to issue coral and sponge-specific FMPs, pursuant to §1852(h). If the Councils do not fulfill their obligation, then the Secretary must step in pursuant to his statutory authority. *Id.* §1854(c).

If coral and sponge FMPs are promulgated, the FMPs must designate coral and sponge habitat as EFH/HAPC for the corals and sponges themselves. The Magnuson-Stevens Act requires the Secretary to protect structure-forming habitat essential for all fish, and it could not be more clear that corals and sponges create their own substrate which is "necessary ... for spawning, breeding, feeding or growth to maturity." *Id.* § 1802(10) *(See supra* pp.10, sections IV and V).

In sum, there is abundant evidence for the Secretary to protect coral and sponge habitats as EFH and HAPC for many other species. Furthermore, there is an even more direct argument for protecting these habitat-forming organisms, because they form their own EFH/HAPC. Therefore, the Magnuson-Stevens Act requires the Councils and the Secretary to promulgate coral and sponge FMPs to protect coral and sponge habitats if these habitats are not protected in other FMPs.

VIII. Actions Requested

The Secretary of Commerce, acting through NOAA, is authorized to act in emergencies to prevent serious damage to fishery resources or habitat. 16 USC § 1855(c)(1), and 62 Fed. Reg. 44421 (August 21, 1997). Deep-sea coral and sponge EFH/HAPC is in imminent peril from bottom trawling and other destructive fishing practices. Therefore the Secretary must act immediately under his emergency authority to designate and protect deep-sea coral and sponge habitat from bottom trawling. The Secretary is also authorized to permanently protect deep-sea coral and sponge EFH/HAPC if the Councils fail to adopt permanent protections. 16 USC §1854(c)(1)(A)-(C). Since the Councils are failing to take actions to protect these sensitive and vital habitats, the Secretary must also prepare FMP and FMP amendments to identify and protect deep-sea coral and sponge habitat as EFH/HAPC where the Councils have failed to adopt permanent protections.

Emergency regulations can only remain in effect for two-180 day periods, 16 USC §1855(c)(3)(B). Therefore, the Secretary should allow regional councils to initiate rulemakings to permanently protect deep-sea coral and sponge habitats. To provide sufficient notice and comment to adopt FMPs or amendments to protect EFH/HAPC permanently, before the expiration of the emergency rule, the Secretary must give the

Councils the opportunity to submit FMP amendments within 9 months of the promulgation of the emergency rule. *See* 16 USC §1854(c)(1)(A). If the Councils fail to act within 9 months of the promulgation of the emergency rule, the Secretary must immediately issue his own proposed amendment to protect coral and sponge habitat, so that there is no lapse in protection that could allow these special areas to be devastated by destructive fishing activities. *See* 16 USC §1854(c)(4) and (7).

A. The Secretary Must Use His Emergency Authority to Designate and Protect Deep-Sea Coral and Sponge Habitat as EFH and HAPC

There is an urgent need for the Secretary of Commerce to act immediately to designate and protect deep-sea coral and sponge habitat as EFH and HAPC pursuant to his emergency authority under 16 USC § 1855(c)(1), and 62 Fed. Reg. 44421 (August 21, 1997). The Magnuson-Stevens Act authorizes the Secretary to act in emergencies "without regard to whether a fishery management plan exists for such fishery." *Id.* Normal rulemaking procedures would leave these recently-discovered, vital, and vulnerable resources at-risk indefinitely. Therefore the Secretary must immediately use his emergency powers to protect these resources while they still exist.

NOAA guidelines define emergencies as situations that: (1) result from recent, unforeseen events or recently discovered circumstances; (2) present serious conservation or management issues; and (3) can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberate consideration of the impacts on participants. 62 Fed. Reg. 44422 (August 21, 1997). Emergency actions are justified if the time it takes to complete notice-and-comment would result in substantial damage or loss to a living marine resource, habitat or fishery, and the emergency action is needed to prevent "serious damage to the fishery resource or habitat." *Id.* The emergency protection of coral and sponge habitat from bottom trawling and other destructive fishing practices is warranted under the Magnuson-Stevens Act and each of the criteria set forth at 62 Fed. Reg. 44421 (August 21, 1997).

1. The Secretary May Adopt Emergency Rules to Address "recent, unforeseen events or recently discovered circumstances." Criteria 1 under 62 Fed. Reg. 44422 (August 21, 1997).

Scientists have only recently discovered the existence of many deep-sea coral and sponge habitats, and the continued damage to these habitats from fishing gear has also only recently been discovered. Thus, the Councils were largely unaware of the existence of these important habitats when developing FMPs. Recent and unfolding discoveries of deep-sea coral and sponge communities and the advent of new technologies that threaten the destruction of these communities, has created an emergency that requires immediate action by the Secretary *(see*, e.g., Goad 2002, Heifetz 2002, NOAA 2002a, 2002b, 2002c, NOAA 2003 Ocean Explorations in New England, Alaska, and the Gulf of Mexico, Sulak 2003).

With new technology, larger boats, and roller and rockhopper gear, fishermen have dramatically expanded the amount and types of habitats bottom trawled (Freiwald 2002, Koslow *et al.* 2001). Over the past decade, bottom trawling has directly affected about 600,000 square km of seafloor habitat off the United States (NRC 2002), an area larger than the state of California. Action is urgently needed to prevent these proliferating activities from destroying extremely valuable and long-lived coral and sponge communities.

NOAA is currently preparing five regional EFH EISs required by the Court's ruling in *American Oceans Campaign v. Daley*, 183 F. Supp. 2d 1 (2000), and pursuant to schedules laid out in a series of Joint Stipulations developed by the parties to the litigation and entered by the court. Oceana and the other plaintiffs are participating actively in those public processes. These processes have already advanced to the draft EIS stage without having had the opportunity to take into account the new data on deep-sea corals and sponges. Most of these processes have timetables that would not easily allow the EISs and resulting rules to take into account this newly-understood need to protect these special deep-sea habitats. Moreover, rules adopted to protect deep-sea coral and sponge EFH/HAPC, if they come out at all, are unlikely to take effect sooner than 2005-2006 (see, e.g., HAPC designations for the NPFMC EFH EIS not due earlier than 2006, 68 Fed. Reg. 50120, August 20, 2003). It is imperative, therefore, that the Secretary act immediately under his emergency authority to protect known coral and sponge habitat from destructive fishing practices before these special biological communities are irreparably harmed. As noted in the *AOC v. Daley* ruling, the Councils, and the Secretary in the absence of Council action, "must adopt practical mitigating measures if there is evidence that a fishing practice is having an identifiable adverse effect on EFH." *Id.* at 13. Fishing practices *are* having identifiable adverse impacts on coral and sponge habitat. *See supra* pp.14-17, section VI.C-D. Therefore, the Secretary must protect these sensitive habitats immediately to address "recent, unforeseen events or recently discovered circumstances." 62 Fed. Reg. 44422 (August 21, 1997).

2. The Secretary May Adopt Emergency Rules to Address "serious conservation or management problems" in a Number of Fisheries.

The impact to deep-sea coral and sponge habitat from bottom trawling is a serious conservation and management problem. NOAA estimates that in Alaska alone, over one million pounds of corals and sponges were removed from the seafloor each year between 1997 and 1999, roughly 90 percent by bottom trawlers (NMFS 2003a). This estimate does not even include the damage caused by trawl doors, rockhoppers, and other gear that damage and crush corals and sponges but do not pull them to the surface to be counted by observers. These slow-growing species can take decades or centuries to recover from damage, if they recover at all, eliminating essential habitat for many fish species and reducing biodiversity in critical ocean areas.

The destruction of deep-sea coral and sponge habitat substantially harms fish and ocean resources. Studies show the dependence of fish on *Oculina* and *Lophelia* reefs in the waters off the Southeast United States and the Gulf of Mexico, the dependence of myriad other species on North Pacific coral and sponge communities, the important ecological functions provided by deep-sea coral and sponge habitat, and the serious conservation and management problems posed by destructive fishing practices. *See supra* pp.10-18, sections IV and VI. Therefore the Secretary must use his emergency rulemaking authority to address this "serious conservation or management problem." 62 Fed. Reg. 44422 (August 21, 1997).

3. The Benefits for Addressing Impacts Through Emergency Rules Outweigh the Value of Advance Notice, Public Comment and the Deliberative Consideration of the Impacts on Participants Through Normal Rulemaking.

The threat to coral and sponge habitat is immediate and urgent: just one pass by a bottom trawl can create devastating damage to these sensitive and long-lived species. NOAA guidelines provide that emergency actions may be taken, "where substantial harm to or disruption of the resource, fishery or community would be caused in the time it would take to follow standard rulemaking procedures." 62 Fed. Reg. 44421 (August 21, 1997). The possible consequences of the destruction of these habitats to fisheries and the ocean ecosystem (also, *see supra* pp.10-11, sections IV and V) are so severe that the Secretary must act immediately to protect known coral and sponge habitats through an emergency rule. A full notice-and-comment period can take years, during which time irreplaceable coral and sponge habitat can be irrevocably altered and destroyed. Full rulemaking procedures can be conducted after emergency rules are in place to protect the resource, but it will do little good to have a full notice-and-comment rulemaking to protect habitats that have already been destroyed. Therefore, the benefits of taking immediate action through emergency regulations far outweigh the damage to these sensitive habitats that would occur through a full notice and comment rulemaking process.

Therefore, the Secretary should use his emergency authority to protect known deep-sea coral and sponge habitat from bottom trawling under 62 Fed. Reg. 44421 (August 21, 1997). He may do so without regard to whether the Councils have prepared an FMP. 16 USC§1855(c)(1). The existence of and damage to many of these habitats have been only recently discovered, and action by the Secretary is urgently needed to prevent destructive fishing practices from destroying these important habitats. The destruction of deep-sea coral and sponge habitat is a "serious conservation or management problem," and the benefits for addressing these impacts through emergency regulations far outweigh the value of delaying action through a deliberative rulemaking process. *Id.*

B. The Secretary Should Prepare FMPs and FMP Amendments to Identify and Protect Deep-Sea Coral and Sponge Habitat as EFH/HAPC if Councils Fail to Adopt Permanent Protections

The Secretary must, if necessary, prepare FMPs and FMP amendments to permanently protect deep-sea coral and sponge habitat if the Councils fail to adopt permanent protections. The Secretary, through NOAA, is authorized to prepare an FMP or amendment if: (1) the Council fails to develop and submit to the Secretary within a reasonable period of time a FMP or amendment if a fishery requires conservation and management; (2) the Secretary disapproves or partially disapproves a plan or amendment; or (3) the Secretary has the authority to prepare a plan or amendment under the Magnuson-Stevens Act. 16 USC §1854(c)(1)(A)-(C). If the Secretary prepares a plan or amendment under these provisions, he must prepare regulations to implement the plan or amendment, consult with other federal agencies, conduct public hearings, provide for public notice and comment, and submit the plan or amendment to the appropriate Council for consideration and comment. 16 USC §1854(c)(1-7).

The Secretary should notify the Councils that they have an immediate duty to commence rulemakings to make the protections in the Secretarial emergency rule permanent. In order to avoid a lapse in protection that might allow destructive fishing practices to irreparably harm coral and sponge habitat, the Secretary should coordinate his activities and the activities of the Councils so that Council FMP amendments will become effective at the expiration of the emergency rule period. In addition, if the Councils fail to timely submit FMP amendments, to ensure there is no lapse in protection, the Secretary must be prepared to immediately issue his own permanent rule to ensure continuing protection.

IX. Conclusion and Specific Actions Requested

The Secretary must designate and protect deep-sea coral and sponge EFH/HAPC under his authority to act in emergency situations, and/or where the Councils have failed to conserve and manage a fishery. Emergency action by the secretary is warranted here because the importance of coral and sponge habitats to fisheries and marine ecosystems, and the relatively recent discovery of these habitats and threats to their existence by bottom-tending mobile fishing gear, constitute a serious conservation and management problem as provided under 16 USC §1855(c)(1), and 62 Fed. Reg. 44421 (August 21, 1997).

The Secretary is also authorized to notify the Councils to immediately commence preparing a FMP or amendment to make permanent the protection of known coral and sponge habitat, and to identify and protect such habitat as necessary for the conservation and management of fisheries under 16 USC §1854(c)(1). Moreover, because coral and sponge are fish, the Magnuson-Stevens Act also requires regional councils and the Secretary to promulgate coral and sponge FMPs to protect coral and sponge habitat if these habitats are not protected in other FMPs.

A. Summary of Specific Actions Requested

For the reasons noted above, we request the Secretary to act immediately to protect deep-sea coral and sponge habitats by undertaking the following actions:

1. Identify, map, and list all known areas containing high concentrations of deep-sea coral and sponge habitat;
2. Designate all known areas containing high concentrations of deep-sea coral and sponge habitat both as EFH and HAPC, and close HAPC to bottom trawling;
3. Identify all areas not fished within the past three years with bottom-tending mobile fishing gear, and close such areas to bottom trawling;
4. Monitor bycatch to identify areas of deep-sea coral and sponge habitat that are being currently fished, establish appropriate limits or caps on bycatch of deep-sea coral and sponge habitat, and immediately close to bottom trawling areas where these limits or caps are reached until such time as the areas can be mapped, identified as EFH and HAPC, and permanently protected;
5. Establish a program to identify new areas containing high concentrations of deep-sea coral and sponge habitat through bycatch monitoring, surveys, and other methods, designate these newly discovered areas as EFH and HAPC, and close them to bottom trawling;
6. Enhance monitoring infrastructure, including observer coverage, vessel monitoring systems, and electronic logbooks for vessels fishing in areas where they might encounter high concentrations of deep-sea coral and sponge habitat (including encountering HAPC);
7. Increase enforcement and penalties to prevent deliberate destruction of deep-sea coral and sponge habitat and illegal fishing in already closed areas; and
8. Fund and initiate research to identify, protect, and restore damaged deep-sea coral and sponge habitat.

B. Explanation and Description of Actions Requested

1. The Secretary should immediately map and list all known areas containing high concentrations of deep-sea coral and sponge habitat. Many areas known to contain high concentrations of coral and sponge are not being protected because they have not been adequately identified and mapped. The Secretary must act quickly before these areas are destroyed.

2. Once known areas with high concentrations of coral and sponge have been identified and mapped, the Secretary should designate such areas as both EFH and HAPC pursuant to NOAA guidelines, and these HAPC should be closed to bottom trawling. These areas, at a minimum, should include areas reported in the literature cited herein and depicted on maps attached to this petition.

3. The Secretary should identify and close all areas to bottom trawling that have not been bottom trawled within the past three years. Many undisturbed areas

of the United States' EEZ contain pristine coral and sponge habitat precisely because they have not been bottom trawled. Although the Secretary may not know the location of many of these pristine areas, he does have information on where bottom trawling activities are occurring. The Secretary should use this information to identify where no trawling has occurred for at least three years, and close such areas to bottom trawling until they can be mapped, identified, and protected. This closure is a prudent and precautionary measure to ensure that pristine areas are not destroyed by new bottom trawling activities. Moreover, because these are areas that have not been bottom trawled for at least three years, a moratorium on bottom trawling in these areas will cause little if any economic harm.

4. In areas where surveys and reports have not been conducted, and bottom trawling is damaging deep-sea coral and sponge habitat, bycatch should be monitored to determine whether fishing operations are taking coral and sponge. The Secretary should establish appropriate limits or caps on deep-sea coral and sponge bycatch, and immediately close to bottom trawling areas where these limits or caps are exceeded, until such time as these areas can be properly mapped, identified, and permanently protected.

5. Through bycatch monitoring, surveys, and other programs, the Secretary should identify new areas containing high concentrations of deep-sea coral and sponge habitat. The Secretary must designate these areas as EFH/HAPC, and close them to bottom trawling immediately before they can be destroyed.

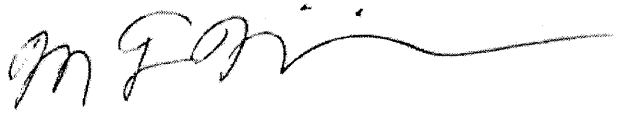
6. In order to facilitate identification and protection of deep-sea coral and sponge habitat, and to provide assistance to fishing vessels, the Secretary should enhance NOAA's monitoring infrastructure, including improved observer coverage, vessel monitoring systems, and electronic logbooks. Observers on bottom trawling vessels must be increased to levels approaching 100% to monitor bycatch to implement caps and gather data on the identification and location of coral and sponge habitat.

7. It does little good to designate and protect coral and sponge habitat as EFH/HAPC if areas closed to bottom trawling are inadequately enforced or if penalties are inadequate to prevent fishing in these sensitive areas. Therefore, enforcement and penalties must be reassessed to determine if they are adequate to prevent illegal fishing in already closed areas.

8. The Secretary must fund and initiate research to identify, protect and restore damaged deep-sea coral and sponge habitat. Recent studies have been helpful in identifying new areas of coral and sponge habitat. However, more research is urgently needed to discover new areas, and assess the extent, condition and importance of these new areas to fish, fisheries and marine ecosystems.

Thank you for the consideration of this petition.

Sincerely,



Michael F. Hirshfield, Ph.D.
Vice President, North American Oceans

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FIGURES

Figure 1: Locations of reported coral and sponge bycatch by bottom fishing on federally observed groundfish vessels and NOAA trawl surveys in Alaskan waters.

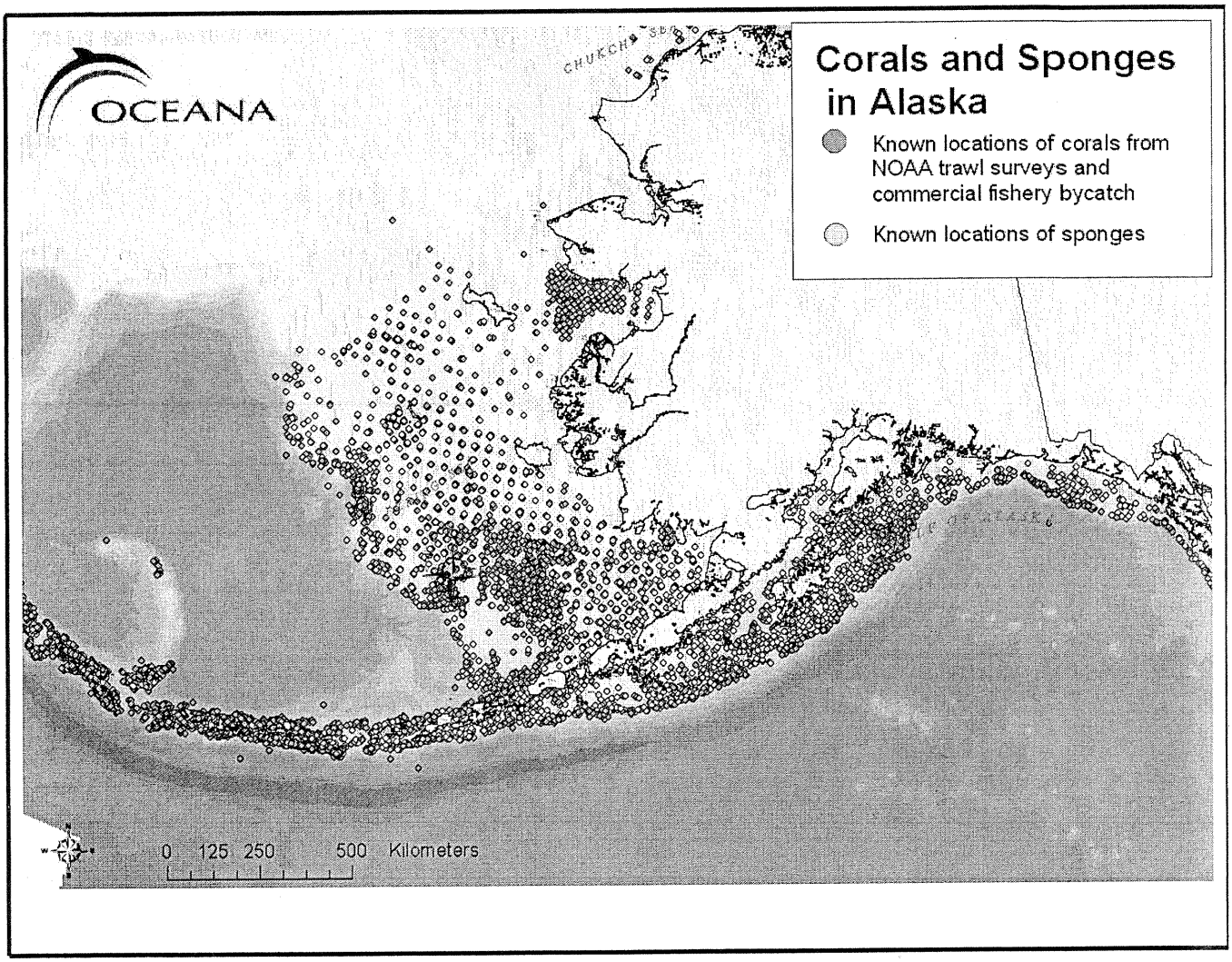


Figure 2a: Overview of six HAPC proposal areas for Coral Gardens in the Aleutian Islands, NMFS, January 9, 2004.

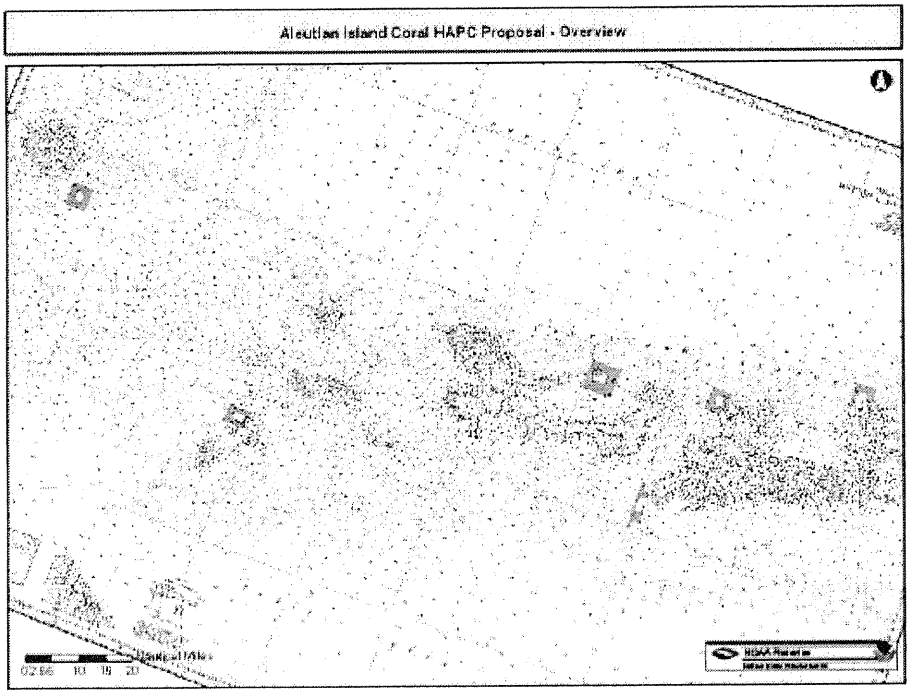


Figure 2b: Adak Canyon Coral Gardens fine scale

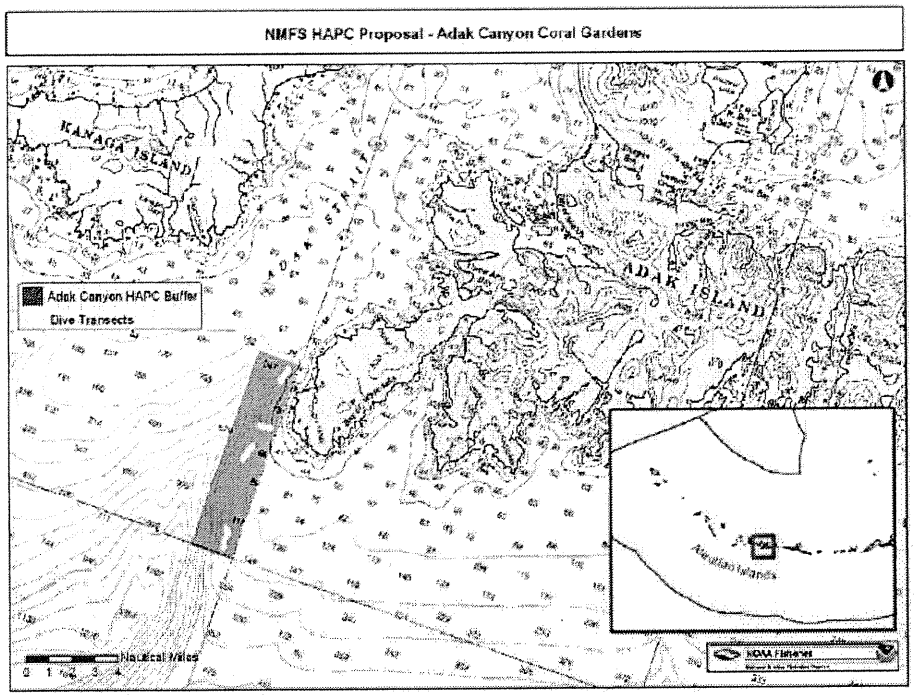


Figure 2c: Bobrof Island Coral Gardens fine scale

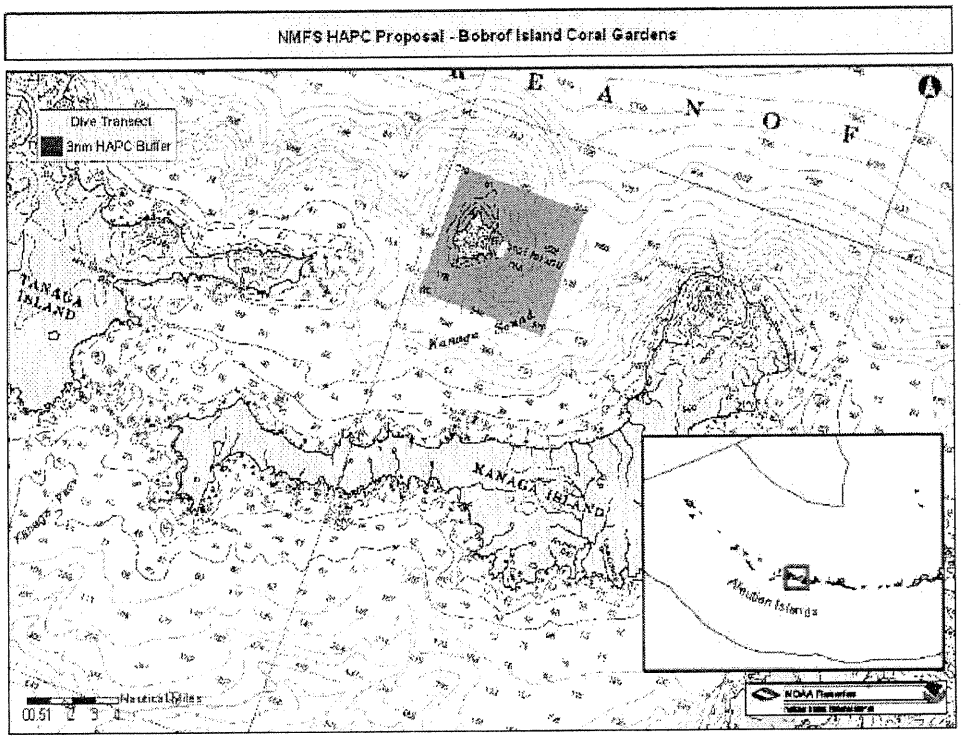


Figure 2d: Cape Moffett Coral Gardens fine scale

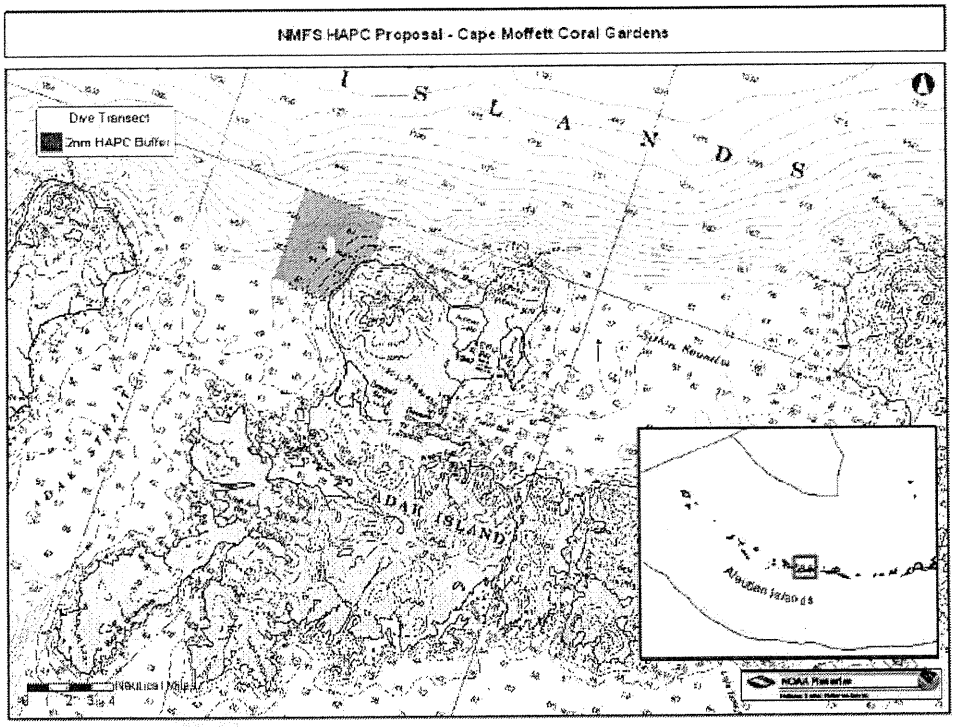


Figure 2e: Great Sitkin Coral Gardens fine scale

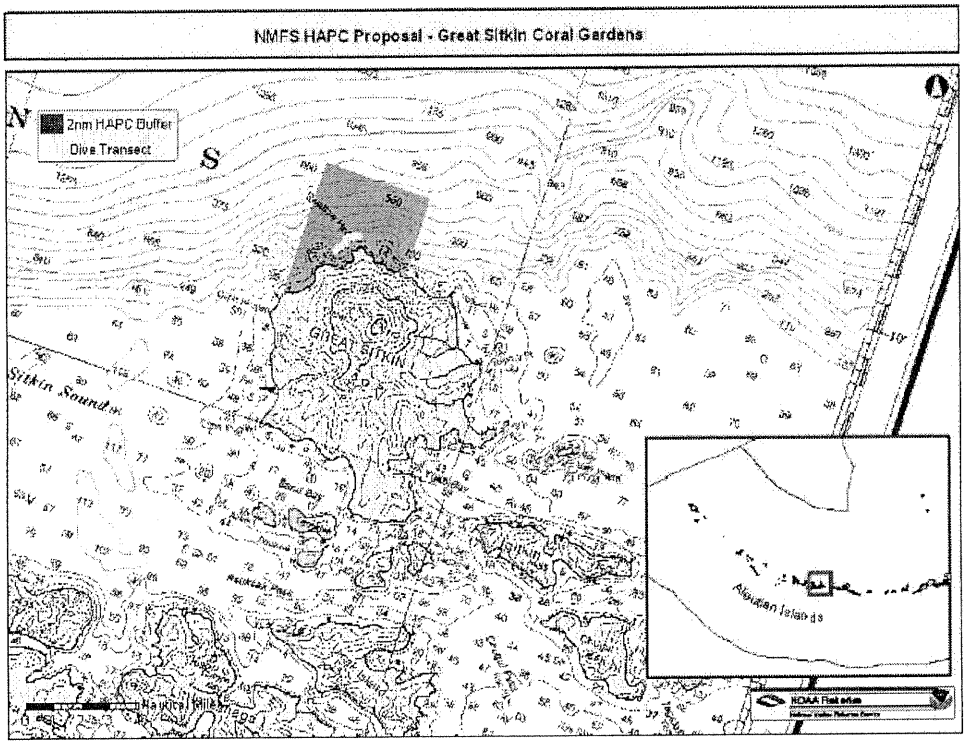


Figure 2f: Semisopochnoi Island Coral Gardens fine scale

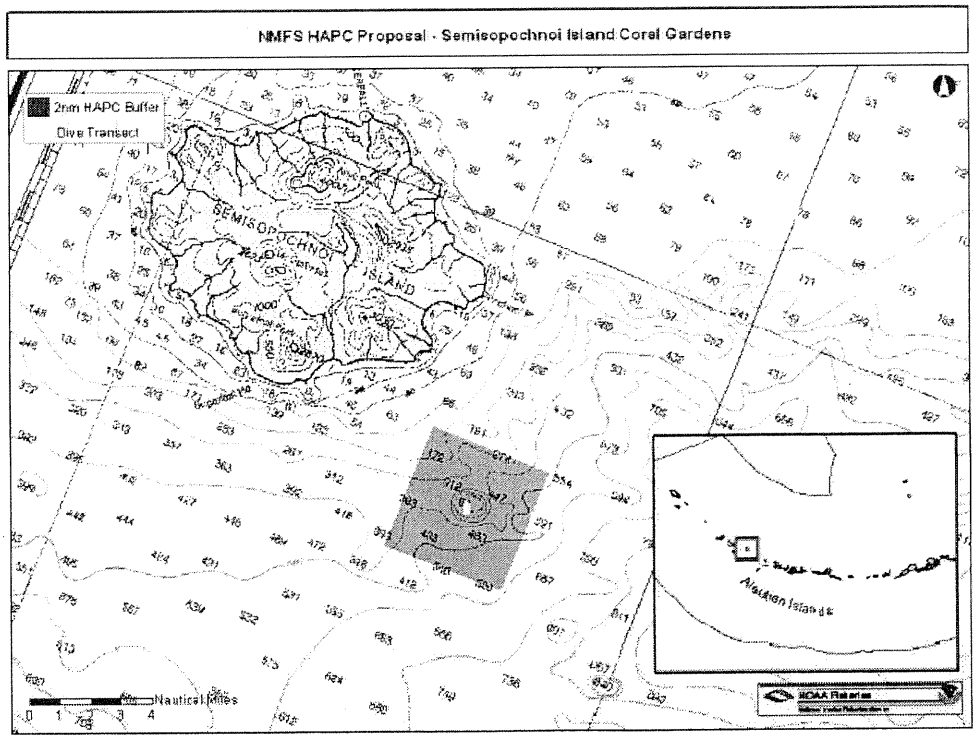


Figure 2g: Ulak Island Coral Gardens fine scale

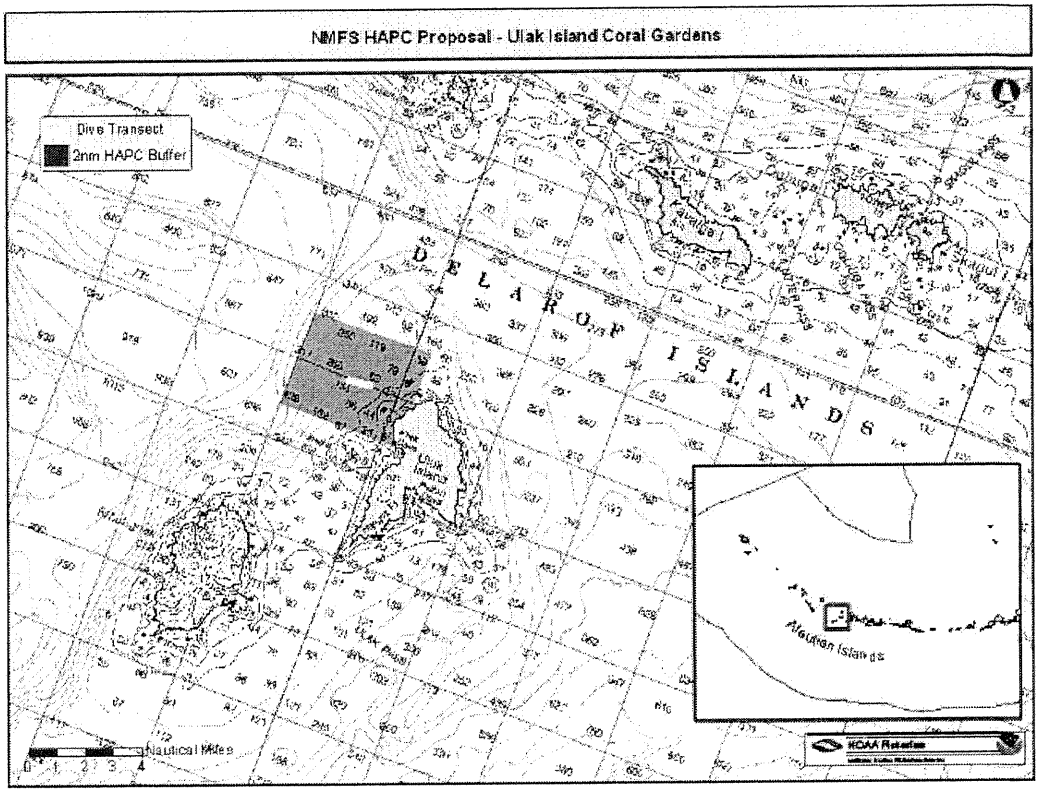


Figure 3: Geographic locations of Daisy Bank and Hecata Bank off the coast of Oregon. Courtesy Hixon *et al.* 1991.

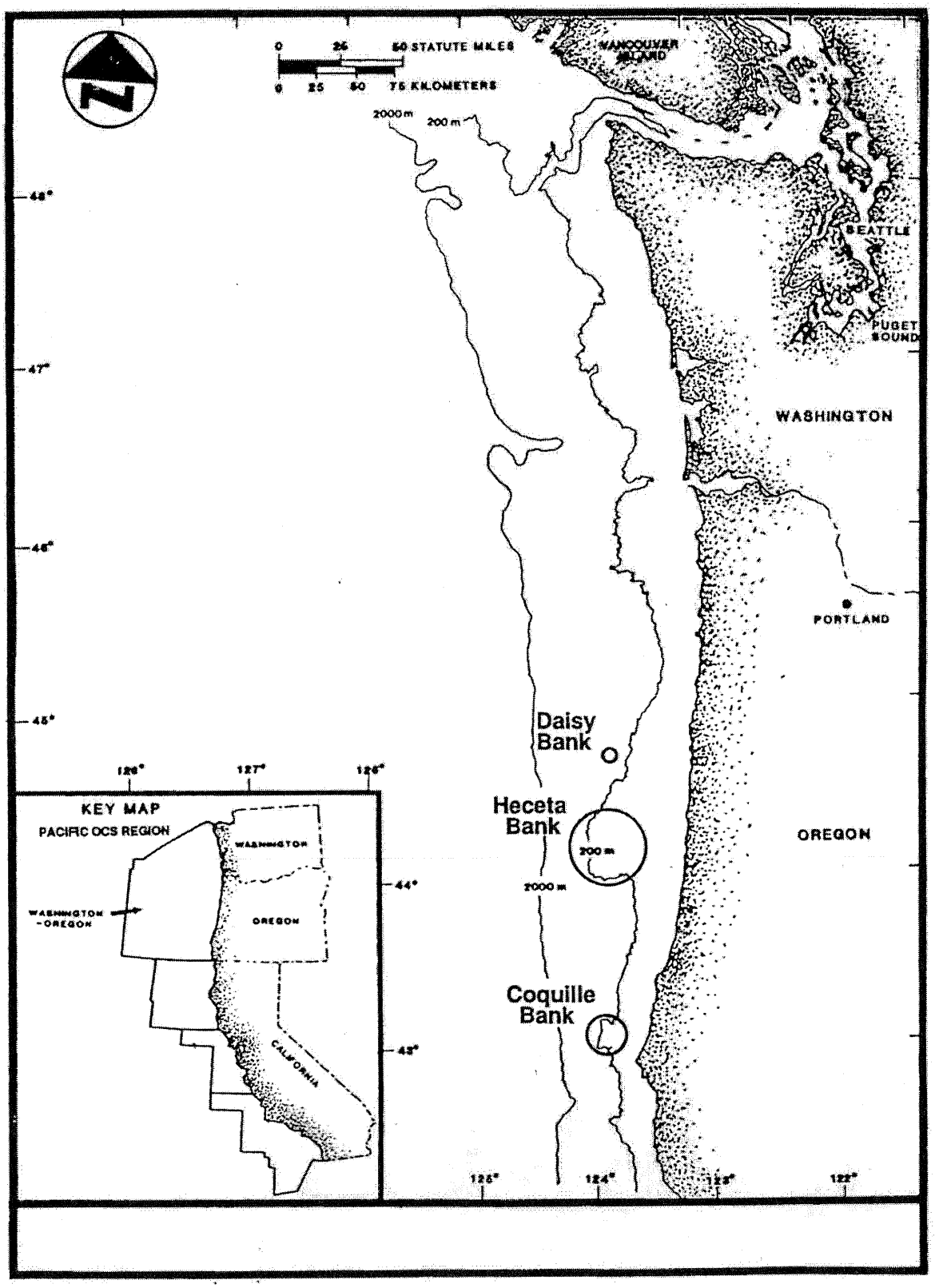


Figure 4: Coral occurrence along the Pacific Coast of North America. GIS map based on data from NMFS trawl survey data and NMFS observer data, the latter only in Alaska.

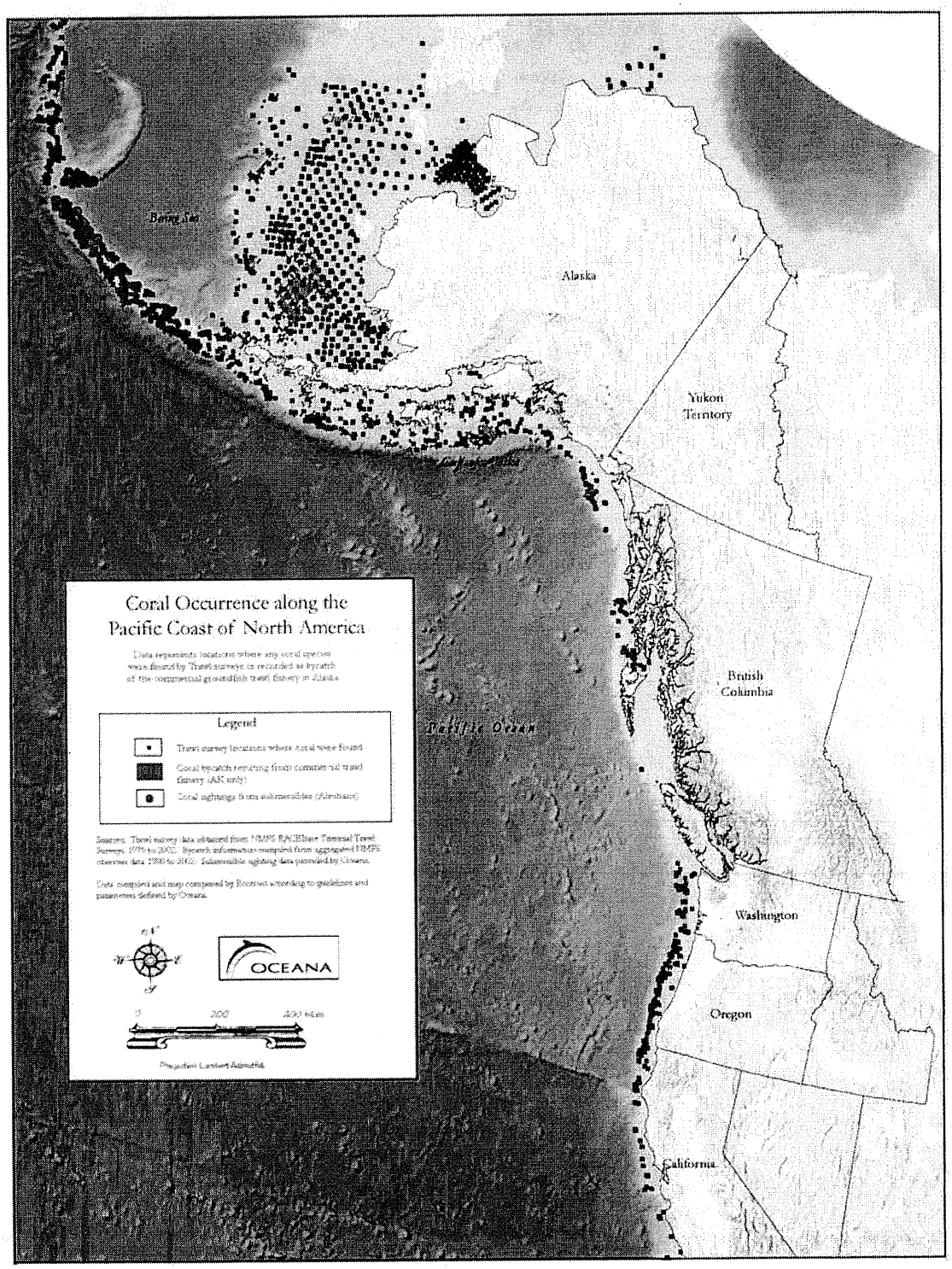


Figure 5: Sponge occurrence along the Pacific Coast of North America. GIS map based on data from NMFS trawl survey data and NMFS observer data, the latter only in Alaska.

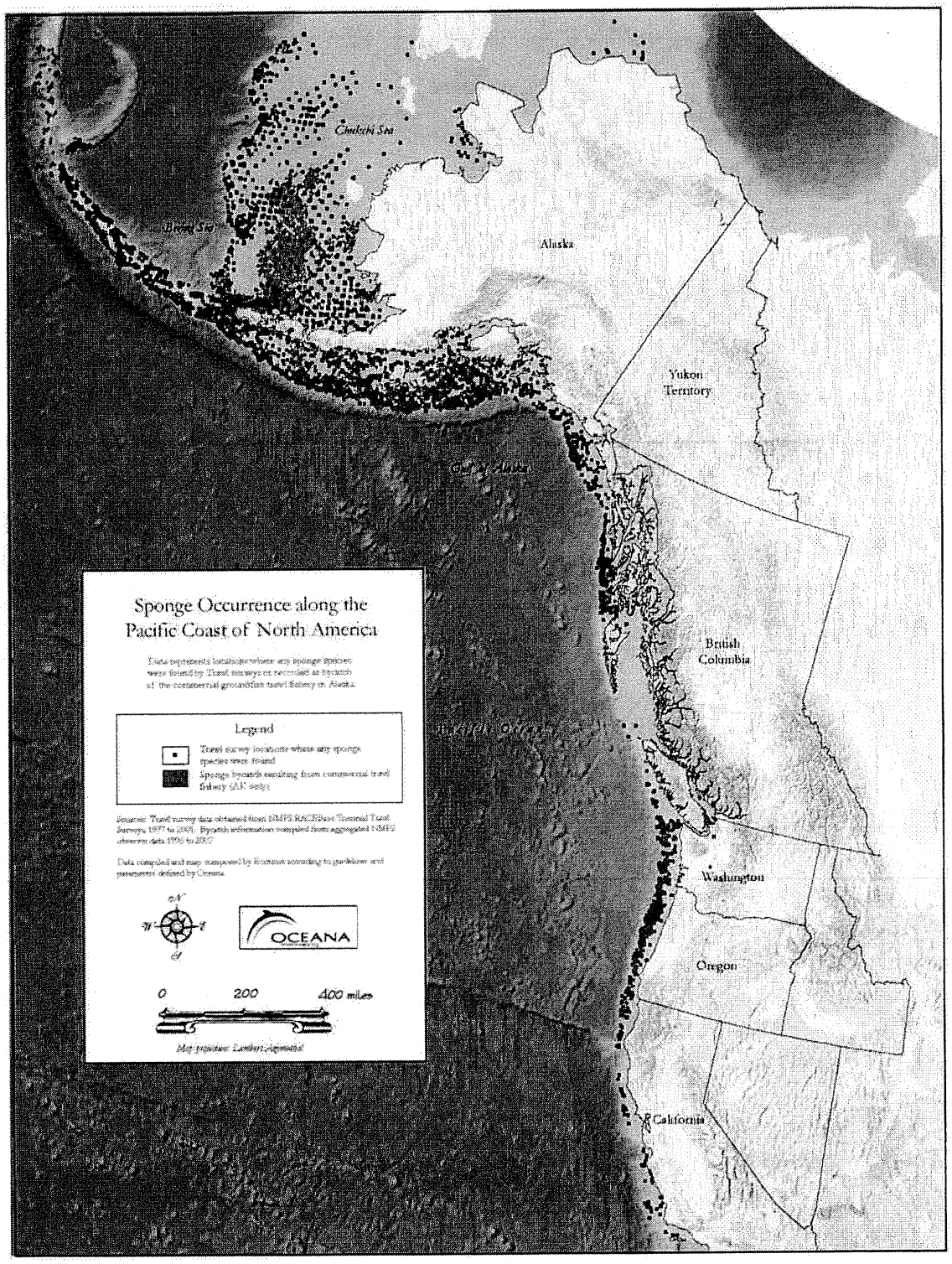
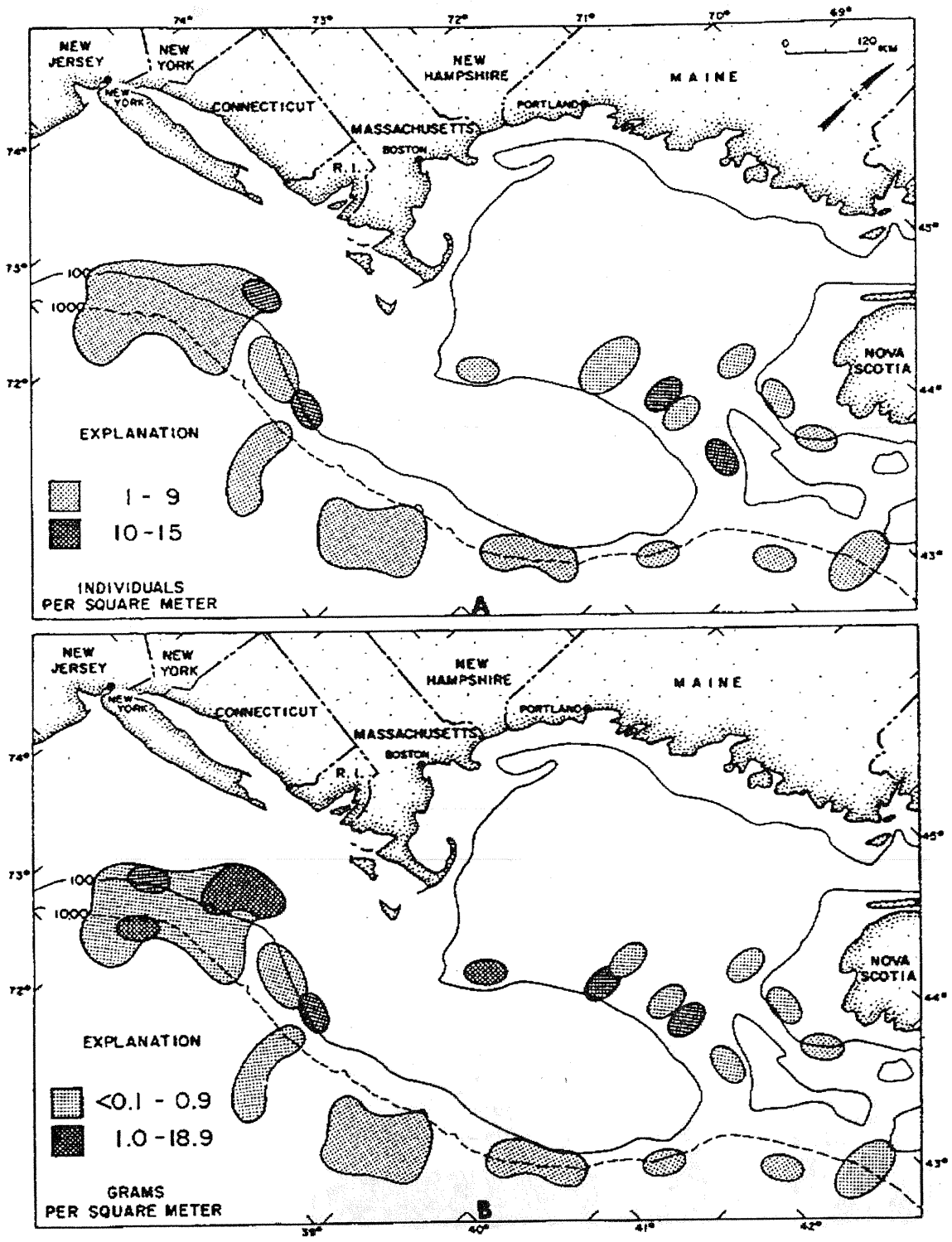
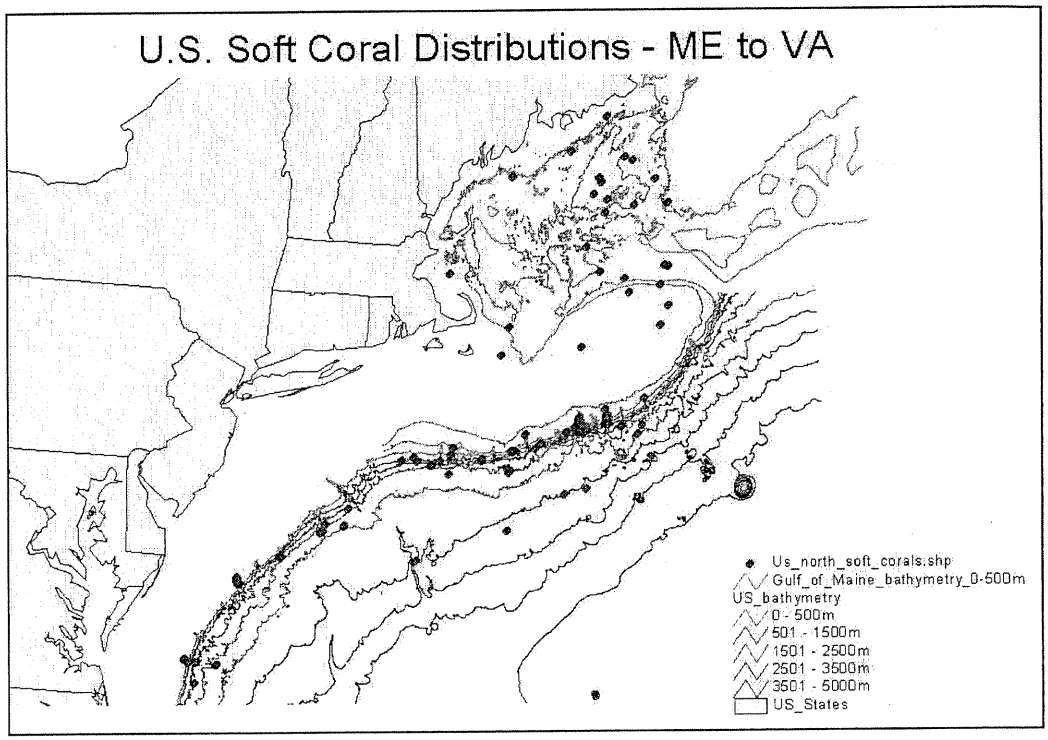


Figure 6: Geographic distribution of alcyonarians off the northeast United States. From Theroux and Wigley 1998.



ALCYONARIA

Figure 7: Regional scale distribution of alcyonaceans across the northeast continental shelf region based on 761 records in Watling *et al.* 2003. 'Two Canyons' shows finer scale distribution of corals in Oceanographer and Lydonia Canyons.



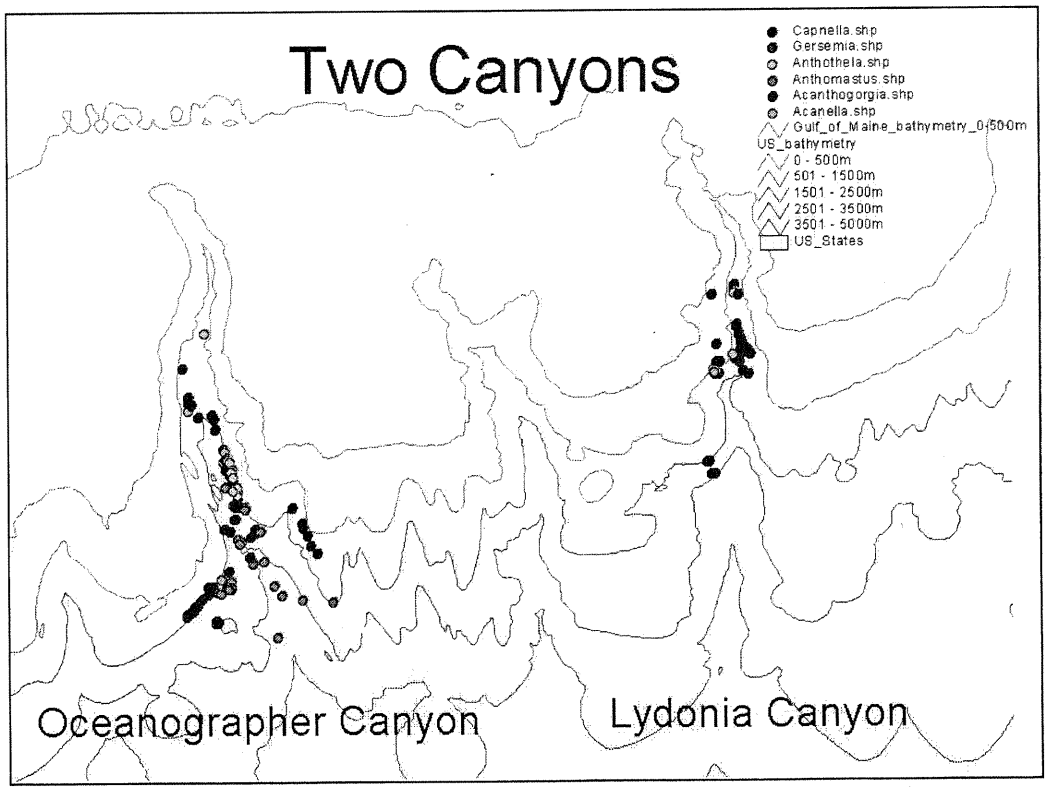


Figure 8: Deep-water coral banks off the southeastern USA. A, Oculina Banks; A1, Oculina EORR (for more detailed maps of the Oculina Banks see **Figure 10**); B-E, Lophelia/Enallopsammia coral banks. Courtesy Reed 2002a.

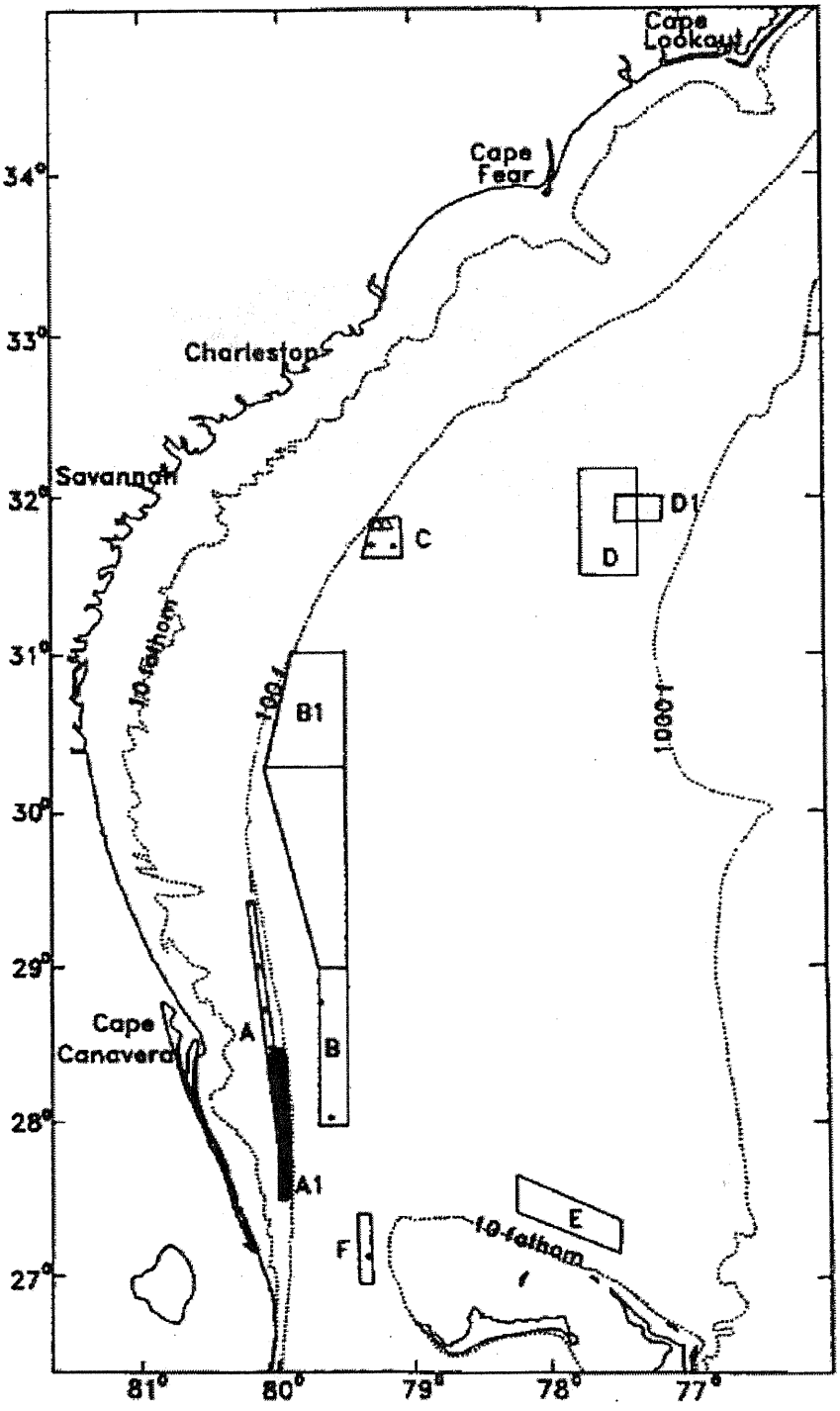


Figure 9: Deep-water coral banks off North Carolina. Courtesy Ross, NCERR and Sulak, USGS.

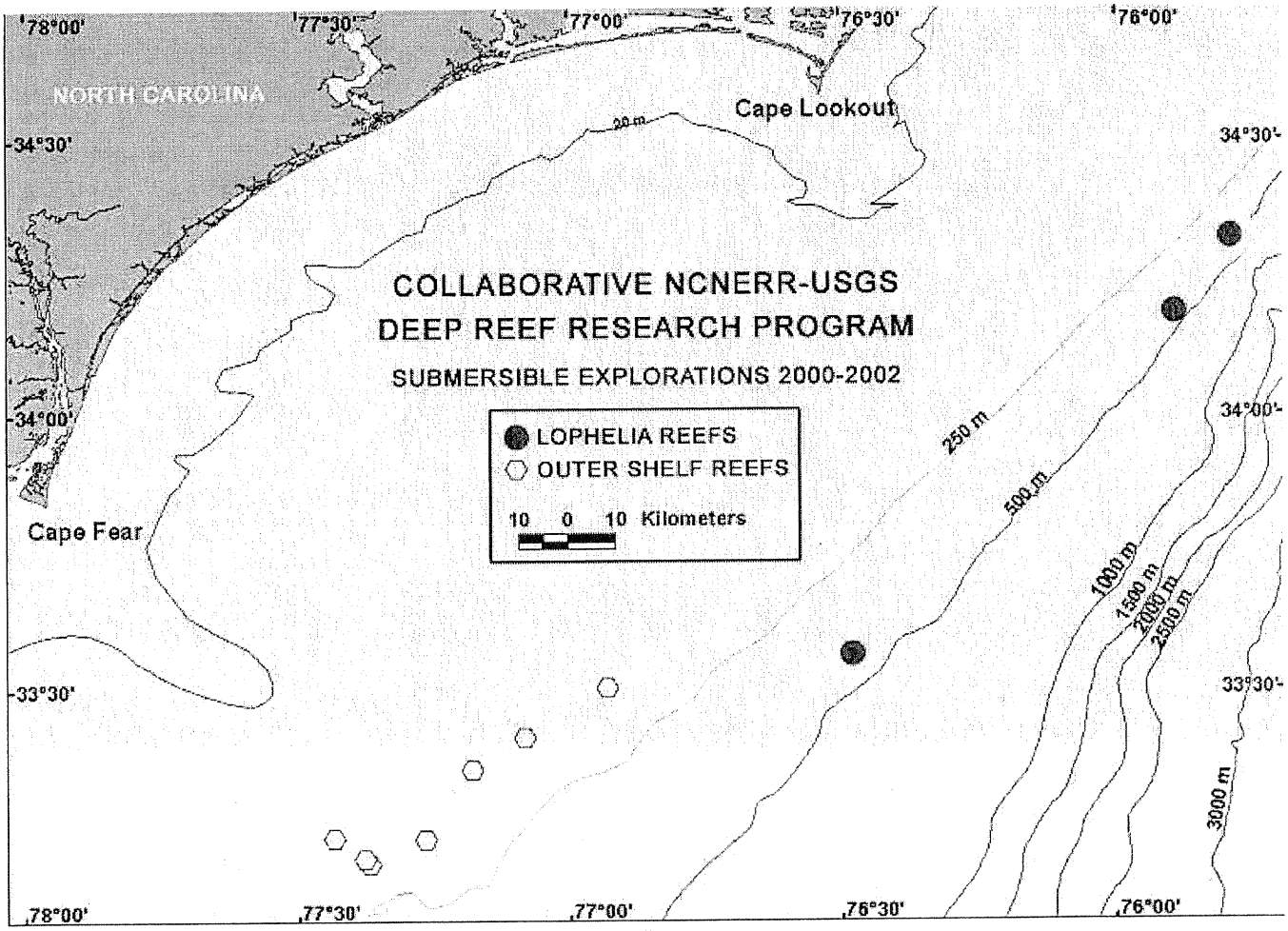


Figure 10: The *Oculina* Banks Habitat Area of Particular Concern (OHAPC), including the Experimental *Oculina* Research Reserve (EORR) showing dive areas visited in 2001 (numbers 1-6). Dots are historic dive sites visited in the 1970s and 1980s. Dive areas: 1. Cape Canaveral, 2. Cocoa Beach, 3. Eau Gallie, 4. Sebastian, 5. Chapman's Reef, and 6. Jeff's Reef. Note: the shaded area is the entire OHAPC, the EORR is the smaller inset box. Courtesy Koenig 2001.

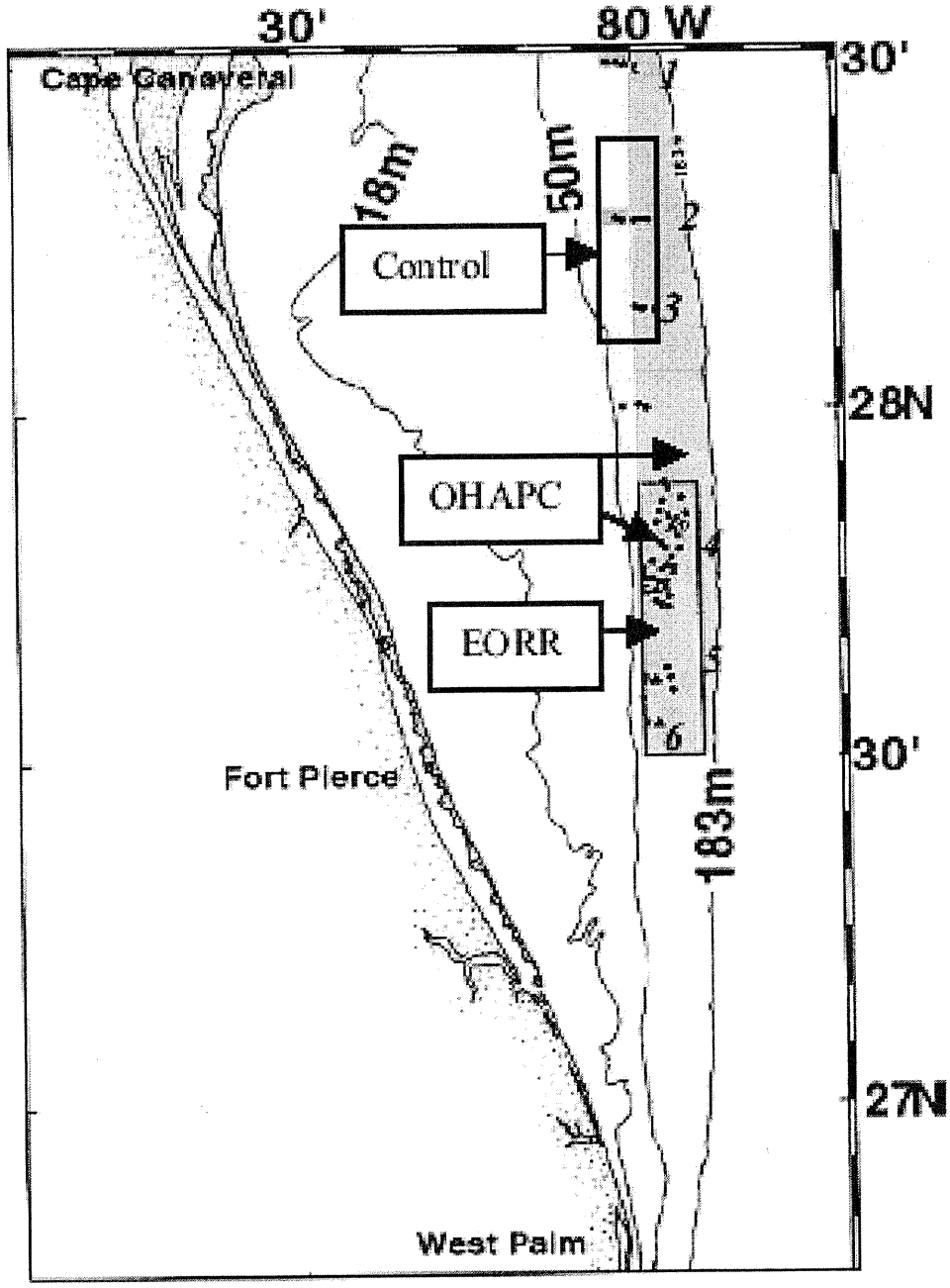


Figure 11: Known locations of *Lophelia pertusa* and *Madrepora oculata* in wters deeper than 200m in the Gulf of Mexico. Sources documented: (1) published material, (2) the 2003 National Museum of Natural History Taxonomic Database, (3) findings obtained during the September-October 2003 NOAA-OE RV Ronald H. Brown cruise RB-03-07-leg-2 in the northern Gulf, and (4) from various unpublished sources. Courtesy Schroeder *et al.* in press.

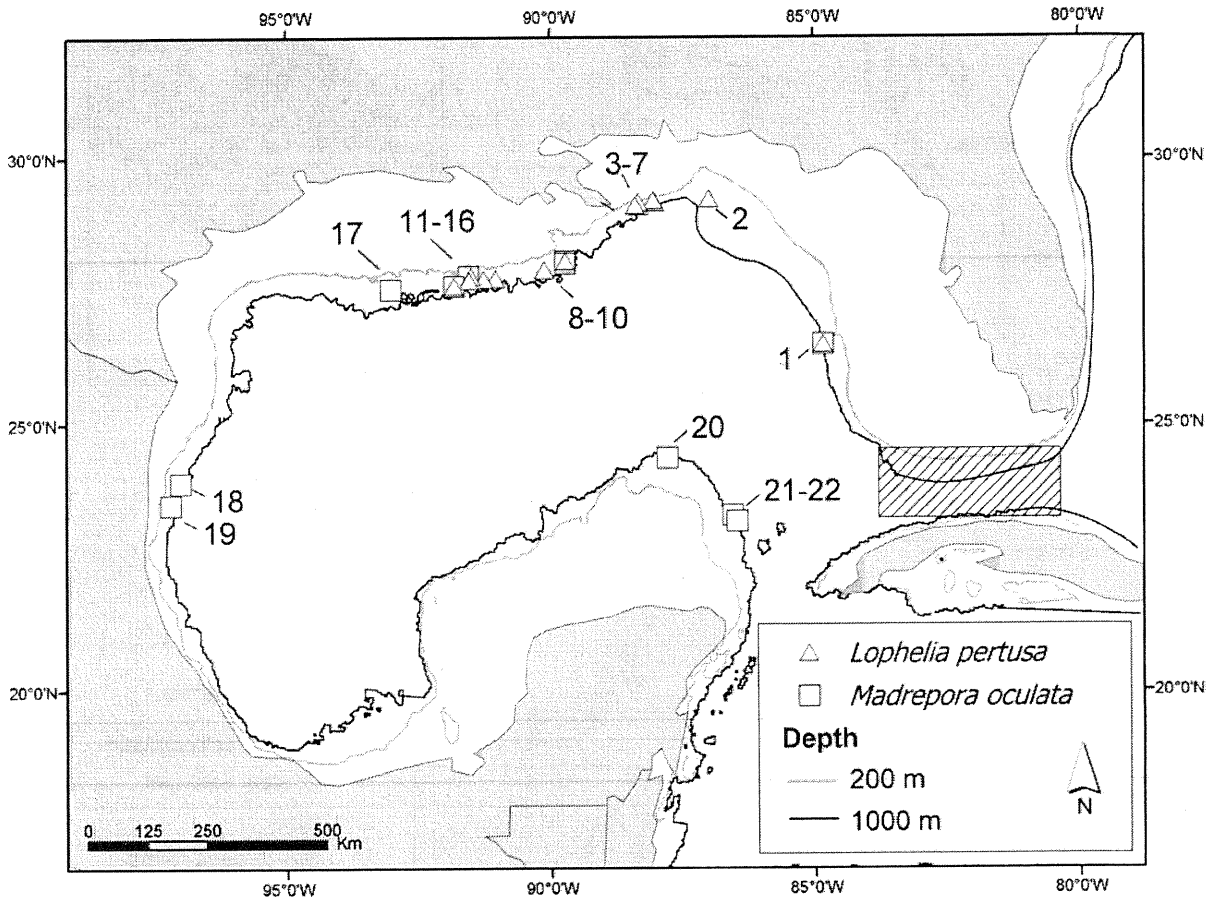
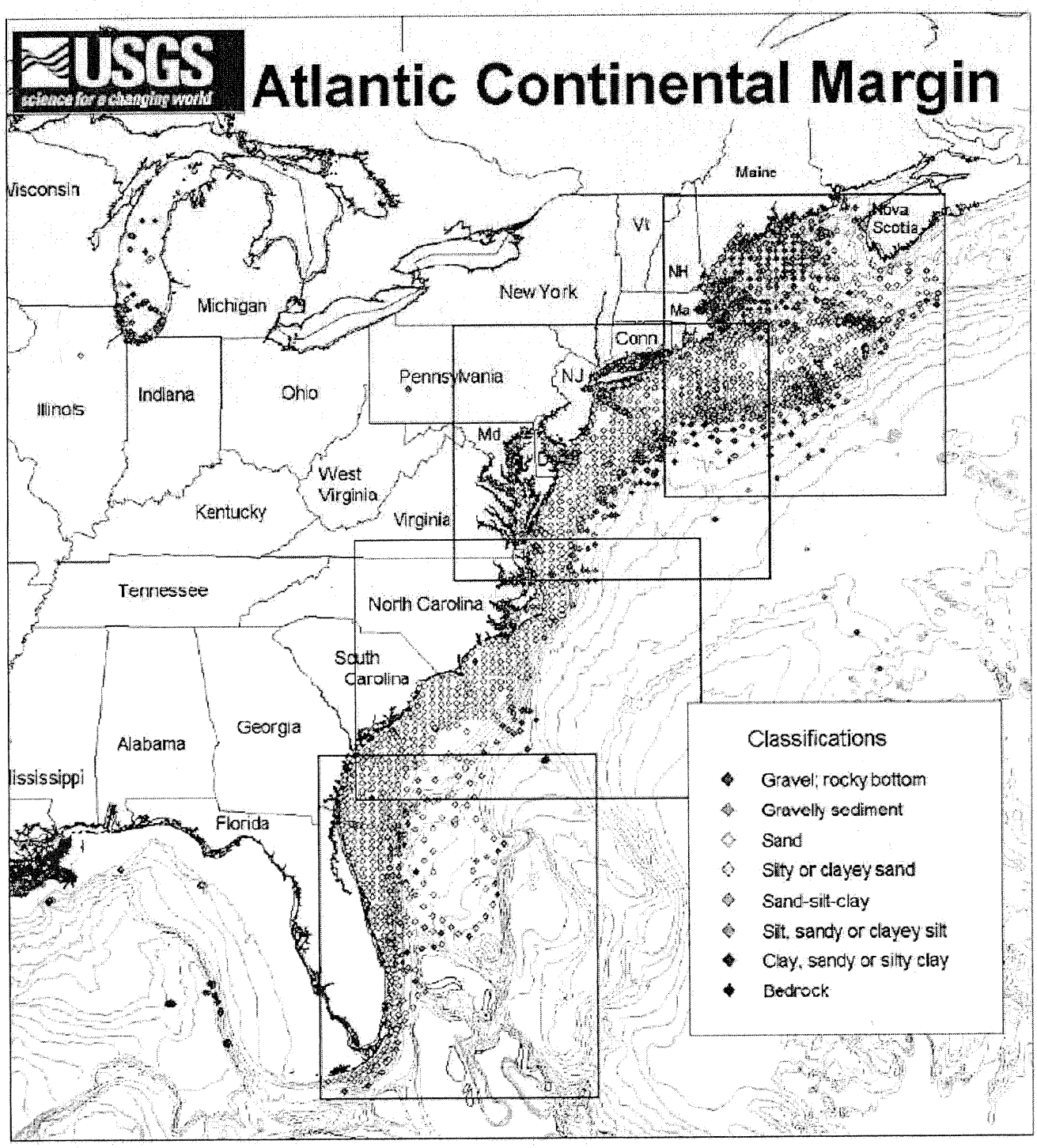


Figure 12: Distribution of sediment samples catalogued in the US Geological Survey database for the Atlantic Continental Margin. Courtesy Poppe and Polloni 2000, in NRC 2002.



APPENDICES

Appendix 1

Known coral and sponge concentrations around the US. These areas are not meant to be all inclusive; they are simply examples of the types of area that exist around North America. These areas should be given priority when applying HAPC designations and bans on bottom trawling.

Name/Area	Latitude and Longitude Coordinates
Oceanographer Canyon	40°30′ N. x 68°11′ W., 40°10′ N. x 68°10′ W., and 40°10′ N. x 68°00′ W.
Lydonia Canyon	40°36′ N. x 67°45′ W., 40°15′ N. x 67°45′ W., and 40°15′ N. x 67°35′ W.
Bear Seamount	39°52′ N. x 67°30′ W., 39°58′ N. x 67°50′ W., 39°58′ N. x 67°50′ W., and 39°52′ N. x 67°50′ W.
Oculina Reefs	27°30′ N. x 80° W., 28°30′ N. x 80° W., and the 183 meter contour.
	28°30′ N. x 80° W., 28°30′ N. x 80°03′ W., 28°29′ N. x 80° W., and 28°29′ N. x 80°03′ W.
	28°17′ N. x 80° W., 28°16′ N. x 80° W., 28°17′ N. x 80°03′ W., and 28°16′ N. x 80°03′ W.
Lophelia/Enallopsammia Reefs	31° N. x 79°50′ W., 31° N. x 79°30′ W., 30°20′ N. x 80°10′ W., and 30°20′ N. x 79°30′ W.
	30°20′ N. x 80°10′ W., 30°20′ N. x 79°30′ W., 29°00′ N. x 79°45′ W., and 29° N. x 79°30′ W.
	29° N. x 79°45′ W., 29° N. x 79°30′ W., 28° N. x 79°45′ W., and 28° N. x 79°30′ W.
	31°55′ N. x 79°20′ W., 31°55′ N. x 79° W., 31°35′ N. x 79°25′ W., and 31°35′ N. by 79° W.
	32°12′ N. x 77°45′ W., 32°12′ N. x 77°20′ W., 31°30′ N. x 77°45′ W., and 31°30′ N. x 77°20′ W.
	32° N. x 77°10′ W., 32° N. x 77°10′ W., 31°48′ N. x 77°20′ W., and 31°48′ N. x 77°10′ W.
Daisy Bank	44°38′ N. x 124°43′ W., 44°40′ N. x 124°43′ W., 44°38′ N. x 124°45′ W., 44°40′ N. x 124°45′ W.
Coral Gardens in the Aleutians	Adak Canyon 51° 38' 59" N. x 177° 03' 00" W., 51° 38' 59" N. x 177° 00' 00" W., 51° 30' 00" N. x 177° 00' 00" W., 51° 30' 00" N. x 177° 03' 00" W.
	Bobrof Island 51° 57' 36" N. x 177° 29' 24" W., 51° 57' 36" N. x 177° 19' 48" W., 51° 51' 35" N. x 177° 19' 48" W., 51° 51' 35" N. x 177° 29' 24" W.
	Cape Moffet 51° 55' 47" N. x 176° 52' 47" W., 51° 55' 47" N. x 176° 48' 36" W., 51° 58' 11" N. x 176° 46' 48" W., 52° 00' 00" N. x 176° 46' 48" W., 52° 00' 00" N. x 176° 52' 47" W.
	Great Sitkin 52° 09' 35" N. x 176° 12' 36" W., 52° 09' 35" N. x 176° 05' 59" W., 52° 06' 35" N. x 176° 05' 59" W., 52° 04' 47" N. x 176° 12' 36" W.
	Semisopochnoi Island 51° 53' 24" N. x 179° 53' 23" W., 51° 53' 24" N. x 179° 46' 48" W., 51° 48' 36" N. x 179° 46' 48" W., 51° 48' 36" N. x 179° 53' 23" W.
	Ulak Island 51° 22' 11" N. x 178° 58' 47" W., 51° 25' 47" N. x 179° 05' 59" W., 51° 22' 11" N. x 179° 05' 59" W., 51° 25' 47" N. x 178° 58' 47" W.

Appendix 2

Known seamounts and pinnacles in Alaskan waters, most are unexplored. As these types of areas have been identified as frequently harboring concentrations of corals and sponges, they should be closed until such time as research has been completed to determine whether they warrant long-term protection as HAPC. These areas are not meant to be all inclusive.

Name/Area	Latitude and Longitude Coordinates
Pinnacles in the Aleutians	53° 51' 30" N. x 165° 57' W.
	53° 15' 30" N. x 168° 51' W.
	53° 41' N. x 167° 11' W.
	53° 32' 30" N. x 167° 20' W.
	53° 26' N. x 167° 44' W.
	52° 46' N. x 168° 52' W.
	52° 51' N. x 169° 15' 30" W.
	52° 57' N. x 169° 35' 30" W.
	52° 41' N. x 169° 40' W.
	52° 29' N. x 169° 52' W.
	52° 19' 30" N. x 171° 48' W.
	52° 25' 30" N. x 172° 09' W.
	52° 31' 30" N. x 172° 10' W.
	52° 40' N. x 172° 03' W.
	52° 36' 30" N. x 172° 41' W.
	51° 58' N. x 173° 05' W.
	54° 17' N. x 165° 18' W.
	54° 19' 30" N. x 165° 59' 30" W.
	53° 39' N. x 168° 23' W.
	53° 13' N. x 169° 46' W.
	52° 57' N. x 169° 29' W.
	52° 49' N. x 170° 13' W.
	52° 49' N. x 170° 29' W.
	52° 17' N. x 170° 42' W.
	52° 35' N. x 172° 20' W.
	52° 35' N. x 173° 15' W.
	52° 32' N. x 173° 26' W.
	52° 28' N. x 173° 36' W.
	51° 56' N. x 174° 14' W.
	51° 56' N. x 174° 22' W.
	52° 16' N. x 175° 07' W.
	51° 34' N. x 178° 13' W.
	51° 24' N. x 178° 33' W.
	51° 08' N. x 179° 00' W.
	51° 23' N. x 179° 31' W.
	51° 29' N. x 179° 52' W.
	52° 28' N. x 179° 45' W.
	53° 51' N. x 179° 56' W.
	54° 10' N. x 179° 55' W.
	54° 24' N. x 179° 47' W.
	54° 39' N. x 179° 11' W.
	54° 50' N. x 178° 43' W.
	51° 31' N. x 179° 52' W.
	51° 51' N. x 179° 50' W.
	52° 52' N. x 179° 57' W.
	52° 18' N. x 179° 53' W.
	51° 25' N. x 178° 58' W.

	51° 37′ N. x 179° 07′ W.
	51° 39′ N. x 179° 01′ W.
	51° 58′ N. x 178° 53′ W.
	51° 48′ N. x 177° 52′ W.
	51° 47′ N. x 177° 12′ W.
	51° 41′ N. x 176° 54′ W.
	52° 11′ N. x 176° 59′ W.
	52° 07′ N. x 176° 45′ W.
	52° 19′ N. x 176° 41′ W.
	51° 57′ N. x 176° 39′ W.
	51° 50′ N. x 176° 19′ W.
	52° 17′ N. x 176° 12′ W.
	52° 21′ N. x 176° 20′ W.
	51° 40′ N. x 175° 53′ W.
	52° 26′ N. x 175° 47′ W.
	51° 51′ N. x 175° 18′ W.
	51° 51′ N. x 175° 08′ W.
	51° 54′ N. x 174° 58′ W.
	52° 17′ N. x 175° 07′ W.
	52° 03′ N. x 174° 41′ W.
	52° 05′ N. x 174° 47′ W.
	52° 29′ N. x 174° 55′ W.
	52° 35′ N. x 174° 47′ W.
	52° 23′ N. x 174° 27′ W.
	52° 15′ N. x 174° 20′ W.
	52° 19′ N. x 174° 13′ W.
	52° 30′ N. x 173° 24′ W.
	52° 31′ N. x 173° 18′ W.
	52° 37′ N. x 173° 10′ W.
	53° 00′ N. x 172° 16′ W.
	52° 52′ N. x 172° 06′ W.
	53° 04′ N. x 170° 57′ W.
	52° 57′ N. x 170° 52′ W.
Seamounts in the Aleutians	ADAMS 50° 1' 12" N. x 176° 13' 48" W.
	ATKA 50° 16' 12" N. x 175° 10' 12" W.
	BOWERS 54° 4' 48" N. x 174° 46' 48" W.
Pinnacles in the Gulf Of Alaska (2 mile radius circle centered at the following coordinates)	54° 55.0′ N. x 157°32.0′ W.
	56° 18.0′ N. x 154° 56.0′ W.
	55° 35.0′ N. x 154° 27.0′ W.
	56° 40′ N. x 156° 42’ 30” W.
	56° 22’ 30” N. x 152° 56′ W.
	57° 56′ N. x 154° 50′ W.
	58° 50′ N. x 151° 44′ W.
	58° 54′ N. x 150° 56′ W.
	59° 09′ N. x 151° 12′ W.
	58° 58′ N. x 153° 16’ 30” W.
	59° 01’ 30” N. x 153° 16′ W.
	59° 07′ N. x 153° 45′ W.
	59° 12′ N. x 153° 33′ W.
	59° 18′ N. x 150° 32′ W.
	59° 28′ N. x 149° 40′ W.
	59° 33’ 30” N. x 149° 49’ 30” W.
	60° 01′ N. x 147° 00′ W.
	59° 04′ N. x 151° 21′ W.
	59° 08′ N. x 152° 03′ W.
	59° 44′ N. x 144° 40′ W.

	59° 50′ N. x 142° 31′ W.
	56° 40′ N. x 156° 45′ W.
	56° 37′ N. x 156° 51′ W.
	56° 43′ N. x 156° 55′ W.
	56° 41′ N. x 157° 20′ W.
	56° 29′ N. x 157° 37′ W.
	56° 24′ N. x 157° 51′ W.
	56° 04′ N. x 158° 18′ W.
	54° 30′ N. x 159° 44′ W.
	54° 19′ N. x 160° 52′ W.
	55° 06′ N. x 161° 19′ W.
	54° 58′ N. x 161° 23′ W.
	54° 55′ N. x 161° 23′ W.
	54° 42′ N. x 161° 35′ W.
	54° 39′ N. x 161° 51′ W.
	54° 48′ N. x 162° 41′ W.
	54° 45′ N. x 162° 51′ W.
	54° 37’ 30” N. x 162° 50’ 30” W.
	54° 30′ N. x 163° 14′ W.
	54° 21′ N. x 163° 10′ W.
	56°23′ N. x 157° 32′ W.
	55° 23′ N. x 159° 40′ W.
	59° 14′ N. x 151° 58′ W.
	59° 57′ N. x 152° 28′ W.
	58° 07′ N. x 149° 04′ W.
	58° 00′ N. x 149° 39′ W.
	57° 44′ N. x 149° 58′ W.
	57° 27′ N. x 152° 06′ W.
	57° 15′ N. x 151° 43′ W.
	56° 55′ N. x 151° 46′ W.
	56° 40′ N. x 152° 09′ W.
	56° 20′ N. x 152° 26′ W.
	56° 01′ N. x 153° 41′ W.
Seamounts in the Gulf of Alaska	UNIMAK 53° 40' 12" N. x 162° 30' W.
	DERICKSON 52° 49' 48" N. x 161° 15' W.
	SIRIUnited States 52° N. x 160° 49' 48" W.
	PUTNAM 51° 32' 60" N. x 160° 25' 12" W.
	STEVENS 48° 8' 60" N. x 158° W.
	CHIRIKOF 54° 55' 48" N. x 152° 49' 48" W.
	MARCHAND 54° 55' 26.4" N. x 151° 21' 46.8" W.
	HECHT 53° 45' N. x 151° 19' 48" W.
	PATTON 54° 35' 24" N. x 150° 26' 52.8" W.
	ODESSEY 54° 30' N. x 149° 45' W.
	KODIAK 56° 49' 48" N. x 149° 15' W.
	WYER 54° 25' 12" N. x 148° 40' 12" W.
	GIACOMINI 56° 30' N. x 146° 19' 48" W.
	ELY 56° 15' N. x 145° 40' 12" W.
	DALL 58° 10' 12" N. x 145° 34' 48" W.
	QUINN 56° 15' N. x 145° 15' W.
	WELKER 55° 7' 12" N. x 140° 19' 48" W.
	BROWN 55° N. x 138° 30' W.
	DENSON 54 N. x 137° 15' W.
	DICKINS 54° 30' N. x 137 W.
	PIERCE 53° 43' 48" N. x 136° 31' 48" W.

Exhibit E.1.a
Supplemental Attachment 5
April 2004

UNITED STATES DEPARTMENT OF COMMERCE
Office of the Assistant Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

MAR 19 2004

Donald O. McIsaac, Ph.D.
Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place
Portland, Oregon 97220

Dear Dr. McIsaac:

Thank you for your letter regarding the Pacific Fishery Management Council's interest in evaluating the use of decommissioned oil and gas platforms as artificial reefs, particularly for the recovery of various rockfish. As the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) moves forward with the development of recovery plans for depleted rockfish, the potential use of decommissioned oil and gas platforms will be carefully evaluated. Please realize there have been other competing uses recommended for the platforms, including energy uses which may be incompatible with the benefits to living marine species within an artificial reef. NOAA will work with its many partners to seek an acceptable final disposition for the platforms.

NMFS has not developed a proposed rule to convert decommissioned oil and gas platforms into artificial reefs. Rather, NMFS is working with the NOAA/National Ocean Service, and the Department of the Interior, Minerals Management Service (MMS) to evaluate the feasibility of establishing a rigs-to-reefs program in federal waters off the coast of California. Throughout this process, it will be important all appropriate federal agencies coordinate closely with the relevant coastal states.

In addition to our consultations with MMS, last spring NMFS established two committees to identify relevant natural science and socio-economic issues relating to any future rigs-to-reefs program. The natural science and socio-economic committees developed reports (enclosed) now being evaluated by NOAA and MMS. Furthermore, the MMS sponsored workshop on "Decommissioning Offshore Platforms and Pipelines" (OCS Study MMS 2004-001CD) conducted in October 2003 is now available for your review (we have requested MMS send you copies of the report on CD). This study provides a detailed overview of the type of research recommended to address issues relating to the decommissioning of offshore oil and gas platforms. This information, among other research, and with full consideration of relevant NOAA and MMS mandates, will be instrumental in developing a recommendation on whether to implement a rigs-to-reefs program.

I welcome the Council's review and comment on the committee's reports. Should a Pacific coast rigs-to-reefs program be developed, NMFS intends to consult with the Council to address any issues of concern it may have. I appreciate your interest in this matter.

Sincerely,

Timothy R.E. Keeney
Deputy Assistant Secretary
For Oceans and Atmosphere

Enclosures:
Natural Sciences Committee Report (9/10/03)
Socio-Economics Committee Report (03/30/04)
MMS Workshop Report on Decommissioning Offshore Platforms and Pipelines (10/03); being sent separately by MMS

Cc: Linda Chaves (F/CS)
Michael Kelly (F/CS)
Marty Golden (F/CS)
Rod McInnis (F/SWR)

Rigs to Reefs
The Socio-Economics of Transforming Petroleum Production and Processing Platforms to Artificial Reefs

Introduction

Transforming petroleum production and processing platforms (rigs) in the offshore continental shelf (OCS) into artificial reefs should require that the costs of this transformation are offset by the benefits generated. In addition, the impacts from these positive or negative net benefits should be taken into account so that only positive effects on various economic sectors occur in local communities, states, and regions. This involves taking into account the economic effects on the oil producing companies, both the recreational and commercial fishing industries, non governmental organizations, communities, and other individuals or entities[1] that in some way value the ocean environment or interact with other user groups in the exploitation of oil, fish stocks, and other resources[2] in determining the correct allocation[3] between OCS traditional disposal of rigs and artificial reefs. The calculation of net benefits and their impacts also depends upon the existing legal framework that determines liability, the ability to transfer title to property, zoning requirements, and existing legal agreements and obligations (contracts). These interconnected relationships need to be properly identified and included in the estimation to properly calculated the net benefits of converting rigs to artificial reefs.

Economics provides a framework for integrating social and economic values with technical relationships that describe petroleum production and fishery productivity for a given or desired legal environment. This multidisciplinary-scientific framework will require the integration of economic models of the oil exploration and extraction industry with models of the fishing industry, which based on fish stock population dynamics. In addition, the dynamic interaction with the marine environment on the OCS of other user groups will have to be explicitly addressed; i.e., individuals who value alternative uses of the ocean environment or dislike the extraction of natural resources from the OCS. For example, rigs could be converted to aquaculture facilities that could produce valuable species for sale in domestic and foreign markets, or for use as stock enhancement facilities to help rebuild overfished stocks of fish that could then be exploited by commercial and recreational fishermen. Platforms could also be used as research sites for oceanographic research and monitoring programs. These different uses of

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[1] These other consumptive and nonconsumptive users include, but are not limited to, divers and whale watching companies, as well as the scientific research community who may value the platform as lab sites.

[2] These resources include other natural resources as well as the capital and labor used to produce goods and services.

[3] A correct allocation is some, yet to be determined, optimal mix between the different use/conversion alternatives for the rigs that reflects the goals and objectives of the program which includes the economic effects on the agency or entity that ends up with the liability for the converted or remaining rigs.

rigs imply different legal frameworks to support these activities.[4] If, for example, stock enhancement is the objective of the rigs to reefs initiative, net benefits for commercial and recreational fishermen will be greater in a rights-based than in a regulated open access management environment.

The economic impacts of who receives the benefits from these different uses of rigs and who bears the costs will be different for each alternative considered. If oil production companies have to bear the cost of rig removal at the end of their productive life, then the impacts on local communities will be in the form of jobs associated with the scrapping of these offshore facilities. These communities will also bear the costs of these operations in the form of lost jobs for rig cleaning firms and the revenue from the sale of shellfish taken from the rigs' underwater superstructure. However, if these rigs are used to host stock enhancement facilities, then commercial and recreational fishermen will receive the benefits instead of the steel workers and marine engineers who would scrap the rigs. These short-term impacts change over time under different alternatives being considered and need to be compared to identify which user groups bear the costs and benefits prior to, during, and after the change. These sorts of tradeoffs occur for a whole range of issues, and enumerating them as completely as possible is important.

Who is required to bear the liability for these structures after they are decommissioned as rigs will affect both the estimates of net benefits as well as determine where their impacts are felt. The liability cost is equal to the probability that an adverse event will occur multiplied by the cost to mitigate it. This liability cost will change the behavior of the user groups who are required to bear it. This behavior will change both the level of total net benefits and their impact on communities, states, and regions. If an oil producing company is required to bear the liability cost, they may decide to reduce their costs by removing the top 40 feet of the superstructure. If the state government is required to bear the liability cost, if may restrict access to the rig by commercial and recreational fishermen or preclude using the site for aquaculture operations. These strategies are meant to reduce the probability of an adverse event such as a ship collision from occurring thereby reducing the liability cost. Once a liability cost avoidance strategy is adopted by its bearer, the resulting estimates of net benefits will change as will the incidence of its economic impacts. For example, if the oil company bears the liability cost and removes the structure, then the net benefits that could have been generated by using the site for stock enhancement are lost.

Integrating these technical, economic, social, and biological relationships into a single simulation model of the rigs to reefs problem will provide information that will assist decision makers in setting development strategies for these sites. Rather than having each scientific discipline provide their own assessment of the issue, based on a separate set of underlying assumptions, a multidisciplinary framework based on the same set of assumptions would provide managers with unbiased, objective information that is comparable across scenarios. Separate studies conducted by each scientific discipline may not be compatible. Individual managers

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[4]The establishment of objectives for a rigs to reefs conversion program would begin by eliciting and establishing a set of objectives using comprehensive decision-analysis techniques, most likely in a participatory and public process. These objectives would then be used to develop evaluation criteria in the integrated multidisciplinary scientific framework proposed here.

would then typically rely on studies based on the science with which they are most familiar. This would not guarantee the making of the best management decisions. An integrated, multidisciplinary, scientific framework would provide more consistent information to managers than the sum of these independent scientific assessments. That is, managers can determine the socio-cultural, economic, and biological goals and objectives for the rigs to reefs program by using, for example, a decision analytic framework. Then, the integrated, multidisciplinary, scientific framework can be used to determine which management strategy can achieve these goals and objectives and the magnitudes of the economic impacts and net benefits from achieving those goals.

Problem

Rigs to reefs is an initiative to determine the feasibility of using existing petroleum production platforms as artificial reefs once their useful production life is at an end. In the Gulf of Mexico, oil platforms have been removed and placed at designated artificial reef sites to augment habitats for various species of fish. A few platforms have been left in place to act as standing artificial reefs (Kasprzak, 2004). Of primary interest to the Rigs to Reefs Social and Economics Panel (RRSEP) is a plan to allow existing petroleum platforms scheduled for removal off the coast of southern California to remain in place as standing artificial reefs to augment the habitat primarily for rockfish. Additional species also make use of these platforms and act to create a habitat that supports the rockfish populations.

Leaving these platforms in place after the end of their useful life is a benefit to the petroleum production companies that own them since they can avoid the costs of their removal and pay a much reduced cost for their conversion and annual maintenance. It is also a benefit to the companies that are employed to maintain the platforms and can sell the marine products (shellfish) that are removed from the platform as part of its maintenance. Benefits may be derived from the increase in habitat that enhances the recovery of the rockfish stocks. These derived benefits exist because of commercial and recreational fishermen who can access the platform as a fishing site once the rockfish stocks have recovered, as well as possible non consumptive uses of the site (e.g., aid to navigation for recreational boaters). In addition to these benefits, costs are associated with leaving these platforms in place including the values of residents of California that wish to have the platforms removed; i.e., a negative existence value. Additional costs may exist from the platforms being obstacles for fishing operations such as trawling for other species and as obstacles to navigation.

Determining a complete list of the potential benefits net of costs of converting platforms to artificial reefs requires a multidisciplinary, scientific approach. Separate panels exist to determine the legal foundations and biological relationships that need to be considered in developing a conceptual model from which net benefits can be estimated. The RRSEP will conceptualize a framework that incorporates all scientific and legal information into a single conceptual model that can be used to both determine the relevant future research that needs to be performed and develop a coherent policy for the use of petroleum production and processing platforms as standing artificial reefs.

Solution

Management Goals and Objectives

The first step is to identify the management objectives and goals. Managers use different techniques such as a decision analytic framework with feedback from residents of the local, state, and regional communities to determine what role the rigs or the converted artificial reefs will play. Once this role is determined, then management goals and objectives can be established. From these, criteria for evaluation can be determined such as employment levels, income distribution, primary user groups, etc. This is necessary to determine the costs and benefits of different uses of rigs; e.g., their removal or conversion. For example, one management objective[5] could be to enhance the recovery of a stock of fish or a group of fish stocks. No take zones could be established around rigs left in place as sanctuaries for rockfish populations. The net benefits of these marine protected areas would depend upon the diffusion rate of rockfish to other natural habitats or if this artificial reef acted solely as a fish aggregation device. Long-run net benefits would depend upon whether commercial fishing could be reinstated and if catch per unit effort increased for recreational fishermen. Most likely, the rigs to reefs initiative will have multiple management objectives that will need to be considered in determining both the net benefits and regional impacts of activities designed to achieve the goals of managers.

User Groups

The next step is to identify the major user groups that are affected by the rigs to reefs initiative.[6] However, most can be classified as either consumptive or non consumptive users of a resource or a set of resources. These individual groups value different qualities or attributes of the marine environment that are affected by exploiting oil reserves or fish stocks. While some consumptive user groups generate positive net benefits by exploiting fish stocks, other non consumptive groups receive negative net benefits from this activity. For example, petroleum producing companies generate positive net benefits from the extraction of oil using platforms in the OCS, while residents of California may receive negative net benefits from knowing that this extraction is occurring in the OCS areas. These positive and negative net benefits need to be balanced to determine the appropriate amount of rig conversion or removal.

The first user group to be considered is the petroleum production industry. Their behavior is based on profits generated from the production of oil from OCS leases and is constrained by the availability of economically recoverable oil in the OCS field. Their costs include investment in the construction of the rigs, labor, and other variable and fixed factors of

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[5]NOAA Fisheries as a lead agency would desire stock enhancement and recovery to be a goal of the rigs to reefs program. However many different competing and complimentary management objectives that differ depending on which other NOAA, state, and federal agencies become partners in this program also exist and would have to be met by the program; e.g., NOAA Oceans.

[6]Many more user groups than are identified here may exist and need to be identified so their economic impacts and net benefits can be either quantitatively or qualitatively estimated.

production. Benefits include those from the production of oil, its refinement, and sale. In addition, this user group also bears the costs of rig removal and the costs of returning the site to its original state minus its scrap value. These costs are adjusted to account for the conversion of the platform to an artificial reef; e.g., complete versus partial removal or leave-in-place. These costs include engineering and planning, permitting and regulatory compliance, platform preparation, plugging and abandonment, conductor severing and removal, mobilization and demobilization, platform structural removal (including topside removal, pile cutting and jacket removal), material disposal, shell mounds, and navigational aids. If liability remains with the oil companies, the expected value of this expense would have to be factored into the costs for a rig left in place or for partial removal. The reductions in costs due to leaving the rig in place or partially removing it would be a benefit to the petroleum companies.

The second group to consider is the consumptive users of the converted rigs as artificial reefs or aquaculture facilities. Three subgroups exist within this second group of consumptive users of the petroleum producing platforms. The first subgroup consists of recreational and commercial fishermen. Part of the benefits that would accrue to the group includes the reduced cost of having to develop the artificial reef since the oil production platform already exists; i.e., investment and startup costs. Both profit maximizing commercial fishermen and utility or satisfaction maximizing recreational fishermen could assess the artificial reefs. These fishermen are related to each other through the population dynamics of the fish stocks that are dependent upon the degree of stock enhancement provided by the artificial reef. The second subgroup of consumptive users consists of fish aquaculture businesses. As with the petroleum producing firms, aquaculture facilities would be profit-maximizing firms or cost minimizing firms that are constrained by production. A third subgroup might be researchers who use a converted rig as a research station or engage in stock enhancement activities. The first best allocation of rigs to aquaculture businesses and to commercial or recreational fishermen would depend on which combination of activities generated the highest level of net benefits to all these user groups. If liability is transferred from the oil companies to the state, the aquaculture businesses, or the commercial fishermen, this optimal allocation of rigs to the different activities would change reflecting who bears the expected liability costs.

The third group to consider is the non-consumptive users of the converted rigs as artificial reefs or aquaculture facilities. Non consumptive activities, such as sport diving and bird watching, are a positive benefit from leaving rigs in place as artificial reefs. Some non-consumptive OCS users value not having rigs in place. They get dissatisfaction from knowing that the rigs exist and are producing oil. They feel that the rigs degrade or potentially could degrade the healthy environment which is an attribute they value. These same users could value the use of the rigs as artificial reefs that enhance fish stocks. The question becomes which activity is more highly valued, the complete removal of a rig or its use as an artificial reef. The benefits to this user group of removing the rigs would eventually be offset by the cost of not using them for artificial reef sites. Where these costs are equal to the benefits, then an optimal allocation of reef sites has occurred.

Assessments

The first component is an analysis of potential changes in prices, quantities produced or consumed, fishing or observational trips, etc., as a result of changing supply and demand conditions in the marketplace. This information can be used to determine consumer and producer surplus for various fishery products or activities and provides a partial measure of net benefits from the fishery.

The second component is an examination of the change in revenues and operating costs for firms or individuals in the fishery in response to changes in market, biological conditions, and fishery management regulations. Analysis of firm-level changes provides an indication of how producer surplus may change and, for small entities, the impact of regulatory actions. This firm-level analysis characterizes changes in harvesting costs and outputs in the fishery and may also be used to assess changes in potential industry output levels and fishing season length. Similar analyses can also be developed for the recreational sector and for non consumptive users of the resource.

The third component is an analysis of how the regulation is expected to affect fishing fleets. Fleet size and composition changes in response to market prices, biological conditions, and the regulatory environment. Consideration of price and operating cost changes will permit an evaluation of how fleet size and composition may change. In the absence of either reliable cost or price data, a qualitative discussion of changes in fleet size and composition may be presented. Participation rates within recreational fishing modes and for non consumptive user groups should be addressed in a similar manner.

The fourth component of this economic framework makes use of the biological analysis that explains the response of the stock or stocks of living marine resources to the proposed regulation. Fishing mortality is a function of effort levels that are determined by market and biological conditions, and fishery regulations. By treating the change in stock size as a factor in the economic objectives of individual fishermen or the fleet as a whole, anticipated changes in fishing effort and its impact on the subsequent size of fish stock and other living marine resources can be evaluated. It should be remembered that non consumptive user groups assign values to the resource. These non consumptive values may affect optimal stock sizes.

By melding these four components into an overall fishery economic framework, a reasoned assessment of the expected direction of change in net benefits to the nation, as well as the specific effects on individual small entities for a proposed regulatory action, may be evaluated. It should be noted that a complex empirical model is not necessarily needed to analyze proposed changes for all regulatory actions. In many cases, the analysis will consist of a mix of qualitative and quantitative information. The resulting estimates of the changes in the economic impacts and net benefits associated with use and non use values, vessel profitability, fleet size, employment, and stock abundance may be used by fishery managers to determine if their objectives and goals are achievable and to compare regulatory alternatives.

Economic Impacts

Once the change in net benefits has been estimated for each management alternative, the

economic impacts on the regional economy and communities can be used to identify which user groups bear the costs and who receives the benefits of the rigs to reefs initiative. However, input output analysis (I/O) may not be the best way to go, since it presumes an existing infrastructure and relationships between sectors when in actuality some of the scenarios would create entirely new kinds of flows in the regional economy. Take, for example, the transport of scrap metal to facilities in Portland; nothing of the order of magnitude of 23 platforms has ever been processed. The analytical problem could be thought of in terms of a risk or decision analysis, with different local, regional and global economic sectors (fishing, tourism, aquaculture, oil industry, insurance industry, etc.) connected in a web of relationships that are differently weighted in different scenarios. For example, full decommissioning might be best for fishermen and the insurance industry but worse for the oil industry, whereas some of the partial removal options might create benefit flows for research, aquaculture etc., but negatively impact fishing. A risk analysis framework would also allow an at least probabilistic assessment over time, whereas considerable effort would be required to even parameterize the static version of a regional I/O model. Existing off-the-shelf I/O models currently in use do not even begin to deal with issues such as liability, tourism or oil; certainly not in the same framework as fishing. In process terms, it would be desirable to conduct a participatory decision/risk analysis with stakeholders rather than commission a "black box" I/O model.

Summary

Developing an integrated, multidisciplinary framework to evaluate the rigs to reefs initiative is possible using readily available information provided by literature, previous studies of aspects of the rig conversion process, and information from biological and sociological studies of the petroleum and fishery industries, and communities. Qualitative and possible quantitative assessments of the net benefits and economic impacts can be developed using this framework.

Hahn and Farrar (2003) have prepared a qualitative assessment of the impacts of a program to convert rigs to reefs. While it does not identify the goals and objectives of program managers, all potential impacts or costs and benefits from the conversion program, or indicate the number or type of rigs to reefs conversions that would optimally achieve the stated goals and objectives of managers, it does provide estimates on the cost savings from the complete or partial removal of a rig. It identifies the need to carefully consider the point at which donations from not having to remove a rig will offset the willingness of petroleum companies to participate in the conversion program. But it does not determine the donation level at which this threshold is achieved which would significantly affect the funding levels of the program. Finally, it discusses unquantified benefits from the use of rigs as artificial reefs for rebuilding overfished stocks, providing nursery grounds and habitat, and for use by tourism-based industries, recreational anglers, and others. Significant, unquantified costs from Californian residents who want the rigs removed are also discussed. However, economic impacts that would determine who wins and who loses in this program are not presented or discussed. While a significant beginning in developing economic impact and cost-benefit analysis of the rigs to reef program, a flexible dynamic framework is needed to determine the optimal mix and conversion rate of rigs to reefs.

Precise quantitative estimates will require additional studies to determine the values

placed on the rigs to reefs initiative by different user groups in southern California. This could involve nonmarket valuation surveys, surveys of commercial and recreational fishermen, information provided by oil producing companies, related market analyses, and input-output models and risk assessments. This information once assembled into an integrated framework for policy analysis would provide managers with the necessary information needed to make decisions on the level and type of conversions of rigs to reefs. It also needs to be flexible, and allow updating, as new information arises or management objectives shift, to provide managers with timely and accurate information on which to base their decisions.

References

Hahn, Robert W. and Anne Layne-Farrar (2003). "An Economic Analysis of a Rigs to Reefs Program for the California Outer Continental Shelf." Final Report, National Economics Research Associates, Chicago, Illinois, October, 18 pp.

Kasprzak, Rick (2004). Louisiana Artificial Reef Program, LA Department of Wildlife and Fisheries, PO Box 98000, Baton Rouge, LA 70808

Appendix A: Proposed Projects

Social Impacts Research Issues

Platform retention

If the option under consideration is retention of the platforms with the aim of enhancing groundfish stocks or providing a source population for reproductive and highly sought adults, then much of the social impact research depends upon whether this aim can be achieved. That is to say, we cannot analyze the socioeconomic consequences of a reestablishment of the groundfish fishery without a predictive biological statement on whether the fishery would be revived, and to what extent the rigs to reef effort would contribute to that outcome. So, any socioeconomic research in this regard should be closely tied to the predictive biological stock research, and will need, as well, to accommodate future policy predictions and recommendations concerning when and if the fishery can be reopened.

Groundfish Stock Enhancement

If we can assume that the artificial structure provided by the rigs (whether maintained as is, or converted into a horizontal structure) will enhance groundfish habitat, and thereby lead to a reopening of the fishery, then socio-cultural and economic research could focus on the following:

1. broad-based community change as rockfish fishermen and sport fishing entrepreneurs return physically to fishing communities (who may have left to find other income – though we need baseline data on whether this has been occurring)
2. Intra community social change as still resident former fishermen return to rockfish income (workforce shifts, employment needs and their attendant social shifts)
3. household and family dynamic (e.g. gender conflict within the household) changes as the fleets are revived and incomes added
4. consensus analysis on workplace satisfaction and stability measures in terms of fishing as a profession

Assuming the rigs would benefit anglers and sport fishing operations, we would also need social and economic impact analyses for them. This effort would require:

5. baseline data on uses within proximity of the oil platforms from the Marine Recreational Fishery Statistics Survey (MRFSS) and RecFin databases. Current safety and security restrictions exclude anglers and charter boats from approaching any closer than 150 feet from the rigs, and so subsequent removal of these restrictions would require socioeconomic impact analysis on sport fishing enterprises and participants.

User Groups Suggesting Negative Effects

Given the expressed desire of many Californians, including in particular numerous environmental groups, to have the rigs entirely removed regardless of their habitat capacities, research would also need to be directed at their response, socially, economically, and politically, to a policy recommendation in favor of leaving the platforms at sea.

We would need to assess the extent to which groups and group leaders speak on behalf of all of their members and constituents. Anthropologists interested in ethnobiology have long encountered the problem of the "expert" informant. How could one use a sample or intensive interviews of key individuals to determine whether knowledge or beliefs were widely shared? The technique called consensus analysis has assisted anthropologists in this effort for several years.[7] It may be one that is employable in assessing how much consensus there is among those favoring removal of the rigs.

Recreational Diving

Only two of the 23 rigs currently in federal waters (Platform Gina and Platform Hogan, both in the Santa Barbara Channel) are in sufficiently shallow water to allow for commercial recreational diving. So, the social and economic impacts and net benefits of any potential dive tourism operations around these two platforms would need to be considered. The platforms are relatively old, so they may indeed be among the earliest of those that are decommissioned. Nevertheless, the demand for diving depends in part on the accessibility issues involved. Accessibility to rigs has changed over time, with rig access in California varying from complete exclusion at all platforms to open access at selected platforms and open access to selected boats at selected platforms. Sites located further offshore may have to be studied to determine their suitability for recreational diving activities.

Impact Assessments

In addition to a standard cost-benefit type assessment that looks at rigs-to-reefs in terms of the value to society, one would want to consider the impacts on the regional economy and communities. An input/output (I/O) model may not be the best way to go, since it presumes existing infrastructure and relationships between sectors when in actuality some of the scenarios would create entirely new kinds of flows in the regional economy. Take, for example, the transport of scrap metal to facilities in Portland. It is unlikely that anything of the order of magnitude of 23 platforms has ever been processed. The analytical problem should be thought of more in terms of a risk analysis, with different local, regional and global economic sectors (fishing, tourism, aquaculture, oil industry, insurance industry, etc.) connected in a web of relationships that are differently weighted in different scenarios. For example, full

[7] Romney, A.K., S.C. Weller, and W.H. Batchelder 1986. Culture as consensus: A theory of culture and informant accuracy. *American Anthropologist* 88:313-338.

decommissioning might be best for fishermen and the insurance industry but worse for the oil industry, whereas some of the partial removal options might create benefit flows for things like research, aquaculture etc., but negatively impact fishing. A risk analysis framework would also allow an at least probabilistic assessment over time, whereas considerable effort would be required to even parameterize the static version of a regional I/O model. Currently, off-the-shelf I/O models in use do not even begin to deal with issues like liability, tourism or oil; certainly not in the same framework as fishing. In process terms, it would be desirable to conduct a participatory decision/risk analysis with stakeholders rather than commission a "black box" I/O model.

General Report of R2R Natural Sciences Committee

September 10, 2003

The Committee

Our committee included representatives from artificial reef research, fisheries research, resource management, and other programs with mandates related to artificial reefs, essential fish habitat, or offshore oil and gas production. This government committee received basic support from several private-sector representatives.

The following people participated in at least one of the three committee meetings (in alphabetical order):

> Tom Bigford (NOAA Fisheries/Habitat Conservation, Silver Spring, MD), Greg Boland (MMS/Gulf of Mexico OCS Region, New Orleans, LA), Suzanne Bolton (NOAA Fisheries/Science and Technology, Silver Spring, MD), Kay Briggs (MMS, Herndon, VA), Ann Bull (MMS/Pacific OCS Region, Camarillo, CA), Linda Chaves (NOAA Fisheries/Constituent Services, Silver Spring, MD), Rebecca Cooper (formerly with NOAA Fisheries/Habitat Conservation, Silver Spring, MD), Barry Crowell (DOI Office of the Solicitor, Washington, DC; Chair of Legal Committee), Gregg Gitschlag (NOAA Fisheries/Southeast Fisheries Science Center, Galveston, TX), Churchill Grimes (NOAA Fisheries/Southwest Fisheries Science Center, Santa Cruz, CA), Melanie Harris (NOAA Fisheries/Habitat Conservation, Silver Spring, MD), Don Kent (Hubbs-SeaWorld Research Institute, San Diego, CA), Herb Leady (MMS/Gulf of Mexico OCS Region, New Orleans, LA), Andy LoSchiavo (NOAA Fisheries/Habitat Conservation, Silver Spring, MD), Milton Love (University of California at Santa Barbara/Marine Science Institute, Santa Barbara, CA), Conrad Mahnken (NOAA Fisheries/Northwest Fisheries Science Center, Manchester, WA), Larry Maloney (MMS, Washington, DC), Donna Schroeder (University of California at Santa Barbara/Marine Science Institute, Santa Barbara, CA), George Steinbach (California Artificial Reef Enhancement Program, Sacramento, CA), Jim Sullivan (formerly California Sea Grant College Program), Russ Vetter (NOAA Fisheries/Southwest Fisheries Science Center, La Jolla, CA), John Ward (NOAA Fisheries/Science and Technology, Silver Spring, MD; Chair of Social Science Committee), Mary Yoklavich (NOAA Fisheries/Southwest Fisheries Science Center, Santa Cruz, CA).

Our Charge

At our initial meeting on April 2, 2003, the Natural Science Committee working on the rigs-to-reefs issue agreed that our charge is to:

> 1. Review the best available scientific information (with an emphasis on ecological issues) associated with offshore oil and gas platforms related to various decommissioning alternatives that could convert platforms into artificial reefs.

2. Provide our perspectives and summarize our discussions on the pros and cons of various decommissioning options ranging from leaving platforms in place to total removal from the water.

3. Determine if the habitats provided by natural reefs are limited with respect to the organisms that inhabit them, and if artificial reefs can make a significant contribution to meeting any habitat deficits.

4. Estimate the resources needed to establish a monitoring program and to answer key research questions. MMS is holding a Decommissioning Workshop on October 26-28, 2003, which will help identify key research questions.

5. Identify any ecological "deal breakers" that could block further consideration of this idea in either the Gulf of Mexico or Pacific. Summarize our discussions about whether these platforms as artificial reefs are good for the marine environment, benign, or bad.

Key Accomplishments

Meetings – The Natural Science Committee was established in mid-March 2003 based on a direct request from NOAA leadership. Committee membership was expanded to include representatives from the DOI/Minerals Management Service and the private sector who have worked on issues related to artificial reefs, essential fish habitat, or offshore platforms. The committee met three times (April 2, May 19, and June 20). The discussions during those meetings formed the basis for this summary. Discussions were intended to provide insights to decision makers, but expressly not to suggest specific actions or to support decisions. The vast majority of input was generated from federal representatives.

Best available information – In direct response to Charges #1 and #2 above, committee members debated whether there was sufficient natural science information available to provide the types of scientific review requested by NOAA leadership and needed by all involved in rigs-to-reefs discussions. After much deliberation, all committee members individually decided that the existing body of natural science information could support our efforts to address Charges #3 through # 5.

With support from NOAA Fisheries' Office of Constituent Services, the committee established an intranet site and posted key reports and sources for individual use:

www.noaar2r.intranets.com

Postings at that website, coupled with other references, support the following conclusions.

Our Approach

1. Comfort level with natural science information – Committee members agreed that while we will never achieve perfect knowledge on science issues associated with the various options of decommissioning the platforms (see Conclusions section), we do have sufficient information to proceed. Caveats were provided wherever appropriate to clarify information. There are potential benefits from the retention of the habitat and the fishes living on and around the platforms. These benefits include the retention of sites for fish recruitment and larval production, and the retention of the existing marine biomass of both fishes and invertebrates. There is not enough information to determine if these benefits are regional in nature or are realized locally. It is also recognized that there are many social, economic, legal, and regulatory issues associated with any policy recommendation. These areas were considered by this Committee to be outside our basic charge. Other committees will offer their input, and agency leadership will make any final decisions.

2. Overall framework – Site-specific data from the platforms and their surrounding environments should be taken into account when making decisions about the fate of individual platforms. A case-by-case evaluation would confirm the specific benefits attributed to each structure and help to weigh other factors that could impact the decision to retain it. This would likely be done under NEPA. The evaluations should also form a basis for determining the optimal configuration for any retained platform. This would include location where the platform is to be retained, the depth at which a platform jacket is to be severed below the waterline, the appropriate remediation for any contamination found, and any alternate uses that may be appropriate.

Our Committee developed a set of general statements and some specific thoughts, where appropriate, for the Gulf of Mexico and Pacific coasts. This approach was chosen for the following reasons:

- Habitat availability differs – Benthic habitats in the Gulf of Mexico are mostly soft bottom (i.e. unconsolidated sediments such as sand and mud), while the Pacific coast has extensive hard substratum habitat (including complex structures of rock outcrop and cobble and boulder fields). Thus, it is likely that biological communities associated with complex structures in the Gulf are limited compared to the Pacific coast. Both systems can be limited by the supply of new recruits. Differences in habitat availability could lead to different goals and purposes for converting a platform for some alternate use.
- General interest differs – Committee members have greater professional expertise and involvement in issues related to habitats and associated organisms off the Pacific coast than with those in the Gulf of Mexico. Hence, we were more prepared to discuss issues related to decommissioning platforms off the Pacific coast.
- R2R program maturities differ – Texas and Louisiana have well-established rigs-to-reefs programs while the Pacific states do not currently have rigs-to-reefs programs, although several attempts have been made in the last seven years to establish a program in California. Decommissioning of California platforms will begin in five years. Combined with the lack of a California state rigs-to-reefs program, this placed greater emphasis on focusing our discussions on the Pacific.

- Structural differences – There are approximately 4000 platforms in the Gulf of Mexico and only 26 off California. Although the Gulf of Mexico has deep-water platforms, the vast majority are small structures in relatively shallow water (less than 200 m). Most of the Pacific platforms are large, North Sea-type structures, up to 10x the height of the majority of Gulf facilities, and located in deep water (maximum depth of 363 m).

3. Presenting our conclusions– We agreed to summarize our discussions as a series of statements related to the primary choices for decommissioning platforms, i.e., leaving the platform in place as an artificial reef, moving it to a designated reef location, or removing it from the ocean.

4. Issues addressed – Our discussions focused on possible dispositions for the platform. Committee members decided not to discuss secondary and tertiary uses (aquaculture, wind power, prisons, Navy Seal training facilities, and others) of decommissioned platforms because those are societal issues outside our natural science charge. We understand that those are issues that should be addressed by both the Legal and Social Sciences Committees.

Primary Conclusions/Synthesis of Current Knowledge

The Committee's discussions focused on the six topics listed below. The following statements apply to decommissioned platforms in the Gulf of Mexico and off California unless otherwise stated.

1. Reasons to leave a decommissioned platform in place as an artificial reef, i.e., reasons not to remove:

- Existing platforms represent established high vertical relief habitats supporting a diverse assemblage of fishes. Removing platforms would cause the removal of these habitats with the attendant loss of the diverse biological communities associated with them. The hard substratum habitats would revert to pre-platform sandy bottom habitats and the associated community.
- Because total removal in deep Pacific waters will most likely include the use of explosives, a high percentage of resident finfish, particularly those with swim bladders, would be killed. Those not killed will be displaced and will need to find alternate habitat in order to survive. The potential to harm marine mammals and sea turtles, particularly with the use of explosives exists in both the Gulf of Mexico and off the Pacific coast.
- Resident finfish on platforms may contribute recruits to local populations that have been dramatically reduced in recent years. These declines are due both to overfishing of adults and subadults and to changing ocean conditions that have been adverse to survivorship of young stages of these fishes. While recruits associated with platforms may contribute to local populations, the overall effect at the population level would probably be small, given the large availability of natural habitat off California and relatively small size of platforms. It is possible that platforms could have more of an effect on populations of certain key species (i.e. over-exploited, threatened, or endangered) than those of abundant species.

- If platforms are removed, both the mussel beds associated with the platforms and their fisheries will be lost. We understand that the shoreside implications of that loss will be addressed by the Social Sciences Committee.
- If contaminants are present and associated with soft sediments, platform removal would create disturbance that may worsen the contamination problems.

2. Reasons to move a decommissioned platform to another marine location to create or expand an artificial reef:

- Platforms in deep waters that are very large could be cut into pieces and used to create more than one reef in various seafloor habitats and depths.
- If there are contaminant issues, they may be dealt with more completely during removal when the site is more available and accessible.
- If the current platform site is not suitable as a reef due to other uses, another reef location could provide more habitat benefits for individual reefs or several reefs that could be coalesced into a larger area with increased diversity and abundance.

3. Reasons to remove a decommissioned platform from the water:

- Platform removal could reduce the numbers of fish potentially exposed to any contaminants (e.g., barium, zinc, PCB, and VOC have been detected in elevated concentrations at the 4H Shell Mounds). This would apply only if the contaminants were a hazard to marine life (i.e., leaching and bio-available) and if the contaminants could not be adequately remediated.
- Platform removal would restore soft demersal habitats (and potentially EFH).
- Platform removal would reopen potential trawl fishing grounds. Several members felt that this issue should be addressed in greater detail by the Social Sciences Committee, as trawling is an activity that has socio-economic value. Note that almost no trawling is allowed within state waters off California, and trawling is currently greatly restricted on much of the continental shelf off the west coast inside the new Rockfish Conservation Areas.

4. Other points worth noting:

- While not a natural science issue, Committee members noted that, in California, there is no existing State Rigs-to-Reefs Program, and complete removal is the only current decommissioning alternative contemplated by MMS Decommissioning Regulations.
- There are no designated areas along the Pacific coast to move platform pieces to create a reef; there are several designated reef sites in the Gulf of Mexico. The California Department of Fish and Game's permit for existing reef sites excludes oil platform legs, but does not prohibit the use of some portions of offshore oil platforms. The permit does state that the use of oil platform parts is not requested though, and would require future modification of the permit. The California reef sites of Bolsa Chica (offshore Long Beach) and Big Sycamore Canyon Ecological Reserve (Ventura County) are south of Point Conception and could accept some portion of platform material, which would probably need to be augmented with quarry rock to meet the California artificial reef requirements.

- There are designated reefing areas in the Gulf of Mexico. Louisiana has issued a policy (and Texas is considering one) that it will allow *in-situ* reefing on a case-by-case basis of platforms which are in 400 feet of water or greater and at least 2 miles from a shipping lane. Currently there are about 72 platforms offshore Louisiana in these depths. Fifty-four of the 72 platforms are within 2 miles of shipping lanes. Louisiana is currently working on the shipping lane issue with the U.S. Coast Guard (i.e. establishing a depth to top platforms within 2 miles of shipping lanes). Such platforms would be left in place in federal waters yet included in the state program. Some platforms offshore California are within 2-3 miles of shipping lanes.
- If platforms are left intact, this would allow for secondary uses, such as aquaculture, which could be beneficial. Responsible agencies would need to review all potential future uses to ensure that they would not compromise the reproductive success of species that prompted the primary decision to leave the platform intact.
- A fundamental policy issue is whether reefs created from platforms should be open or closed to fishing. Individual members felt that this issue should be decided on a case-by-case basis, keeping in mind that if fishing is allowed, it should not interfere with the primary benefits identified with the reef. Reefs created from platforms could be open to fishing for some gear or species and banned for others, although this would be difficult from an ecological and also enforcement standpoint. For example, Lingcod are the only non-airbladder fish common at the California platforms, and thus can be hauled to the surface and released alive. Rockfish, *Sebastes* spp., are predominant at the platforms, and not many would survive being brought to the surface and released, even if their swimbladders are deflated at the surface. California SB.1 would have closed reefs created from platforms to fishing, but the bill was vetoed by the Governor.
- Fishing is currently discouraged in 500m safety zones around most California platforms. After decommissioning, fishing may be allowed. That means that potential contributions by resident fish to nearby populations could be short-lived unless the areas are designated as no-fishing refugia. By default, refugia could become sanctuaries with improved reproductive success. However, if fishing is allowed on those platforms, this could help balance public opinion about the creation of new marine protected areas that may not allow fishing.
- Several individual members felt it would be helpful to our leaders if we gave thought to a list of prioritized additional research needed in the decommissioning process (see section below).
- Platforms will corrode after decommissioning, but even without cathodic protection might last about 300 years, shorter if infrastructure is compromised and salt water infiltrates steel supports.

5. Preliminary criteria for grouping platforms as artificial reefs off California (for management or research):

- Depth
- Geographic location (west of Santa Barbara Channel, east of Santa Barbara Channel, Pt. Conception, off Long Beach) as related by currents.
- Species composition on platforms.

6. Key research question: What benefits to the marine environment are provided by the offshore oil and gas platforms in the Pacific outer continental shelf?

Areas of investigation prior to each decommissioning decision:

1. What fishes live around platforms and near-by natural reefs? What is the availability of natural reef habitat in surrounding area?
2. How do platforms compare to natural reefs with regard to:
    a) Fish growth rates?
    b) Mortality rates?
    c) Reproductive output?
    d) Recruitment?
3. What is the relative contribution of platforms in supplying hard substrate and fishes to the region?
4. How long do fishes reside at platforms?
5. What are the effects of platform retention or removal on fish populations within a region?
6. How does structural modification of the platform and surrounding sea floor change associated assemblages of marine life (invertebrates and fishes)?

Areas of investigation after platform decommissioning:

1. How do platforms perform as artificial reefs compared to estimates?
2. How can platform performance be enhanced?

Other research questions:

1. Would reefs that are created from platforms and then closed to fishing have a significant positive effect on managed species at the population level (given large availability of natural habitat off California and relatively small size of platforms)? What about on a local scale?
2. What is the carrying capacity of a platform (juveniles and adults)?
3. What is the connectivity among local populations (i.e. among platforms, and among platforms and natural reefs)?
4. How does the value and function of a reef that is produced from a platform differ from a natural reef based on its position and size in the water column (i.e. do platforms serve same ecological functions after they are toppled or topped versus left intact)?
5. How are platforms used by protected species? How large is the area of potential impact of platform removal for protected sea turtle and marine mammal species?
6. Monitoring/research:
    - Monitor effects of decommissioning method so that future decisions could be adapted to respond to the ecological consequences.
    - Conduct intra- and interannual surveys to assess the seasonal abundance/species composition of protected species in the vicinity of platforms approaching decommissioning.

DRAFT LETTER

April 5, 2004

Mr. Rolland A. Schmitten, Director
Office of Habitat Conservation
NOAA Fisheries
F/HC - EFH ANPR
1315 East-West Highway
Silver Spring, Maryland 20910

Re: Proposed rulemaking regarding essential fish habitat guidelines

Dear Mr. Schmitten:

The Pacific Fishery Management Council (Council) takes this opportunity to comment on the Advance Notice of Proposed Rulemaking addressing potential revisions to the essential fish habitat (EFH) guidelines. Our comments support a continuation of a strong EFH policy to protect our fishery resources.

The existing EFH guidelines provide NOAA Fisheries and the Council the only means to act proactively through consultation with other agencies to protect the habitat needed by their managed resources. The Council believes that collaborative and proactive efforts to conserve habitat will help avoid future species listings and overfishing designations.

The Council appreciates the existing guidance provided by NOAA Fisheries on Habitat Areas of Particular Concern (HAPCs) and thinks that designation of HAPCs should be further encouraged and supported to focus consultations most effectively. We also believe that the EFH consultation process is not cumbersome or unreasonable, especially as it can be included as a part of other consultations (e.g. Endangered Species Act, National Environmental Policy Act). The consultation process will in fact be greatly eased by the GIS-based information that is now being developed by most of the Councils and that will soon be available online to other federal agencies and the public at large.

The Council does not advocate any major revisions to the EFH guidelines. We suggest the following changes to make the guidelines more effective in protecting and improving productivity of fish habitat.

1. The action agencies now determine when they may have adverse impacts and need to consult. The rule should better define adverse effects to clarify and strengthen the triggering mechanism and requirements for consultation.

2. Federal agencies are supposed to respond in writing within 30 days as to their proposed actions to address recommendations provided by NOAA Fisheries or the Council. This statutory requirement is not consistently or frequently adhered to. Please consider strengthing the guidelines by adding non-compliance penalties.

3. We recommend you ask for the use of best available scientific data when designating EFH. The Level 1 through Level 4 considerations are not particularly realistic given the state of our fishery knowledge and research capabilities. Councils and NOAA Fisheries normally have only Level 1 and some Level 2 information. We recommend NOAA Fisheries "mine" existing survey data to assure that relative abundance and productivity information is used in the EFH designations.

4. The Council urges clarification of the "practicability" standard.

5. The Council urges you to maintain current guidance for habitat protection to assure priority is always given to avoidance of impacts rather than minimization or mitigation of impacts. This concern is especially important in areas designated as HAPCs and in areas of EFH that provide habitat important to stocks that are listed under the ESA or that are rebuilding, have low fecundity, sporadic recruitment, or are long-lived. Mitigation for unavoidable impacts should be located in the vicinity of the impact, if possible, and should focus on restoring ecosystem functions that have been adversely impacted.

6. The Council supports and emphasizes the need to maintain and strengthen the section regarding degraded or inaccessible aquatic habitats (600.815 (a) (F)). We recommend the rules allow designation of EFH (or potential EFH) in historic habitat areas where there is reasonable potential for restoration of important ecosystem functions. There are proposals in both estuarine and riverine environments (such as the Cargill salt ponds in San Francisco Bay, or above dams such as Iron Gate on the Klamath, Round Butte on the Deschutes, Hells Canyon on the Snake River, and Chief Joseph on the Columbia), where restoration is planned or where passage could be a requirement of FERC relicensing. Without such consideration, important options for restoring habitat could be lost. For example, failure to designate EFH above currently impassable dams could be used as an argument not to provide restoration above those dams.

Thank you for the opportunity to comment. We strongly support the existing EFH rules and requirements for consultation. The rule takes a proactive approach to protecting, enhancing, and conserving EFH to avoid species declines and listings. We look forward to working with you and your staff on any potential guideline revisions. Please feel free to contact us if you have any questions.

Sincerely,

Donald K. Hansen
Chairman

HABITAT COMMITTEE REPORT

The Habitat Committee (HC) met on Monday, April 5, 2004 to discuss issues including the following topics. The HC also has supplied separate statements on the essential fish habitat (EFH) environmental impact statement (EIS) (Agenda Item C.6) and the programmatic bycatch EIS (Agenda Item C.13).

Klamath Federal Energy Regulatory Commission (FERC) Letter

The Habitat Committee edited the draft letter contained in the Council's briefing packet (Exhibit E.1.a, Attachment 2) regarding the Klamath River Hydroelectric Project final license application. Comments regarding the final license application are due to the Federal Energy Regulatory Commission by April 26, 2004. This letter is consistent with previous positions the Council has taken regarding FERC relicensing procedures, as well as the importance of Klamath Basin fisheries resources to the Council. We recommend the Council send the edited letter to FERC prior to the April 26, 2004 deadline.

Letter on EFH Rulemaking

NMFS extended the comment period for revisions to the EFH rule. The comment period ends prior to the June Council meeting. The Council has an opportunity to provide input if you take action at this meeting. A draft letter was provided in the supplemental briefing book materials (Exhibit E.1.a, Supplemental Attachment 3). The HC discussed this letter and provides edits in Exhibit E.1.a, Supplemental Final Attachment 3. The HC recommends the Council approve this letter and submit it prior to the deadline. In general, the letter supports strengthening the designation of EFH and its applicability to fisheries management.

Klamath Water Users' Association Presentation

The HC heard a presentation from Mr. Dan Keppen of the Klamath Water Users Association. He introduced his presentation by stating a desire to work toward collaborative solutions to Klamath water issues. However, his presentation primarily focused on restating the Klamath Water Users' opinions and positions on the 2002 adult fish kill, and he was very critical of the California Department of Fish and Game's preliminary fish kill report. Much of his presentation dealt with interim reports and media reports. The HC concurs with the desire to work toward collaborative solutions, but clearly the agricultural community in the upper Klamath, and the people dependent on the fishery resource, still have work to do even to communicate with one another.

PFMC
04/05/04

Exhibit E.1.b
Supplemental SAS Report
April 2004

SALMON ADVISORY SUBPANEL REPORT ON CURRENT HABITAT ISSUES

The Salmon Advisory Subpanel supports, in principle, the concerns outlined in the letter from the Council's Habitat Committee (Exhibit E.1.a, Supplemental Final Attachment 2).

PFMC
04/06/04