



**New England Fishery Management Council**

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**OMNIBUS DEEP-SEA CORAL AMENDMENT**

**Appendix D: Public Hearing Document and Summaries**

*June 2017*

**DRAFT OMNIBUS DEEP-SEA CORAL AMENDMENT  
PUBLIC HEARING DOCUMENT**



Prepared by the New England Fishery Management Council  
50 Water Street, Mill #2; Newburyport, Massachusetts 01950

The New England Fishery Management Council (NEFMC) is conducting seven public hearings to solicit comments on the alternatives under consideration in the Draft Omnibus Deep-Sea Coral Amendment. More specifically, the Council is seeking feedback from the public on which alternatives should be selected and why. These hearings are being held by the Council in accordance with the National Environmental Policy Act. The Council plans to take final action on the amendment during its June 20-22, 2017 meeting in Portland, Maine.

Deep-sea corals are fragile, slow-growing organisms that play an important role in the marine ecosystem and are vulnerable to various types of disturbance of the seafloor. The alternatives in the amendment are designed to reduce the potential impacts of fishing activity on corals, as allowed under the Council's discretionary authority. Restrictions on bottom-tending gear are being considered, with possible exemptions for some or all types of fixed gears. Potential coral management areas are located off the eastern Maine coast, in Jordan Basin and Georges Basin in the offshore Gulf of Maine, and in the canyon and slope region south of Georges Bank.

**SCHEDULE OF PUBLIC HEARINGS**

<b>Date and Time</b>	<b>Location</b>
Monday, May 22, 2017 6:00-8:00 p.m.	Montauk Playhouse Community Center 240 Edgemere Street, Montauk, NY 11954
Tuesday, May 23, 2017 1:00-3:00 p.m.	University of Rhode Island Bay Campus Corless Auditorium 215 South Ferry Road, Narragansett, RI 02882
Tuesday, May 23, 2017 5:30-7:30 p.m.	Fairfield Inn and Suites 185 MacArthur Drive, New Bedford, MA 02740
Wednesday, May 24, 2017 1:00-3:00 p.m.	MADMF Annisquam River Marine Fisheries Field Station 30 Emerson Ave., Gloucester, MA 01930
Wednesday, May 24, 2017 5:30-7:30 p.m.	Sheraton Harborside 250 Market Street, Portsmouth, NH 03801
Thursday, May 25, 2017 5:00-7:00 p.m.	Ellsworth High School 299 State Street, Ellsworth, ME 04605
Friday, May 26, 2017 1:00-2:30 p.m.	Webinar <a href="https://attendee.gotowebinar.com/register/98257139389273345">https://attendee.gotowebinar.com/register/98257139389273345</a>

## HOW TO COMMENT

During each hearing, Council staff will brief the public on the draft amendment before receiving comments. The hearings will begin promptly at the time indicated above. If all attendees who wish to do so have provided their comments prior to the end time indicated, the hearing may conclude early. To the extent possible, the Council may extend hearings beyond the end time indicated above to accommodate all attendees who wish to speak.

Members of the public may submit oral and/or written comments at any of the public hearings. You may also choose to submit written comments directly to the Council, in lieu of or in addition to comments provided at the hearings. Written comments must be received on or before close of business, Monday, June 5, 2017. Written comments received on or before Wednesday, May 24 at close of business, as well as comments provided at the hearings, will be reviewed by the Council's Habitat Committee on May 30 (see separate notice for information about this meeting). Written comments received after May 24 will be summarized in a report provided directly to the Council.

**Written comments can be submitted via mail, email, or fax:**

Thomas A. Nies, Executive Director  
New England Fishery Management Council  
50 Water Street, Mill 2  
Newburyport, MA 01950

**Email:** [comments@nefmc.org](mailto:comments@nefmc.org)

**Fax:** (978) 465-3116

***Please note on your correspondence  
"Comments on Deep-Sea Coral Amendment"***

***Written comments must be submitted  
before 5:00 pm EST on Monday, June 5, 2017.***

Information about the coral amendment is posted on the Council's website at <http://www.nefmc.org/library/omnibus-deep-sea-coral-amendment>. To view interactive maps of the coral zone alternatives, please visit the Northeast Ocean Data Portal at <http://www.northeastoceandata.org/>. The coral zones can be found in the Data Explorer feature of the site, under Commercial Fishing, Draft Alternative Management Areas.

For questions, contact the Council office at (978) 465-0492.

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## ACRONYMS

ASMFC	Atlantic States Marine Fisheries Commission
BTG	Bottom Tending Gear
EA	Environmental Assessment
FMP	Fishery Management Plan
GARFO	Greater Atlantic Regional Fisheries Office
GB	Georges Bank
GOM	Gulf of Maine
MAFMC	Mid-Atlantic Fishery Management Council
MBTG	Mobile Bottom Tending Gear
MSA	Magnuson-Stevens Act
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Reauthorization Act
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NMFS	National Marine Fisheries Service
VMS	Vessel Monitoring System
VTR	Vessel Trip Report

## 1.0 BACKGROUND ON DEEP-SEA CORALS

### 1.1 WHAT ARE DEEP SEA CORALS?

Deep-sea corals are attached, benthic animals related to anemones and jellyfish that live in waters at least 50 meters (28 fathoms) deep. They are found in marine habitats worldwide. Offshore New England, the greatest species richness of corals occurs in the canyons south of Georges Bank, as well as on the surrounding continental slope and seamounts. Corals, primarily soft corals and sea pens, also occur in select locations in the Gulf of Maine, both relatively close to shore and in offshore basins. Deep-sea corals come in a diverse range of sizes, shapes and colors. Some types, including sea pens and soft corals, have a flexible structure, while the stony corals have a hard outer covering. Corals occur in both soft sediment habitats and in hard bottom areas. Many types require a hard substrate for attachment, but other corals anchor in fine sediments.



**Figure 1 – Soft corals, anemones, and sponges in Jordan Basin. Image credit NMFS NEFSC/UConn. – NURTEC/UMaine.**

### 1.2 WHAT ARE THE ROLES OF CORALS IN THE MARINE ENVIRONMENT?

Deep-sea corals are ecologically important. Deep-sea coral habitats have been noted to have higher associated concentrations of fish than surrounding areas, and are believed to serve as nursery grounds and provide habitat for many species of fish and invertebrates at various life stages, including commercially important fish species (Costello et al. 2005; Auster 2005; Foley et al. 2010). Many invertebrates are directly associated with deep-sea corals, and recent work in the canyons suggests that some of these relationships are very specific.



**Figure 2 – Redfish, krill, and the soft coral *Primnoa resedaeformis* at Outer Schoodic Ridge. Image credit NMFS NEFSC/UConn. – NURTEC/UMaine.**

In coral habitats surveyed in the Gulf of Maine, crustaceans such as shrimp, amphipods, krill, and king crab were commonly associated with coral communities along steep walls, and were seen foraging amongst structure-forming organisms, including corals, on the seafloor. In addition, commercially important species were observed in coral habitats, including Acadian redfish, haddock, pollock, cusk, monkfish, cod, silver hake, Atlantic herring, spiny dogfish, squid, and lobster. The fish were observed searching for and catching prey that were also found among the coral. The corals seemed to provide refuge from strong, tidally generated bottom currents.

## 2.0 WHAT IS THE PURPOSE OF THE DEEP-SEA CORAL AMENDMENT?

Deep-sea corals are vulnerable to anthropogenic impacts. In general, deep-sea corals are slow growing and some species have limited dispersal capability. These features, combined with the branching and sometimes brittle structure of some taxa, make them vulnerable to mechanical disturbance, such as from fishing gear. The Council has approved the following problem statement for this amendment:

### **Deep-Sea Coral Amendment Problem Statement**

The Council is utilizing its discretionary authority under section 303(b) in the Magnuson Stevens Act to identify and implement measures that reduce, to the extent practicable, impacts of fishing gear on deep-sea corals in New England. This amendment contains alternatives that aim to identify and protect concentrations of corals in select areas and restrict the expansion of fishing effort into areas where corals are likely to be present.

Deep-sea corals are fragile, slow-growing organisms that play an important role in the marine ecosystem and are vulnerable to various types of disturbance of the seafloor. At the same time, the importance and value of commercial fisheries that operate in or near areas of deep-sea coral habitat is recognized by the Council. As such, measures in this amendment will be considered in light of their benefit to corals as well as their costs to commercial fisheries.

Given the ecological importance and vulnerability of corals, the overarching objective of this amendment is to identify and protect deep-sea corals in the New England region. Although there are uncertainties in terms of the precise extent of overlap between fishing activities and coral habitats, the problem statement approved for this action affirms the Council's desire to balance coral conservation with commercial fishing usage of coral management zones.

### 3.0 WHAT IS THE DEEP-SEA CORAL AMENDMENT TIMELINE?

The alternatives in this amendment were developed between 2011 and 2017, initially as part of Omnibus Habitat Amendment 2, but split into a separate coral-focused amendment in 2012. The New England Fishery Management Council, Mid-Atlantic Fishery Management Council (MAFMC), and the South Atlantic Fishery Management Council have signed a Memorandum of Understanding identifying areas of consensus and common strategy related to conservation of corals and mitigation of the negative impacts of fishery interactions with corals. As per the terms of the memorandum, the Council developed the alternatives in this document to be applicable only to areas within the New England region as defined in the current regulations (50 C.F.R. §600.105).

Table 1 summarizes recent and future actions associated with development of the amendment. Once the Council process has concluded, the National Marine Fisheries Service (NMFS) has responsibility for rulemaking and implementation. There will be an additional opportunity for public comment once NMFS publishes the proposed regulations (proposed rule) in the Federal Register. The amendment is expected to go into effect between six and seven months from initial submission of the draft environmental assessment by the Council.

**Table 1 – Recent and future actions on the deep-sea coral amendment**

Date	Action
March 13 and 15, 2017	Stakeholder workshops
April 14, 2017	Habitat Committee recommends preferred alternatives
April 18, 2017	Council selects preferred alternatives
May 1-June 5, 2017	Public comment period on management alternatives, including hearings
May 30, 2017	Habitat Committee meeting
June 20-22, 2017	Council meeting, final action
Late summer/early fall 2017 (target date)	Draft Environmental Assessment submitted to GARFO
6-7 months from submission of draft EA	GARFO and NEFSC review Environmental Assessment, GARFO drafts proposed rule
	Final EA submitted to GARFO
	GARFO review of proposed rule
	HQ review of proposed rule
	Notice of availability and proposed rule publish (triggers 90 day clock)
	30 day public comment period
	Draft and review final rule
	Implementation



#### **4.0 MANAGEMENT APPROACHES UNDER CONSIDERATION**

The management alternatives in this amendment include a range of coral zones and fishing restriction measures that may be applied within those zones. Special access programs as well as alternatives to modify coral conservation measures via framework adjustment are also being considered. Table 2 summarizes the management alternatives.

The measures would affect commercial fisheries operating with bottom-tending fishing gear (i.e., bottom trawls, dredges, bottom longlines, sink gillnets, or pots/traps). Management measures implemented via this amendment would apply based on gear type, and are not limited to fisheries directly managed by NEFMC. Fisheries operating in and around the coral zones are managed by NEFMC, MAFMC, and the Atlantic States Marine Fisheries Commission (ASMFC). Deep-sea coral protection measures were implemented in the Mid-Atlantic region in January 2017. There are many similarities between the NEFMC and MAFMC approaches.

Additional details about the alternatives, including maps of the coral zones, are provided following Table 2. The section numbers in this public hearing document match the section numbers in the more comprehensive amendment document, which includes additional information about the alternatives.

##### **The Council recommends the following as preferred alternatives:**

- A 600 meter minimum depth broad zone south of Georges Bank, closed to all bottom-tending gears, with an exemption for the red crab fishery.
- Coral zones at Mt. Desert Rock and Outer Schoodic Ridge closed to mobile bottom-tending gears.
- A closure to mobile bottom-tending gears is also the preferred approach for the offshore Gulf of Maine zones, but the Council is still debating whether or not to designate coral zones in the offshore Gulf of Maine.
- The Council recommended requesting letters of acknowledgement for scientific researchers working in coral zones, and recommended that changes to coral zone designations and measures could be developed through framework adjustments rather than amendments. The Council also recommended that special access and exploratory fishing programs could be developed and updated via framework adjustments.

**Note that the Council is seeking public comment on all management alternatives and options under consideration in the amendment, not only the preferred alternatives.**

**Table 2 - Summary of alternatives considered. Numbers refer to sections in the environmental assessment. In terms of gear restrictions, 'BTG' refers to bottom-tending gears, fixed and mobile, and 'MBTG' refers to mobile bottom-tending gears only.**

4.1 No Action		
Management areas	Fishing gear restrictions	Notes
<ul style="list-style-type: none"> <li>• Monkfish/Mackerel-Squid-Butterfish closures in Lydonia and Oceanographer Canyons</li> <li>• Tilefish Gear Restricted Areas in Lydonia, Oceanographer, and Veatch Canyons</li> <li>• Northeast Canyons and Seamounts Marine National Monument</li> </ul>	<ul style="list-style-type: none"> <li>• Monkfish/Mackerel-Squid-Butterfish: No fishing by vessels permitted under those plans</li> <li>• Tilefish: no MBTG</li> <li>• Monument: no commercial fishing of any kind; lobster and red crab restrictions not in effect until 2023</li> </ul>	<ul style="list-style-type: none"> <li>• Monkfish closures developed in a joint fishery management plan with MAFMC</li> <li>• Mackerel-Squid-Butterfish and tilefish areas managed by MAFMC</li> <li>• Monument is a permanent designation by President Obama, not subject to modification by the Councils</li> <li>• These alternatives are not explicitly preferred, but they cannot be changed via this amendment</li> </ul>
4.2.1 Broad zones 4.3 Fishing gear restrictions		
Management areas	Fishing gear restrictions	Notes
<ul style="list-style-type: none"> <li>• Option 1: 300m zone</li> <li>• Option 2: 400m zone</li> <li>• Option 3: 500m zone</li> <li>• Option 4: 600m zone</li> <li>• Option 5: 900m zone</li> <li>• <b><u>Option 6: 600m minimum depth zone</u></b></li> </ul>	<ul style="list-style-type: none"> <li>• <b><u>Option 1: Prohibit BTG</u></b> <ul style="list-style-type: none"> <li>• <b><u>Sub-option A: exempt red crab fishery</u></b></li> <li>• Sub-option B: exempt other trap fisheries</li> </ul> </li> <li>• Option 2: Prohibit MBTG</li> </ul>	<ul style="list-style-type: none"> <li>• Zone options are mutually exclusive (select one or none)</li> </ul>
4.2.2.1 Discrete canyon zones 4.3 Fishing gear restrictions		
Management areas	Fishing gear restrictions	Notes
Alvin Canyon , Atlantis Canyon, Nantucket Canyon, Veatch Canyon, Hydrographer Canyon, Dogbody Canyon, Clipper Canyon, Sharpshooter Canyon, Welker Canyon, Heel Tapper Canyon, Oceanographer Canyon, Filebottom Canyon, Chebacco Canyon, Gilbert Canyon, Lydonia Canyon, Powell Canyon, Munson Canyon, Nygren Canyon, Unnamed Canyon between Nygren and Heezen, Heezen Canyon	<ul style="list-style-type: none"> <li>• Option 1: Prohibit BTG <ul style="list-style-type: none"> <li>• Sub-option A: exempt red crab fishery</li> <li>• Sub-option B: exempt other trap fisheries</li> </ul> </li> <li>• Option 2: Prohibit MBTG</li> </ul>	<ul style="list-style-type: none"> <li>• Canyon zones are largely within broad zones, but generally cover additional area in the heads of the canyons, depending on broad zone boundary</li> <li>• Canyon zones could be adopted in addition to a broad zone, if shallower boundaries or different gear restrictions are desired</li> </ul>

4.2.2.2 Discrete seamount zones 4.3 Fishing gear restrictions		
Management areas	Fishing gear restrictions	Notes
<ul style="list-style-type: none"> <li>Bear Seamount</li> <li>Mytilus Seamount</li> <li>Physalia Seamount</li> <li>Retriever Seamount</li> </ul>	<ul style="list-style-type: none"> <li>Option 1: Prohibit BTG               <ul style="list-style-type: none"> <li>Sub-option A: exempt red crab fishery</li> <li>Sub-option B: exempt other trap fisheries</li> </ul> </li> <li>Option 2: Prohibit MBTG</li> </ul>	<ul style="list-style-type: none"> <li>Seamount zones are encompassed spatially within the broad zones and the seamount section of the national monument</li> <li>Seamount zones could be adopted in addition to a broad zone if different gear restrictions are desired</li> </ul>
4.2.2.3 Gulf of Maine zones 4.3 Fishing gear restrictions		
Management areas	Fishing gear restrictions	Notes
<p><b>Gulf of Maine inshore:</b></p> <ul style="list-style-type: none"> <li><u>Mount Desert Rock</u></li> <li><u>Outer Schoodic Ridge</u></li> </ul> <p>Gulf of Maine offshore:</p> <ul style="list-style-type: none"> <li>WJB - 114 Fathom Bump</li> <li>WJB - 96 Fathom Bump</li> <li>WJB - 118 Fathom Bump</li> <li>Central Jordan Basin</li> <li>Lindenkohl Knoll</li> </ul> <p><u>A preference for whether to designate the offshore Gulf of Maine zones was not specified.</u></p>	<ul style="list-style-type: none"> <li>Option 1: Prohibit BTG               <ul style="list-style-type: none"> <li>Sub-option A: exempt red crab fishery</li> <li>Sub-option B: exempt other trap fisheries</li> </ul> </li> <li><b><u>Option 2: Prohibit MBTG</u></b></li> </ul> <p><b><u>If the offshore Gulf of Maine areas are designated during final action, the Council's preferred approach is MBTG restriction, Option 2.</u></b></p>	<ul style="list-style-type: none"> <li>Gulf of Maine zones are separate and spatially distinct from one another and from canyon/seamount/broad zones.</li> <li>There are two sets of boundary options for all areas except Outer Schoodic Ridge. A preferred boundary option was not identified from among the two options.</li> </ul>
4.4 Special fishery programs for coral zones		
Alternatives		Notes
<ul style="list-style-type: none"> <li>Alternative 1: Special access program fishing</li> <li>Alternative 2: Exploratory fishing</li> <li><b><u>Alternative 3: Request LOA for research activities in coral zones</u></b></li> </ul>		<ul style="list-style-type: none"> <li>Could adopt one or more alternatives, in any combination</li> </ul>
4.5 Framework provisions for coral zones		
Alternatives		Notes
<ul style="list-style-type: none"> <li>Alternative 1/No Action: No additional frameworkable coral management measures</li> <li><b><u>Alternative 2: Add, revise, or remove coral zones</u></b></li> <li><b><u>Alternative 3: Change fishing restrictions</u></b></li> <li><b><u>Alternative 4: Allow adoption of or changes to special access or exploratory fishing programs</u></b></li> </ul>		<ul style="list-style-type: none"> <li>Could adopt one or more alternatives, in any combination.</li> <li>Substantial changes could require an amendment regardless of whether these alternatives are adopted.</li> </ul>

## 4.1 NO ACTION – EXISTING AREAS THAT PROVIDE PROTECTIONS FOR CORALS

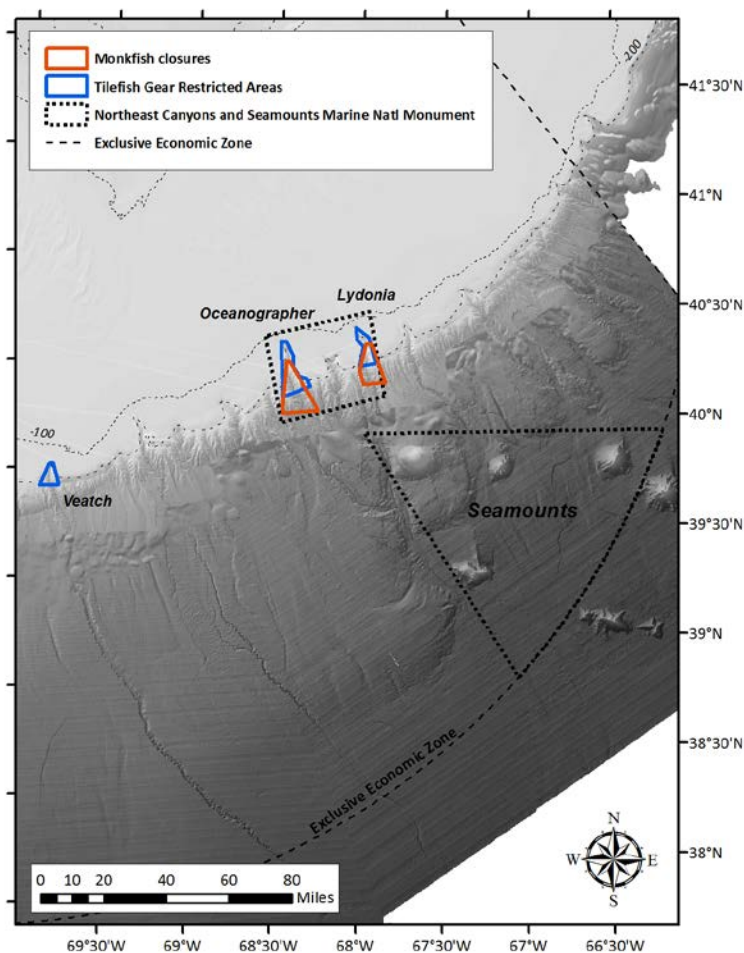
The No Action alternative includes management areas that provide some coral conservation benefits, but there are currently no management areas developed under the §303(b) discretionary authority in the New England region. These management areas cannot be modified via this amendment because they are not under the sole authority of the NEFMC.

**Monkfish/Mackerel-Squid-Butterfish Areas:** Monkfish Amendment 2 (2005) prohibited fishing with any gear type while on a monkfish day-at-sea in Lydonia and Oceanographer Canyons. These same two areas were later adopted as mackerel, squid, and butterfish bottom trawling restricted areas via Amendment 9 to that FMP (2008). Under the MSB FMP, no permitted mackerel, squid, or butterfish vessel may fish in the areas with bottom trawl gear on a year-round basis.

**Tilefish Gear Restricted Areas:** Amendment 1 to the Tilefish FMP (2009) adopted mobile bottom-tending gear restrictions in Lydonia, Oceanographer, and Veatch Canyons. These apply to any mobile bottom-tending gears regardless of fishery. The GRAs are located towards the heads of the canyons, with the boundaries based on those of the Tilefish Habitat Areas of Particular Concern, which were designed to protect clay outcrop habitats which occur in the heads of the canyons to roughly 300m. The GRAs cover deeper water areas as well, and would therefore have conservation benefits for deep-sea coral occurring below 300m.

**Northeast Canyons and Seamounts Marine National Monument:** On September 15, 2016, President Barack Obama designated the Northeast Canyons and Seamounts Marine National Monument, which has two sub-areas. The first encompasses the shelf-slope region from Oceanographer to Lydonia Canyons between about 100 meters and 2,000 meters, and the second encompasses all four seamounts in the EEZ. In November 2016 the areas closed to all commercial fishing as well as to energy exploration and development. Lobster and red crab fisheries will have seven years to cease operations within the Monument.

**Map 1 – No Action alternative – various areas in the New England region that afford protection for deep-sea corals. Depth contours shown are in meters.**



## 4.2 DEEP-SEA CORAL ZONE DESIGNATIONS

Two conceptual approaches are considered for designating coral zones. Both would rely on the discretionary coral protection authority provided in §303(b) of the Magnuson Stevens Act.

The ‘broad zone’ approach would designate a coral zone in a large area that encompasses the canyons, the continental slope and the seamounts, as well as the surrounding abyssal plain out to the exclusive economic zone (EEZ) boundary. The broad areas do not overlap the Gulf of Maine zones.

The ‘discrete areas’ approach would designate more narrowly defined coral zones based on discrete bathymetric features and groupings of corals. These zones encompass particular locations in the Gulf of Maine, single canyons, and individual seamounts. The boundaries of the discrete coral zones are based on direct observations of corals combined with inferences about the likely spatial extent of coral habitats, based on seafloor terrain data or habitat suitability models. The discrete coral zones were designed to encompass species that attach to hard substrates, are relatively large in size, or have other attributes that make them more susceptible to fishing-related impact. Because hard substrate areas tend to be patchy in their spatial distribution in the deep ocean, some soft sediment areas and associated fauna would be included within the discrete zone boundaries, incidental to the primary conservation target.

The broad areas and discrete areas could be implemented simultaneously in the canyon/slope region south of Georges Bank. While the individual discrete zones do not overlap one another, the canyon and seamount discrete zones overlap the depth-based broad zone alternatives. In some areas, the landward/shallow boundary of the discrete canyon zones is slightly shallower than the landward boundary of the shallowest broad zone, so combining the discrete zones with any one of the broad zones would protect additional coral habitats in the heads of the canyons. A combination approach might also be appropriate if different management measures are desired in the discrete vs. broad areas.

### 4.2.1 Broad deep-sea coral zone designation

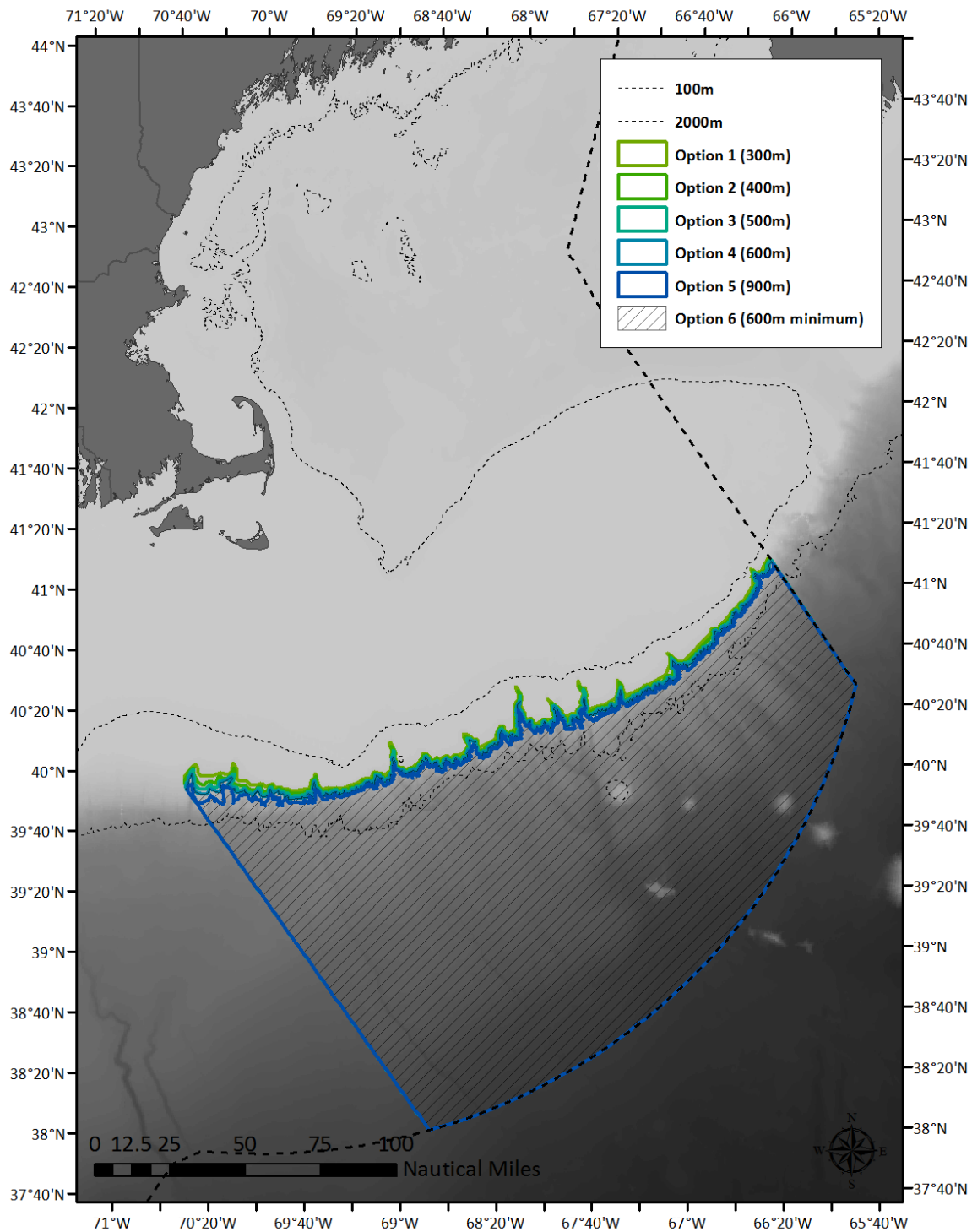
This alternative would designate a large area of the slope and abyssal plain out to the EEZ as a coral zone. There are six overlapping and mutually exclusive options (Map 2, Table 3), and only one may be selected. Options for fishing restrictions are described in Section 4.3.

The overall objective of this type of measure would be to prevent the expansion of fishing effort into deep-water coral areas, while limiting impacts on current fishing operations. Progressively deeper broad zones encompass less and less fishing activity.

The zones have their landward/shallow boundaries along the southern flank of Georges Bank, their seaward boundary at the EEZ, and their western boundary along the New England/Mid-Atlantic inter-council boundary line. The landward boundary options are simplified versions of 300m, 400m, 500m, 600m, and 900 m depth contours, with line segments connecting waypoints with specific latitude/longitude coordinates. The 600m contour was used to define two separate options. One (Option 4) has an average depth of 600m, bound by the 550m and 650m contours, and one (Option 6) has a minimum depth of 600m. **Option 6 is preferred, with a restriction on all bottom-tending gears and exemption for the red crab trap fishery.**

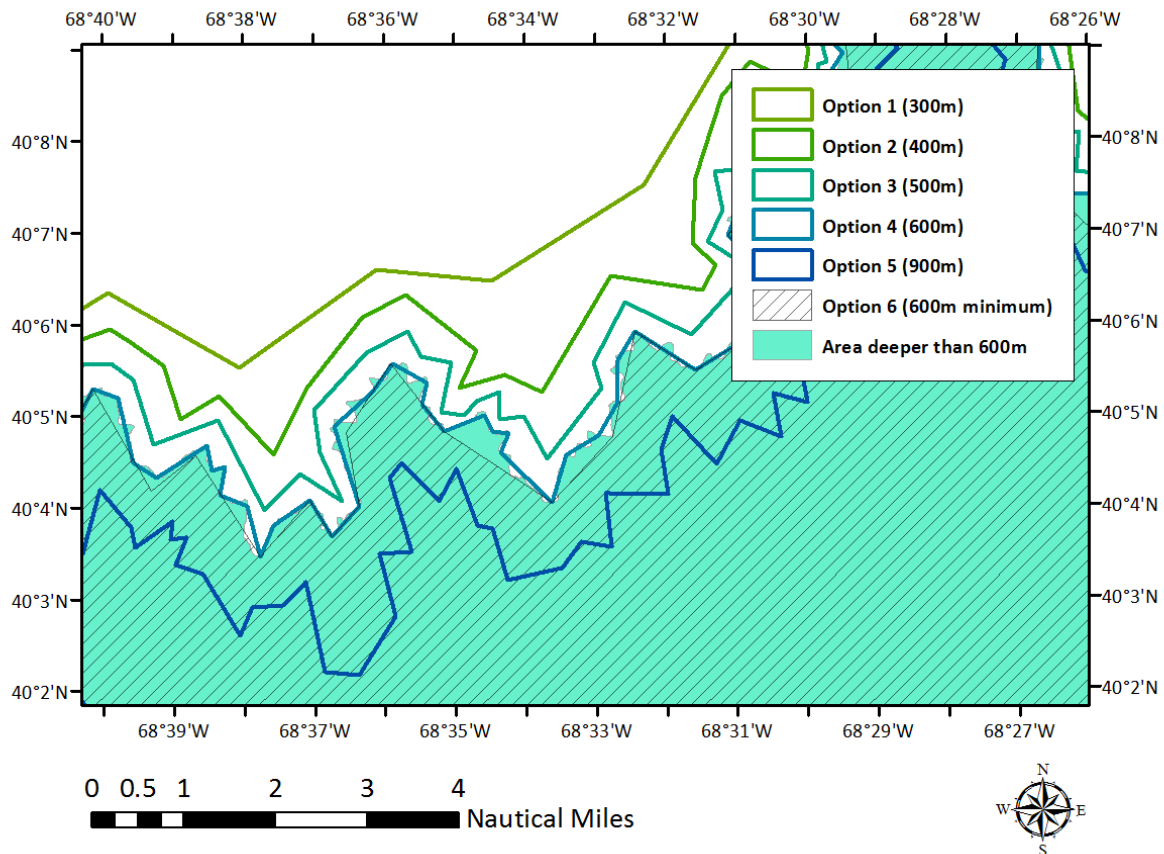
The environmental assessment details the methods used to define the broad coral zone boundaries. A close up view of the boundaries near Welker Canyon is shown on Map 3.

**Map 2 – Broad coral zone alternatives**





**Map 3 – Broad zone boundary options near Welker Canyon.**



**Table 3 – Summary of broad coral zone options**

Zone option and name	Boundaries	Minimum depth and size
Option 1: 300m broad zone	Landward boundary approximates the 300m contour and the seaward boundary at the EEZ.	The zone has a minimum depth of 250m and is 67,142km <sup>2</sup> .
Option 2: 400m broad zone	Landward boundary approximates the 400m contour and the seaward boundary at the EEZ.	The zone has a minimum depth of 350m and is 66,410km <sup>2</sup> .
Option 3: 500m broad zone	Landward boundary approximates the 500m contour and the seaward boundary at the EEZ.	The zone has a minimum depth of 450m and is 65,838km <sup>2</sup> .
Option 4: 600m broad zone	Landward boundary approximates the 600m contour and the seaward boundary at the EEZ.	The zone has a minimum depth of 550m and is 65,365km <sup>2</sup> .
Option 5: 900m broad zone	Landward boundary approximates the 900m contour and the seaward boundary at the EEZ.	The zone has a minimum depth of 850m and is 64,193km <sup>2</sup> .
Option 6: 600m minimum depth broad zone ( <b>preferred alternative</b> )	Landward boundary approximates the 600m contour and the seaward boundary at the EEZ.	The zone is similar to Option 4, but has a minimum depth of 600m. The zone is 65,147km <sup>2</sup> .

#### 4.2.2 Discrete deep-sea coral zone designations

Discrete deep-sea coral zones overlap individual canyons, seamounts, or other features. Methods used to define discrete coral zone boundaries are detailed in the environmental assessment.

##### 4.2.2.1 Canyon coral zones

This alternative would designate coral zones within 20 submarine canyons off the southern boundary of Georges Bank (Map 4). From west to east, these canyons include Alvin, Atlantis, Nantucket, Veatch, Hydrographer, Dogbody, Clipper, Sharpshooter, Welker, Heel Tapper, Oceanographer, Filebottom, Chebacco, Gilbert, Lydonia, Powell, Munson, Nygren, an unnamed canyon, and Heezen. The canyons that overlap the National Monument are Oceanographer, Filebottom, Chebacco, Gilbert, and Lydonia. Options for fishing restrictions in these zones are described in section 4.3. **Designation of coral zones in individual canyons is not a preferred alternative.**

The discrete canyon zones would protect deep-sea corals from the impacts of fishing throughout the full spatial extent of each canyon. All of these canyons have recent (2013 or later) remoted operated vehicle or towed camera exploratory survey dives indicating the presence of coral habitats. Some areas have earlier records as well.

The canyons vary in terms of their size, shape, geology, and biology, including the diversity and density of corals observed. The larger canyons tend to incise the shelf, and extend into shallower waters. The smaller canyons tend to be confined to the slope. The coral zones drawn around the shelf-incising canyons tend to have minimum depths around 300 meters, and the slope-confined canyons have minimum depths of around 400 meters.

##### Habitat suitability modeling

Many locations have not been directly sampled for deep-sea corals. Habitat suitability models combine coral presence data with environmental variable including seafloor terrain statistics; physical, chemical, and biological oceanographic data, and sediment/substrate information to predict where coral habitats are more or less likely to occur. In the northeast region, suitability models were developed for soft corals, stony corals, and sea pens. The soft coral model results were used in this amendment to design and evaluate the coral management zones.

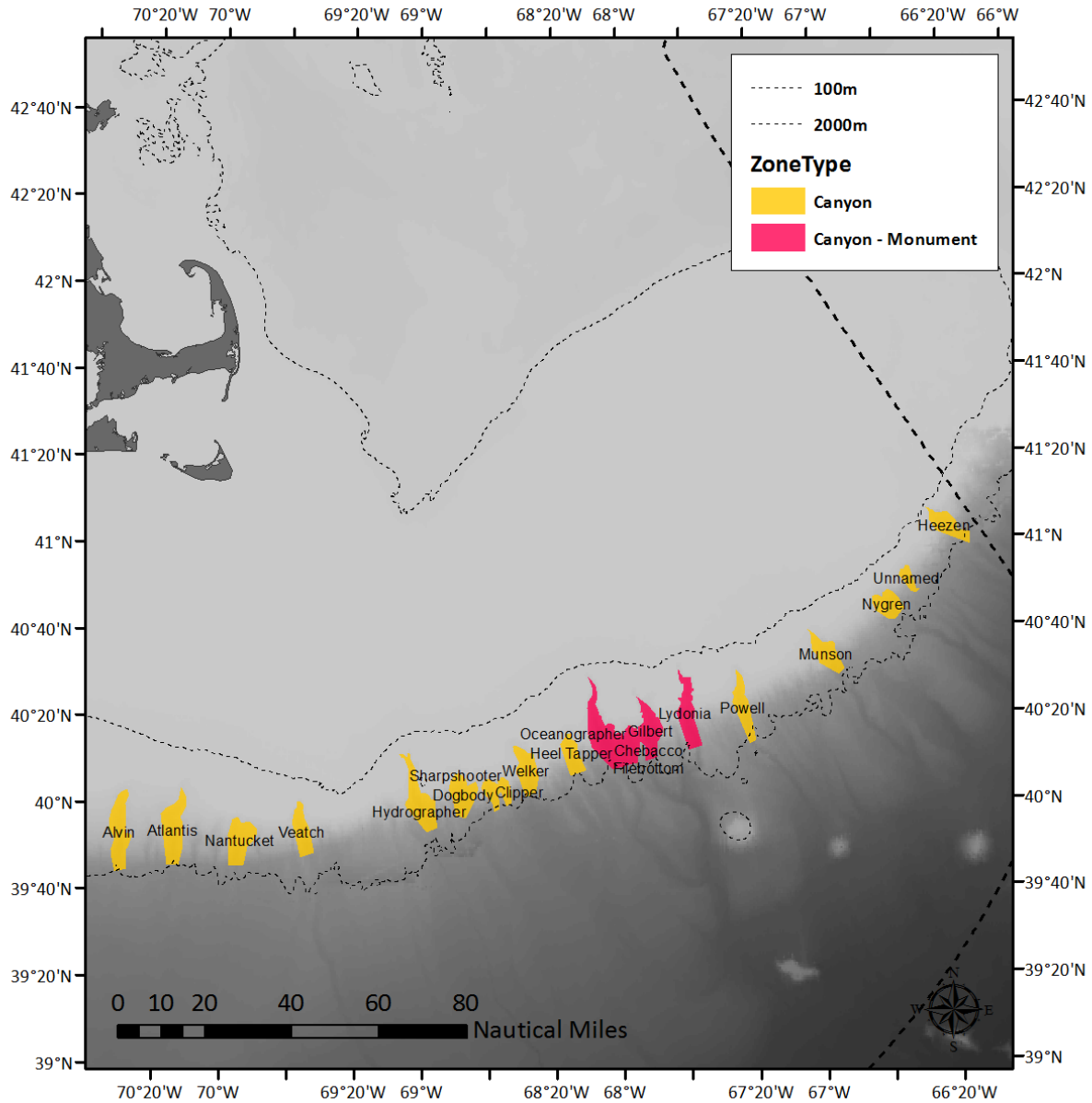
Section 6.2.3.1 of the amendment document provides extensive summaries of the scientific information on deep-sea corals within each canyon. A series of maps in this document depict the discrete canyon boundaries, overlaid on high-resolution depth data.

In the canyon/slope region, recent scientific surveys have shown that corals nearly always occur in locations where slopes are very steep. Steep slope in this context is classified as slopes greater than 30 degrees. These areas are shown on the maps in blue.

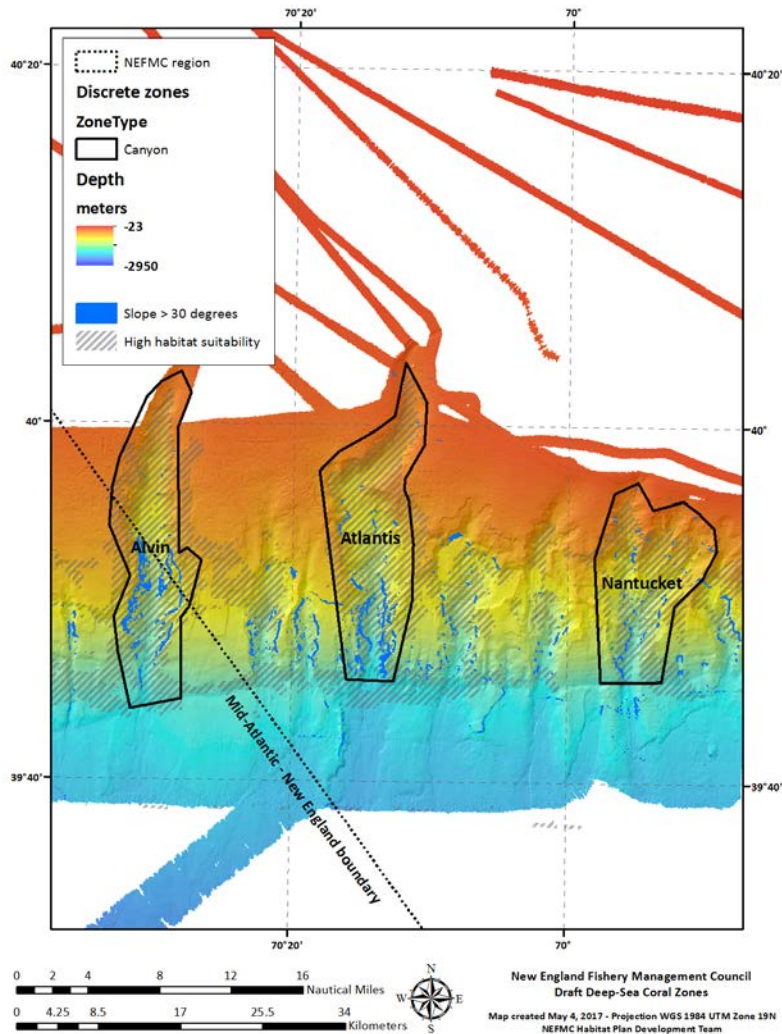
In addition, a suitability model (see box at left) was developed for the region to explore the distribution of locations likely to provide habitat for deep-sea corals. Areas highly likely to provide suitable habitat for soft corals are shown in grey hatching.



**Map 4 – Summary of all 20 canyon coral zone alternatives**



## Map 5 – Alvin, Atlantis, and Nantucket Canyons



Skate on the wall of Atlantis Canyon



Cup coral (solitary deep-sea stony coral) in Alvin Canyon



Imaging the walls of Alvin Canyon with an ROV

### Alvin Canyon

- Shelf-incising, area approximately 200 km<sup>2</sup>
- Zone follows the 300 m depth contour at the head of the canyon
- Extensive areas of predicted suitable habitat
- Some areas of high slope
- Corals documented in historical and recent data

### Atlantis Canyon

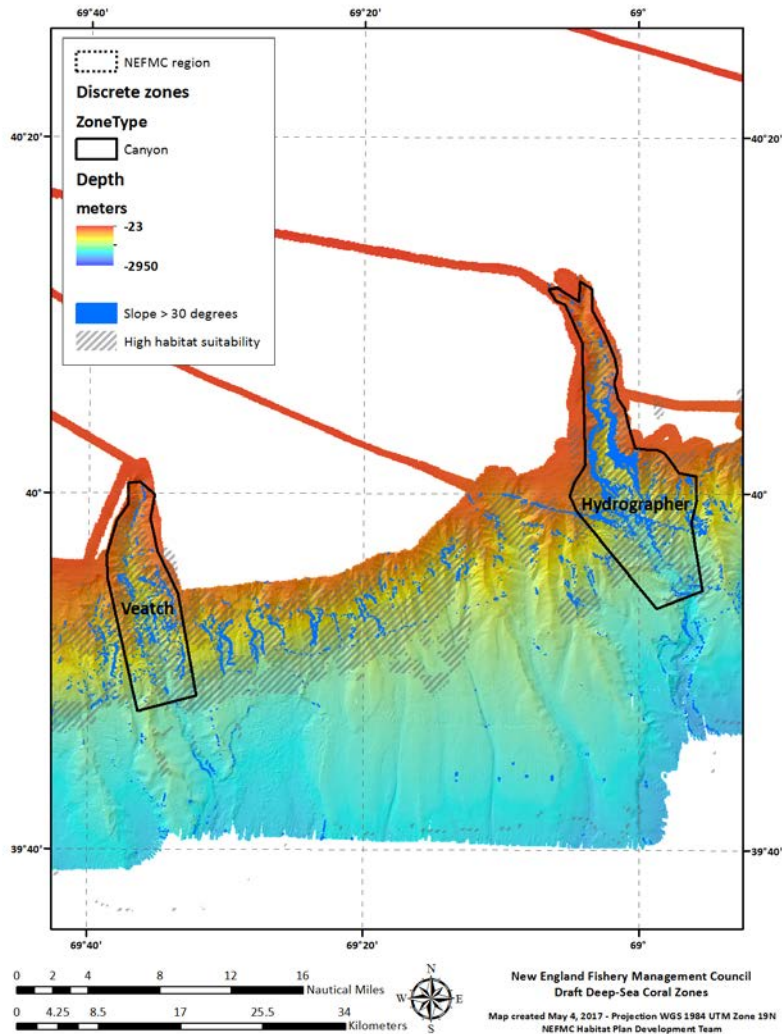
- Shelf-incising, area approximately 200 km<sup>2</sup>
- Zone follows the 300 m depth contour at the head of the canyon
- Extensive areas of predicted suitable habitat
- Some areas of high slope
- Corals documented in historical and recent data

### Nantucket Canyon

- Shelf-incising, area approximately 200 km<sup>2</sup>
- Zone follows the 300 m depth contour at the head of the canyon
- Extensive areas of predicted suitable habitat
- Some areas of high slope
- Corals documented in historical and recent data

*Images courtesy of NOAA Okeanos Explorer Program, 2013 Northeast U.S. Canyons Expedition.*

## Map 6 – Veatch and Hydrographer Canyons



Toppled *Paragorgia* coral colony in Hydrographer Canyon



Shrimp on soft coral in Hydrographer Canyon



Diverse deep sea corals in Hydrographer Canyon

### Veatch Canyon

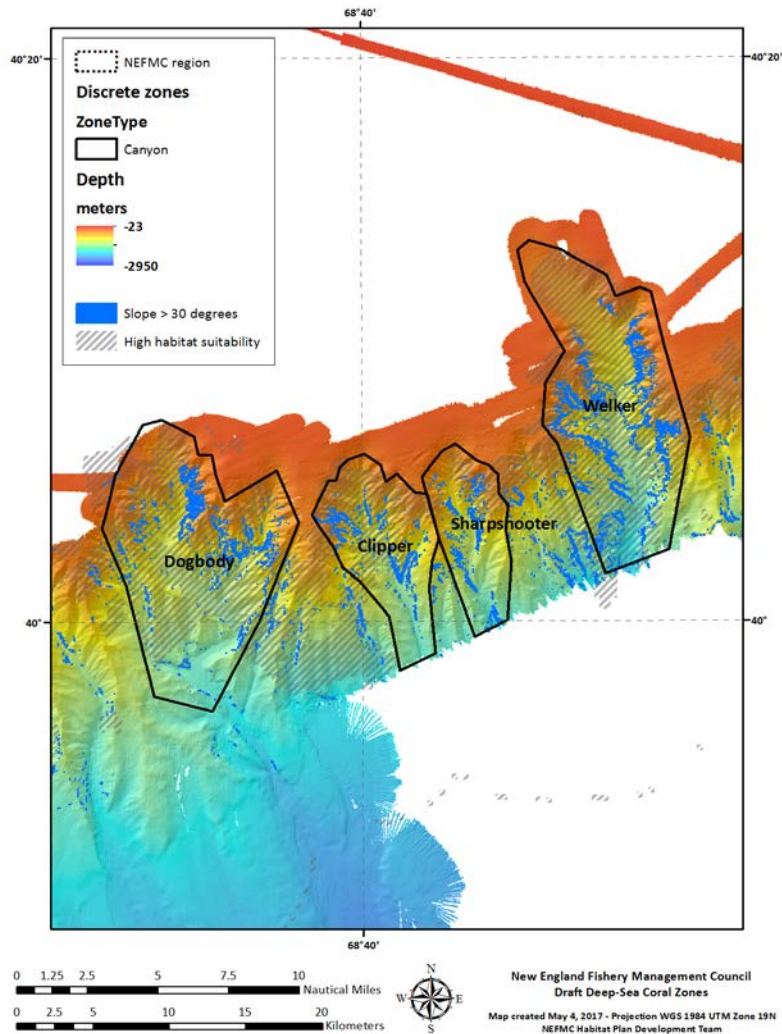
- Shelf-incising, area about 125 km<sup>2</sup>
- Depth is between 200m and 300m in the head of the canyon
- The No Action Tilefish Gear Restricted Area encompasses additional areas outside the discrete coral zone
- Most of the zone is mapped as high habitat suitability
- High slope areas, mainly in the deeper portions of the canyon
- Corals documented in recent data only

### Hydrographer Canyon

- Shelf-incising, area about 200 km<sup>2</sup>
- Zone follows the 200 m depth contour at the head of the canyon
- Most of the zone is mapped as high habitat suitability
- Extensive areas of high slope within the zone
- Corals documented in historical and recent data

*Images courtesy of NOAA Okeanos Explorer Program, 2013 Northeast U.S. Canyons Expedition.*

## Map 7 - Dogbody, Clipper, Sharpshooter, and Welker Canyons



An octopus in the rocks at Welker Canyon

### Dogbody Canyon

- Shelf-incising, area about 150 km<sup>2</sup>
- Zone follows the 300m depth contour at the head
- Most of the zone predicted to have habitat suitable for soft corals
- Both branches include high slope areas
- Corals documented in historical and recent data

### Clipper Canyon

- Slope-confined, area about 50 km<sup>2</sup>
- Zone follows the 400 m depth contour at the head
- Suitability model predicts soft coral habitat in shallower portions of the zone
- High slope areas along both branches
- Corals documented in historical and recent data

### Sharpshooter Canyon

- Slope-confined, area about 50 km<sup>2</sup>
- Zone follows the 400 m depth contour at the head
- Few areas of predicted suitable habitat, but includes areas of high slope at various depths
- Corals documented in recent data only

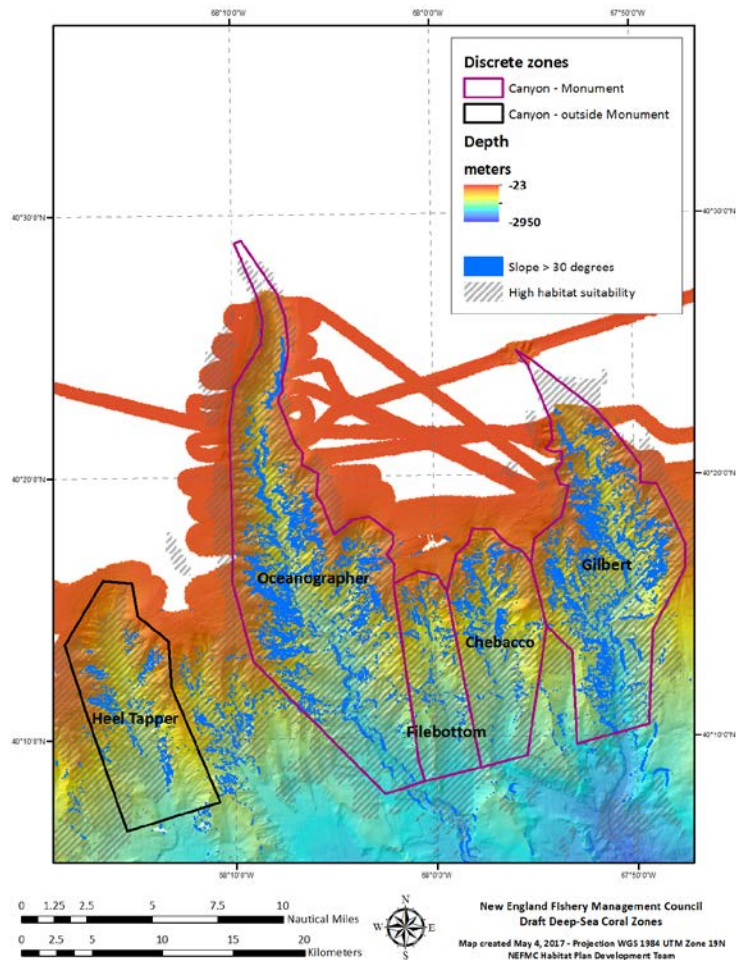
### Welker Canyon

- Shelf-incising, area about 150 km<sup>2</sup>
- Zone follows the 300 m depth contour at the head
- Large areas of high slope along both walls
- Most of the zone predicted to be high suitability soft coral habitat
- Corals documented in recent data only

*Images courtesy of NOAA Okeanos Explorer Program, 2013 Northeast U.S. Canyons Expedition.*



## Map 8 – Heel Tapper, Oceanographer, Filebottom, Chebacco, and Gilbert Canyons



**Anthomastus coral in Oceanographer**



**Rockfall exposing a clean wall section within Oceanographer Canyon**



**Large black coral and two Paramuricea corals at Oceanographer**

### Heel Tapper Canyon

- Shelf-incising, area about 100 km<sup>2</sup>
- Zone follows the 300m depth contour at the head
- Most of the canyon is identified as having high likelihood of coral presence, some areas of high slope
- Corals documented in recent data only.

### Oceanographer Canyon

- Shelf-incising, area over 200 km<sup>2</sup> (largest canyon)
- Zone follows the 300m depth contour at the head
- Most of the canyon is identified as having high likelihood of coral presence, extensive areas of high slope
- Well studied; corals documented in historical and recent data

### Filebottom Canyon

- Slope-confined, area about 50 km<sup>2</sup>
- Zone follows the 300 m depth contour at the head

- Most of the zone is predicted high suitability habitat, less area of high slope compared with other canyons
- Corals documented in historical and recent data

### Chebacco Canyon

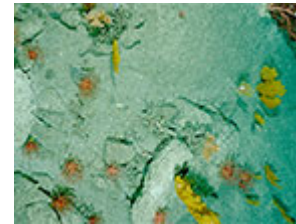
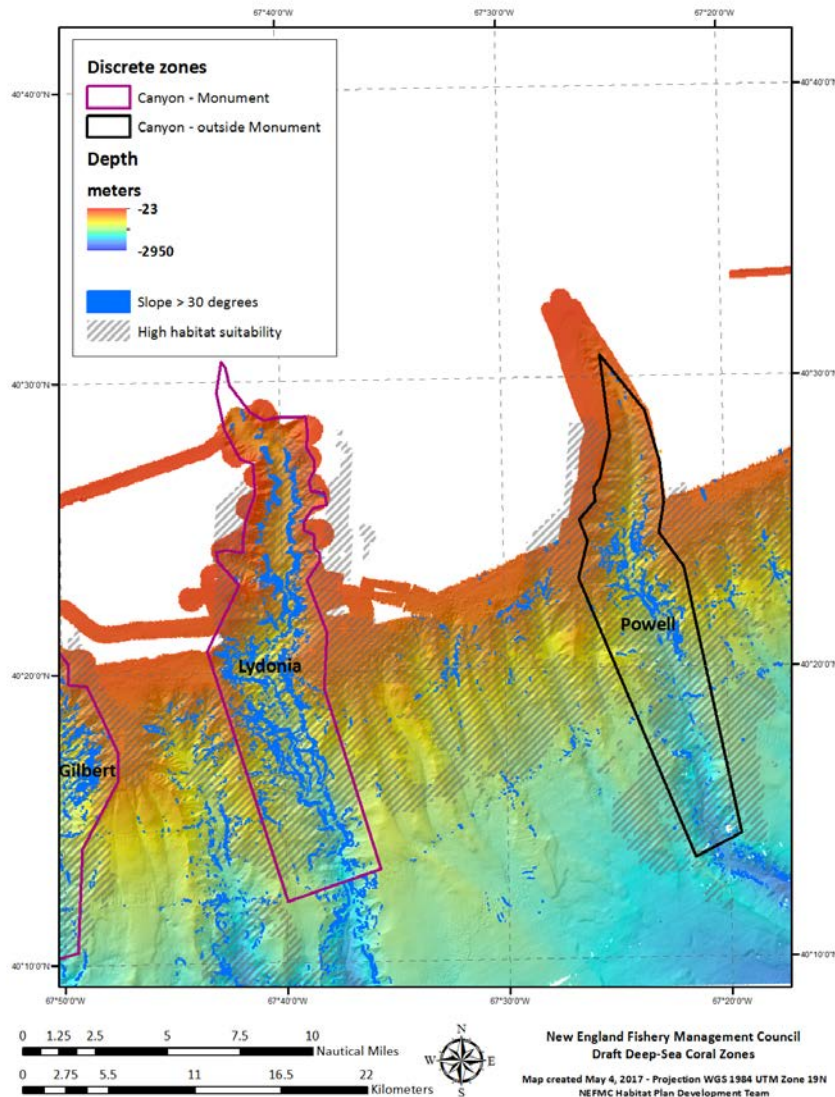
- Slope-confined, area about 100 km<sup>2</sup>
- Zone follows the 400m depth contour at the head
- Larger and steeper than Filebottom; much of the zone predicted to be suitable habitat for soft corals
- Corals documented in recent data only

### Gilbert Canyon

- Shelf-incising, area about 175 km<sup>2</sup>
- Zone follows 300m depth contour at the head
- Most of the canyon is identified as having high likelihood of coral presence, extensive areas of high slope
- Corals documented in recent data only

*Images courtesy of NOAA Okeanos Explorer Program, 2013 Northeast U.S. Canyons Expedition.*

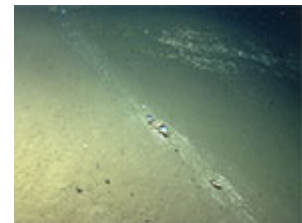
## Map 9 – Lydonia and Powell Canyons



Diverse deep-sea corals on the eastern wall of Powell Canyon



Chimera in Lydonia Canyon



Sediment transport in Lydonia Canyon

### Lydonia Canyon

- Shelf-incising, area over 200 km<sup>2</sup>, second in size only to Oceanographer Canyon
- Zone follows the 200 meter depth contour at the head
- Most of the zone is identified as having high likelihood of coral presence
- Extensive areas of high slope, including within the head of the canyon
- Well studied; corals documented in historical and recent data

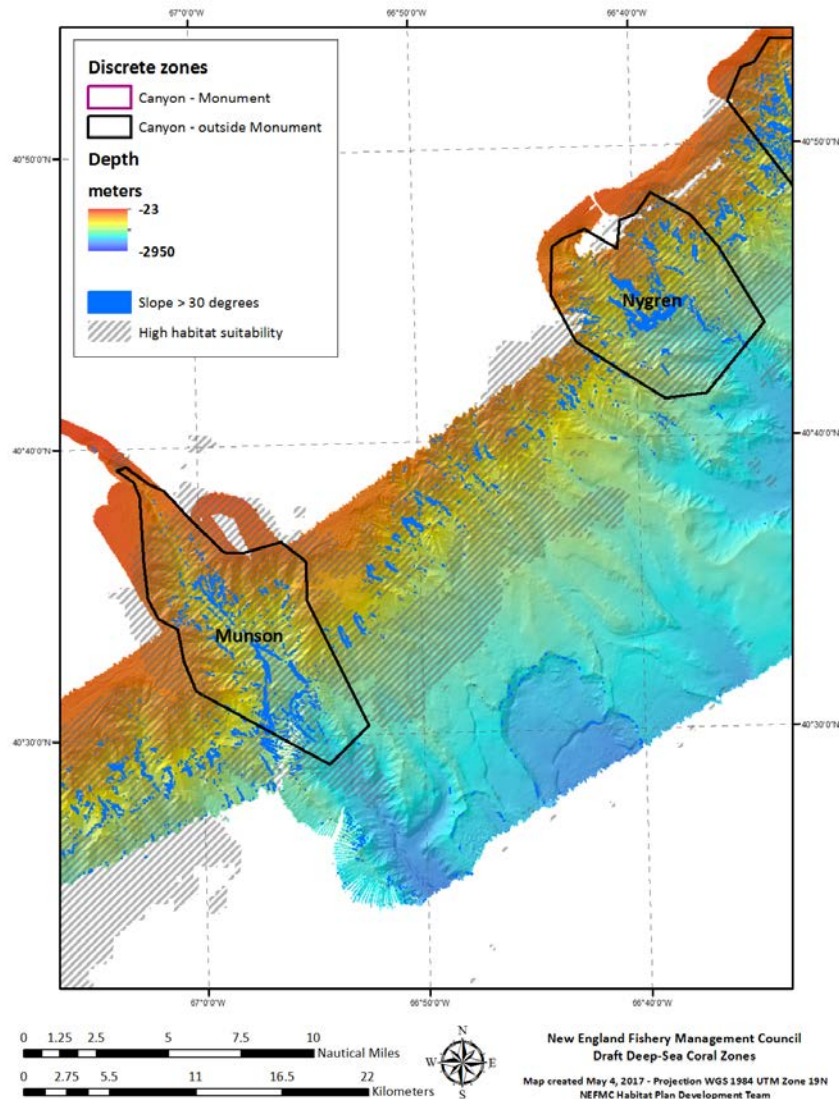
### Powell Canyon

- Shelf-incising, area about 200 km<sup>2</sup>
- Zone follows the 300 m depth contour at the head
- Most of the zone is identified as having high likelihood of coral presence
- Some areas of high slope, concentrated just beyond the shelf break
- Corals documented in recent data only

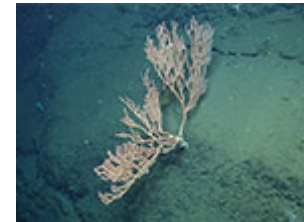
*Images courtesy of NOAA Okeanos Explorer Program, 2013 Northeast U.S. Canyons Expedition*



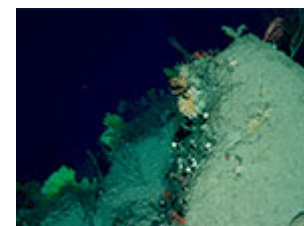
## Map 10 – Munson and Nygren Canyons



Clavularia coral in Nygren Canyon



Giant bamboo fan, Jasonia, from Nygren Canyon



Diverse corals and sponges in western Munson Canyon

### Munson Canyon

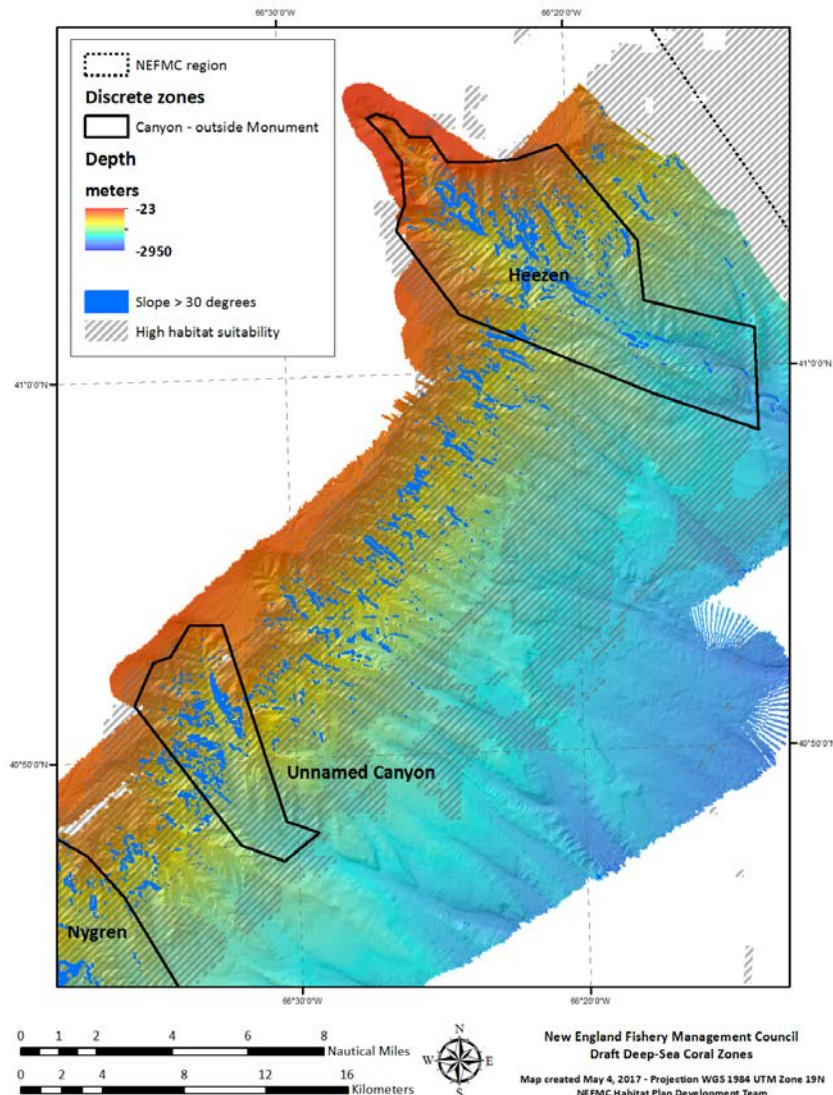
- Shelf-incising, area about 100 km<sup>2</sup>
- Zone follows the 300m depth contour at the head
- Most of the canyon is identified as having high likelihood of coral presence
- Areas of high slope throughout, except in the shallowest portion of the canyon
- Corals documented in historical and recent data

### Nygren Canyon

- Slope-confined, area about 100 km<sup>2</sup>
- Zone follows the 400 m depth contour at the head
- Most of the canyon is identified as having high likelihood of coral presence
- Areas of high slope are concentrated in the middle of the proposed zone, but can be found on all major branches of the canyon
- The very high suitability areas coincide with the very high slopes
- Boundaries correspond with the habitat suitability results
- Corals have been documented in recent data only

*Images courtesy of NOAA Okeanos Explorer Program, 2013 Northeast U.S. Canyons Expedition*

## Map 11 – Unnamed canyon and Heezen Canyon



Cup corals and sea star in Heezen Canyon



Scalloped wall in Heezen Canyon



Inspecting mudstone sediments in Heezen Canyon

### Unnamed canyon

- Slope-confined, area about 50 km<sup>2</sup>
- Zone follows the 400 m contour at the head
- Most of the canyon is identified as having high or very high likelihood of coral presence
- Areas of high slope can be found throughout the zone, and generally coincide with areas of very high habitat suitability
- Corals documented in recent data only

### Heezen Canyon

- Shelf-incising, area about 125 km<sup>2</sup>
- Zone follows the 200 m contour at the head
- Most of the recommended zone is identified as having high and very high likelihood of coral presence
- Areas of high slope can be found throughout the zone
- Well studied, corals documented in historical and recent data

*Images courtesy of NOAA Okeanos Explorer Program, 2013 Northeast U.S. Canyons Expedition*

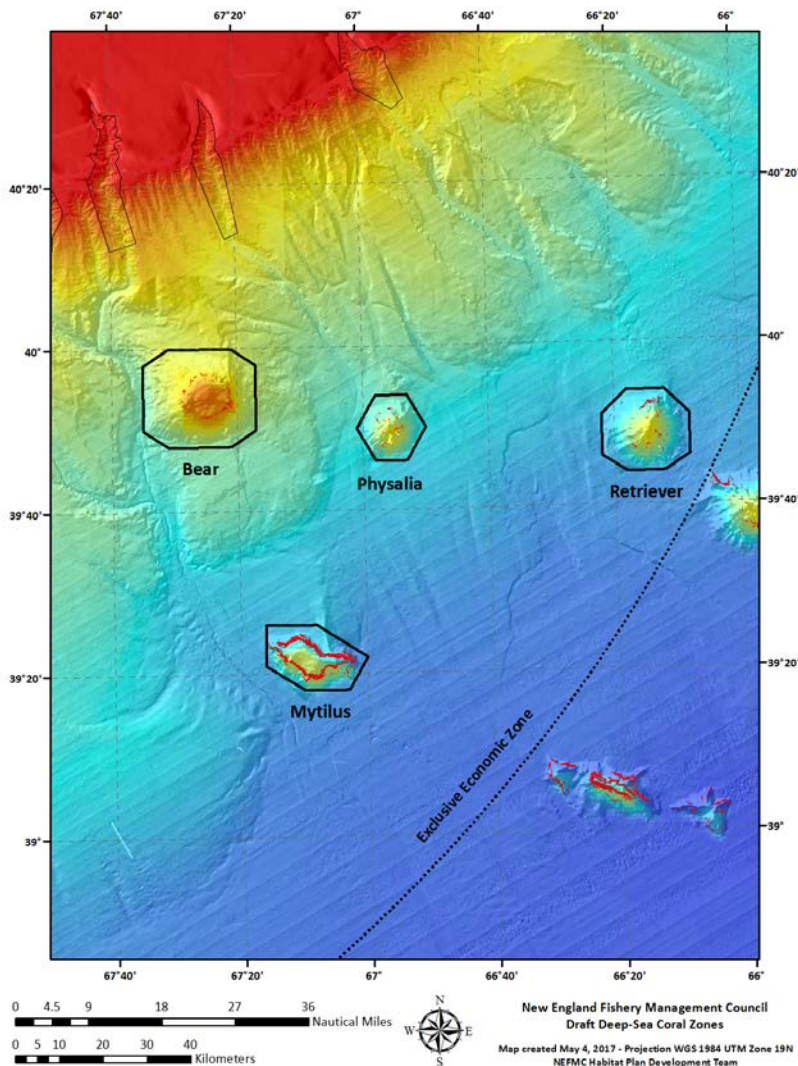


#### 4.2.2.2 Seamount coral zones

This alternative would designate coral zones around the four seamounts within the U.S. EEZ, Bear, Retriever, Physalia, and Mytilus. Options for fishing restrictions in these zones are described in section 4.3.

Fishing with any type of bottom-tending gear is not currently known to occur on the seamounts. This alternative would protect corals occurring on seamounts from the negative impacts of fishing activity, should fisheries expand to include any of the four seamounts within in the U.S. EEZ at some time in the future. Deep-sea corals are known to occur on the seamounts on the basis of ROV and AUV surveys.

**Map 12 – The four seamount coral zones are outlined in black and labeled individually. Depth increases from northwest (red) to southeast (blue). The Lydonia, Powell, and Munson Canyon zones are depicted along the shelf break in the northwest corner of the image. Additional seamounts shown on the map are outside the U.S. EEZ.**



**Bear** is the largest of the New England seamounts. The summit is about 1,100 m below sea level, and the base of the seamount is at over 3,000 m. While it was not visited during recent (2012-2015) cruises, all four groups of corals (soft, stony, sea pens, and black corals) had been previously documented in the area.

**Mytilus** is the deepest of the four seamounts, with a minimum depth of 2,396 m and a maximum depth within the proposed coral zone boundary of 4,183 m. Corals have been documented in recent data only.

**Physalia and Retriever seamounts** have similar minimum and maximum depths. The summit of Physalia is at about 1,900 m, and the deepest part of the proposed zone is at over 3,700 m. Physalia was surveyed for the first time in 2012 using AUV technology (Kilgour et al. 2014), and was also observed during a 2014 *R/V Okeanos Explorer* cruise.

The summit of **Retriever Seamount** is at about 1900 m, and the deepest part of the proposed zone is at depths of over 4,000 m. Corals have been documented in recent data only.

#### **4.2.2.3 Gulf of Maine coral zones**

Deep-sea corals have been known to occur in the Gulf of Maine since the 19<sup>th</sup> century (Watling and Auster 2005), but targeted camera surveys to assess coral distribution have been conducted only in the last fifteen years, with most of this type of survey activity occurring since 2013. Coral habitats observed during 2002, 2003, and 2013-2015 surveys were classified as either low density corals or coral gardens. A density of 0.1 colonies per square meter is the threshold that the International Council for the Exploration of the Sea (ICES) used to define coral garden habitat (ICES 2007). Coral habitats in some areas of the Gulf of Maine exceed the coral garden threshold density (see sections below for details), although coral management zones are recommended in areas with both classifications.

The recommended zones are Outer Schoodic Ridge, Mount Desert Rock, Jordan Basin, and Lindenkohl Knoll, which is in Georges Basin. All sites with multiple dive observations, specifically Outer Schoodic Ridge, Mount Desert Rock, the 114 Bump site in western Jordan Basin, a site in central Jordan Basin, and Lindenkohl Knoll, had at least one dive where coral garden habitats were found.

In general, the boundaries of the coral zones were developed to encompass dive sites where corals were positively identified. Other recently collected data that inform the delineation of coral zones include high resolution multibeam bathymetry in the Outer Schoodic Ridge and western Jordan Basin regions. Because the spatial extent of high resolution bathymetric data is limited, it is not possible to delineate zone boundaries based on full spatial extent of specific terrain features, as is the case with the canyon and seamount sites. However, the bathymetric data confirm the presence of similar terrain at sampled locations and nearby unsampled locations, such that suitable habitat can be inferred beyond the dive sites.



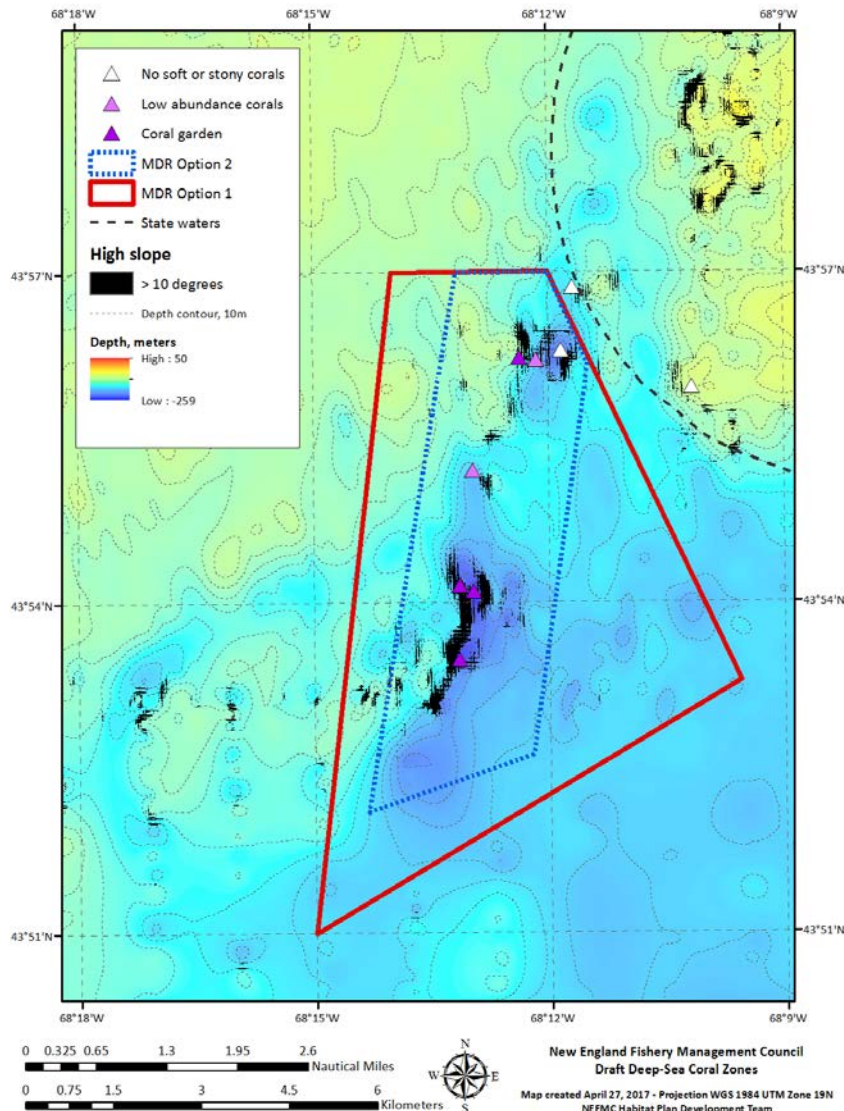
**ROPOS remotely operated vehicle and soft corals in Jordan Basin. Images courtesy of Martha Nizinski, NOAA.**

#### 4.2.2.3.1 Mount Desert Rock

This alternative would designate a coral zone southwest of Mount Desert Rock, a small, rocky island off the eastern Maine coast, about 20 nm south of Mount Desert Island. Options for fishing restrictions in this zone are described in Section 4.3.

This alternative would protect corals in the Mt. Desert Rock region from fishing impacts. Corals have been documented in both the historical and recent data.

**Map 13 – Mount Desert Rock Coral Zone options, including recent dive locations and relative abundance of corals. Contours are in 10 m intervals and areas of high slope are shown in black.**



There are two boundary options for the Mt. Desert Rock zone.

**Option 1** is the larger of the two, and encompasses an area of about 47 km<sup>2</sup>/18 mi<sup>2</sup>. **Option 2** lies within Option 1, a smaller area about 21 km<sup>2</sup>/8 mi<sup>2</sup>. Both options encompass depths of 100-200 m.

#### MDR Option 1 coordinates:

-68°09'34", 43°53'17"  
-68°15'00", 43°51'00"  
-68°14'00", 43°57'00"  
-68°12'00", 43°57'00"

#### MDR Option 2 coordinates:

-68°14'19", 43°52'06"  
-68°13'10", 43°56'59"  
-68°12'00", 43°57'00"  
-68°11'27", 43°56'10"  
-68°12'13", 43°52'37"

#### LORAN for Option 1

12490.3694/25708.0664  
12480.9303/25703.2118  
12495.5071/25680.0337  
12537.0770/25682.3071

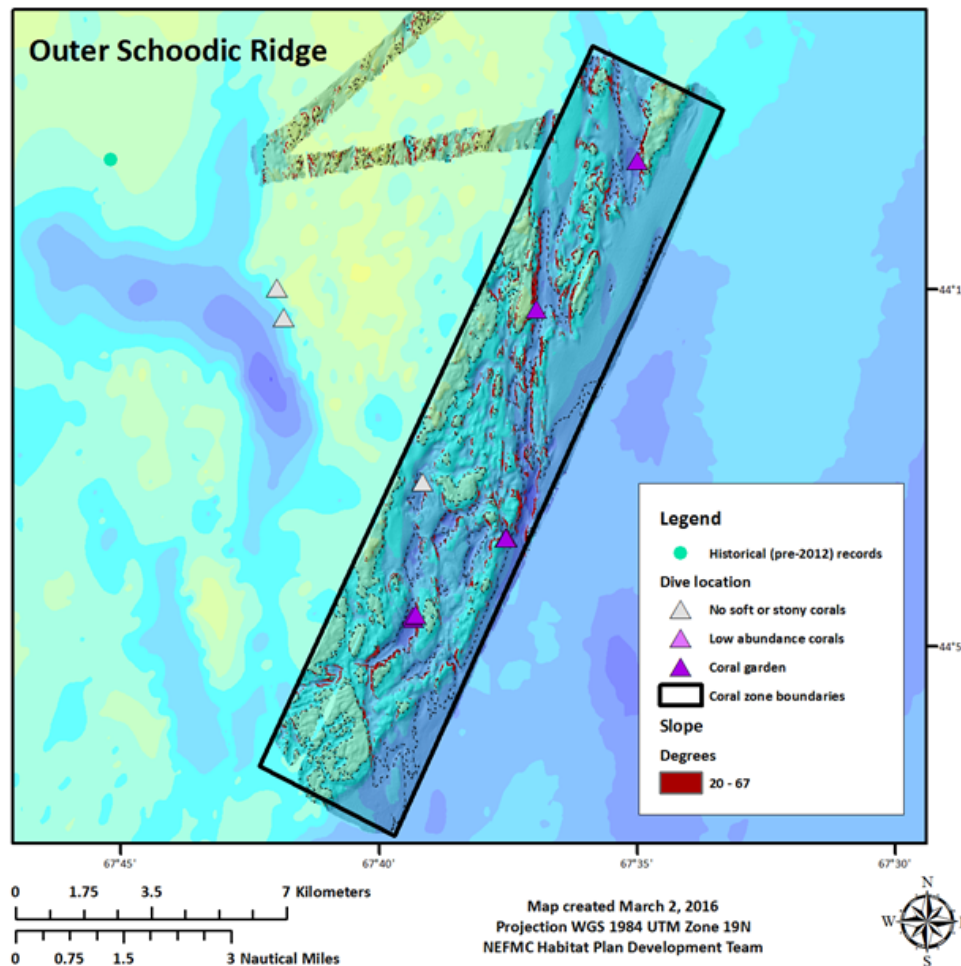


#### 4.2.2.3.2 Outer Schoodic Ridge

This alternative would designate a coral zone on the Outer Schoodic Ridge, roughly 25nm southeast of Mt. Desert Island, within Statistical Area 511 and Maine Lobster Management Zone A. The coral zone encompasses a portion of the ridge that has been recently mapped with multibeam and surveyed using ROV. Options for fishing restrictions in this zone are described in Section 4.3.

This alternative would protect corals in the Outer Schoodic Ridge region from fishing impacts. Corals have been documented in both the historical and recent data. Corals at this location were studied during eight ROV dives and two camera tows during 2013, 2014, and 2015. Steeply sloped features that are likely to provide suitable attachment sites for corals are found in the vicinity of the dive sites, throughout the area with high resolution bathymetry data. Based on the presence of steep terrain, the entire footprint of this dataset, aside from a small amount of data to the west of the area in shallower waters, is recommended as a coral zone. It is possible that there are additional corals outside the recommended zone boundaries, but corals were not observed during dives at similar depths nearby.

**Map 14 – Outer Schoodic Ridge Coral Zone and high resolution bathymetry.**  
Areas of high slope are shown in red. Relative coral densities during recent dives (triangles) are shown in purple shading.



Recent high resolution bathymetric mapping details the complex, slot canyon terrain in the area. These data indicate that depths in the zone range from 104 m to 248 m, with a mean depth of 174 m. The coral zone is about 79 km<sup>2</sup>/31 mi<sup>2</sup>.

#### Outer Schoodic Ridge coral zone coordinates:

-67°35'36", 44°13'29"  
-67°33'06", 44°12'34"  
-67°39'42", 44°02'29"  
-67°42'17", 44°03'29"

#### LORAN

12204.6723/25695.2795  
12201.3736/25686.0884  
12299.4582/25656.1406  
12303.1351/25665.8443

#### 4.2.2.3.3 Jordan Basin

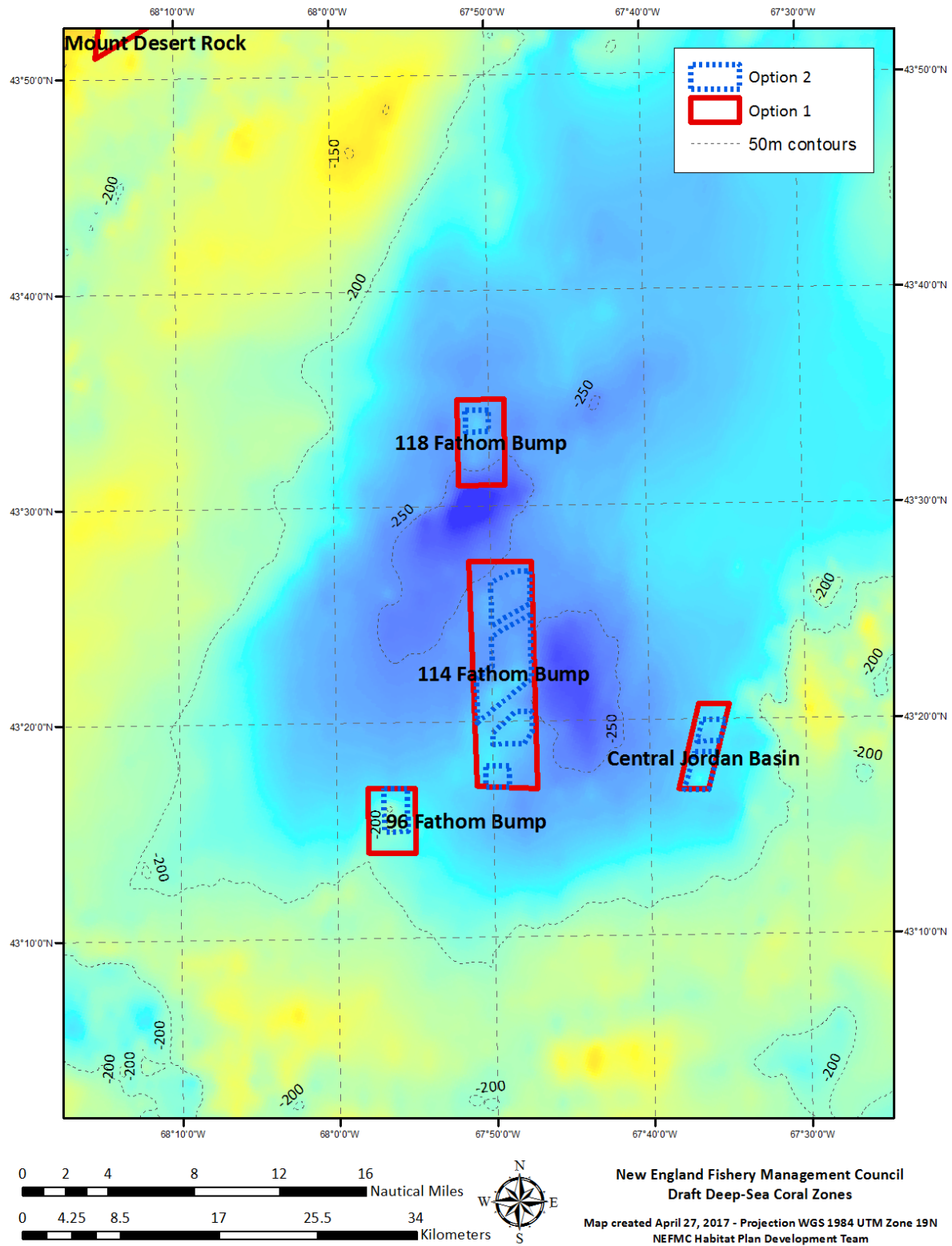
This alternative would designate coral zones in Jordan Basin, which straddles the EEZ boundary, with depths of about 175-250m. Deep-sea corals have been observed on shallower rocky features within the basin, named for their charted depths: 98 Fathom Bump (179m), 114 Fathom Bump (208m), and 118 Fathom Bump (216m). A site in central Jordan Basin encompasses depths of about 220-235m. The 114 Fathom Bump is the best mapped, and has the greatest number of survey dives.

**Option 1** is comprised of four zones, one zone each feature. The smaller **Option 2** includes four areas at 114 Fathom Bump, two areas in Central Jordan Basin, and one area each at the 96 Fathom and 118 Fathom Bumps. Options for fishing restrictions in these zones are described in Section 4.3. These zones would protect coral habitats in Jordan Basin from the impacts of fishing gear.

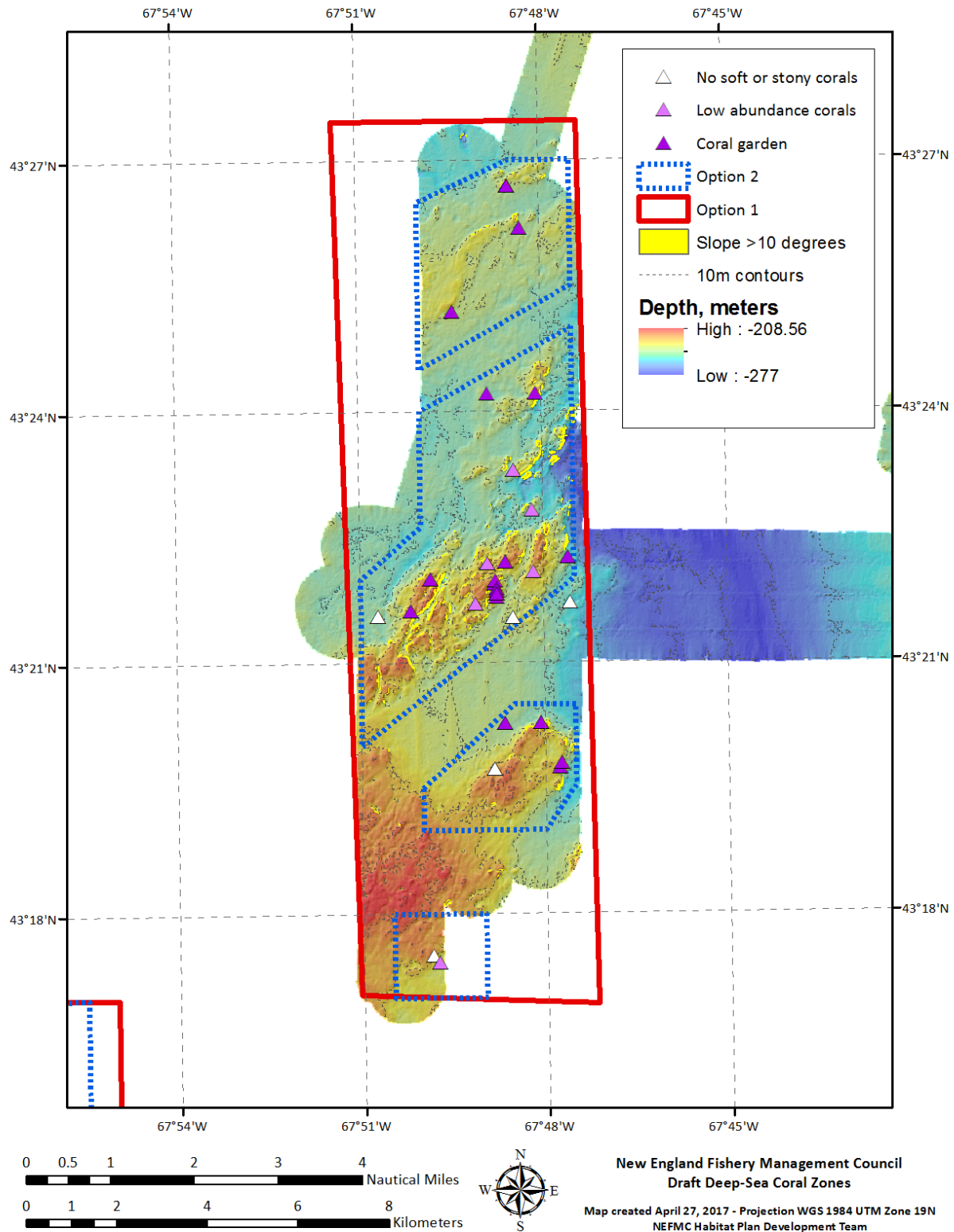
**Table 4 – Summary of coordinates and sizes for the Jordan Basin coral zone options**

		Option 1		Option 2	
		Coordinates	Size (km <sup>2</sup> )	Coordinates	Size (km <sup>2</sup> )
Feature	96 Fathom Bump	-67°58'0", 43°14'0" -67°58'0", 43°17'0" -67°55'0", 43°17'0" -67°55'0", 43°14'0"	22.5	-67°57'00", 43°17'00" -67°55'30", 43°17'00" -67°55'30", 43°15'00" -67°57'00", 43°15'00"	7.5
	114 Fathom Bump	-67°47'22.9", 43°27'27.8" -67°47'10.6", 43°16'55.2" -67°51'2.9", 43°17'2.8" -67°51'22.9", 43°27'28.2"	103.1	-67°49'60", 43°26'30" -67°48'30", 43°27'00" -67°47'30", 43°27'00" -67°47'30", 43°25'30"	11.5
				-67°47'30", 43°25'00" -67°47'30", 43°22'00" -67°51'00", 43°20'00" -67°50'59.2", 43°21'59.7" -67°49'60", 43°22'37.2" -67°49'60", 43°24'00"	25.1
				-67°49'60", 43°19'30" -67°48'30", 43°20'30" -67°47'30", 43°20'29.6" -67°47'30", 43°19'32.5" -67°48'0", 43°19'0" -67°49'60", 43°19'0"	7.2
				-67°50'30", 43°18'00" -67°48'60", 43°18'00" -67°48'60", 43°17'00" -67°50'30", 43°17'00"	3.8
	118 Fathom Bump	-67°49'0", 43°35'0" -67°49'0", 43°31'0" -67°52'0", 43°31'0" -67°52'0", 43°35'0"	29.9	-67°51'30", 43°34'30" -67°49'60", 43°34'30" -67°49'60", 43°33'30" -67°51'30", 43°33'30"	3.7
	Central Jordan Basin	-67°34'53.9", 43°20'43.7" -67°36'16.7", 43°16'47" -67°38'10.9", 43°16'47.8" -67°36'51.2", 43°20'43.8"	19.0	-67°36'36.7", 43°20'00" -67°35'09.0", 43°20'00" -67°35'29.6", 43°19'00" -67°36'58.0", 43°19'00"	3.7
				-67°37'07.5", 43°18'30" -67°35'40.0", 43°18'30" -67°36'16.7", 43°16'45" -67°37'50.9", 43°16'45"	6.6

**Map 15 – Discrete coral zone options in Jordan Basin.**



**Map 16 – Larger scale image of the high resolution bathymetry at 114 fathom bump. This map uses a different color scale than the previous map of the Jordan Basin region.**

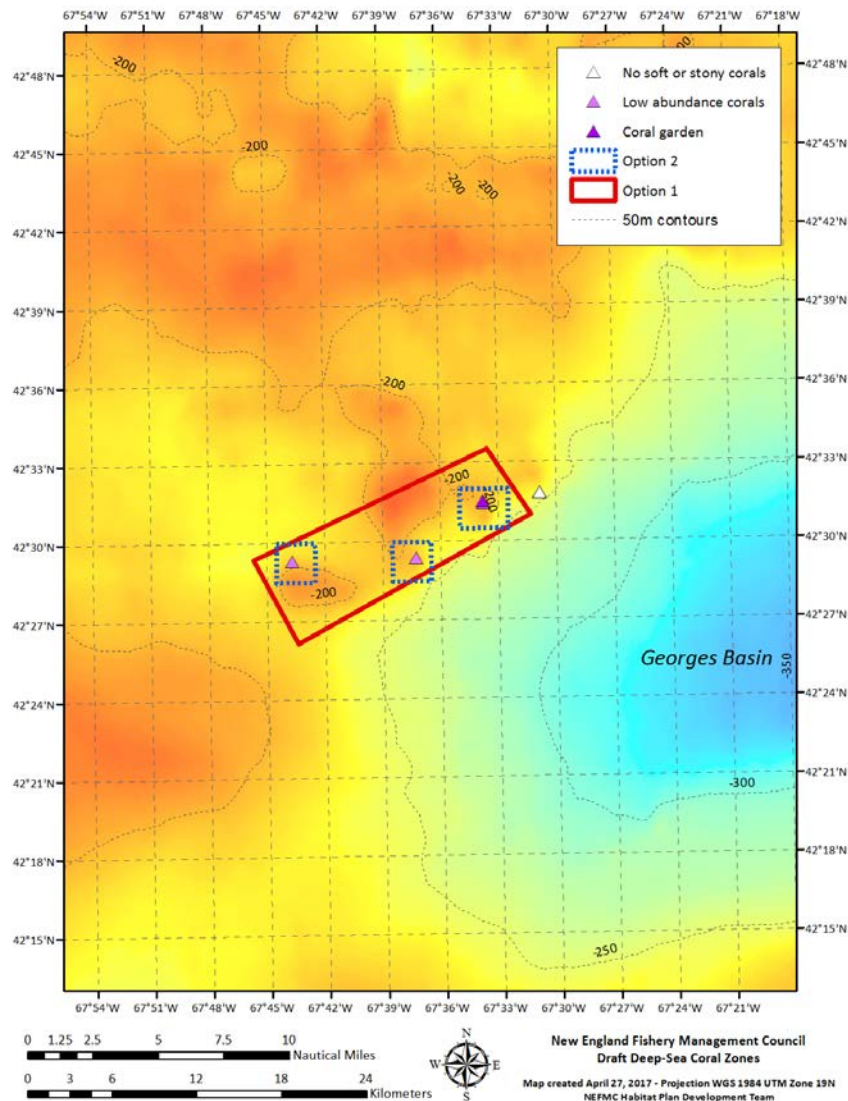




#### 4.2.2.3.4 Lindenkohl Knoll

This alternative would designate a coral zone or zones at Lindenkohl Knoll within Georges Basin, which is just north of Georges Bank, and includes the deepest waters in the Gulf of Maine (about 200fa, over 360m). Lindenkohl Knoll is a somewhat shallower feature on the western side of Georges Basin, roughly 25 miles north of the northern edge of Georges Bank. Corals have been documented in recently collected data. Options for fishing restrictions in this zone are described in Section 4.3. This zone would protect coral habitats at Lindenkohl Knoll from the impacts of fishing gear.

**Map 17 – Discrete coral zone options at Lindenkohl Knoll**



Two boundary options are under consideration. **Option 1** consists of a single zone. The eastern boundary of Option 1 is just over two nautical miles from the Hague Line. **Option 2** lies within Option 1 and consists of three smaller zones centered on locations where corals have been observed.

#### Lindenkholl Option 1 coordinates

-67°45'40.5", 42°29'23.3"  
 -67°33'34.3", 42°33'30.8"  
 -67°31'19.7", 42°30'59.8"  
 -67°43'24.5", 42°26'09.8"

#### Lindenkholl Option 2 coordinates

##### Area 1

-67°44'30", 42°30'00"  
 -67°42'30", 42°30'00"  
 -67°42'30", 42°28'30"  
 -67°44'30", 42°28'30"

##### Area 2

-67°38'30", 42°30'00"  
 -67°36'30", 42°30'00"  
 -67°36'30", 42°28'30"  
 -67°38'30", 42°28'30"

##### Area 3

-67°34'60", 42°32'00"  
 -67°32'30", 42°32'00"  
 -67°32'30", 42°30'30"  
 -67°34'60", 42°30'30"



### 4.3 FISHING RESTRICTIONS FOR CORAL ZONES

The following range of fishing restriction alternatives are under consideration for the coral zones described above. Different measures could be used in broad vs. discrete zones, or in different discrete zones, depending on the fisheries that occur there and the degree of precaution desired. Note that broad and discrete zones could be used in combination, with different types of measure applied in each.

#### 4.3.1 Option 1: Prohibit all bottom-tending gears

Option 1 would prohibit the use of all bottom-tending fishing gears in deep-sea coral zones, but would allow the use of gears that do not contact the seabed. Restricted gear types would include bottom-tending otter trawls, bottom-tending beam trawls, hydraulic dredges, non-hydraulic dredges, bottom-tending seines, bottom-tending longlines, sink or anchored gillnets, and pots and traps. This list is intended to be comprehensive, but some of these gears may not be active in the coral zones currently. Pots and traps could be exempted from this restriction by adopting one or both of the sub-options listed below in combination with this alternative.

##### 4.3.1.1 Sub-option A: Exempt the red crab fishery from coral zone restrictions

Sub-option A would exempt the red crab trap fishery from gear restrictions. This exemption would be limited to vessels fishing under a limited access red crab permit (Category B or C). **Option 1, Sub-option A is the preferred alternative for the 600m minimum depth broad zone.**

##### 4.3.1.2 Sub-option B: Exempt other trap fisheries from coral zone restrictions

Sub-option B would exempt vessels in all other pot and trap fisheries from gear restrictions. This exemption would cover vessels fishing for lobster and Jonah crab with federal lobster permits, as well as any other vessels fishing with traps or pots.

#### Transit provisions

Vessels may transit the coral zones provided bottom-tending trawl nets are out of the water and stowed on the reel and any other fishing gear that is prohibited in these areas is onboard, out of the water, and not deployed. Fishing gear would not be required to meet the definition of “not available for immediate use” in 50 CFR § 648.2. These transit provisions are consistent with those selected by the Mid-Atlantic Fishery Management Council for their coral zones, which went into effect on January 13, 2017.

#### 4.3.2 Option 2: Prohibit use of mobile bottom-tending gears

Option 2 would prohibit the use of mobile bottom-tending fishing gears in deep-sea coral zones, including bottom-tending otter trawls, bottom-tending beam trawls, hydraulic dredges, non-hydraulic dredges, and bottom-tending seines. This list is intended to be comprehensive, but some of these gears may not be active in the coral zones currently. This option would allow fishing with fixed gears (bottom-tending longlines, sink or anchored gillnets, and pots and traps) and any gear that does not contact the seabed.

**Option 2 is the preferred alternative for the Gulf of Maine discrete coral zones.**

#### **4.4 SPECIAL FISHERY PROGRAMS FOR CORAL ZONES**

The alternatives in this section would create programs to allow special access fishing, exploratory fishing, and/or research activities within coral zones. The concepts in these alternatives come from existing special access programs in the groundfish, scallop, and herring fisheries, the exempted fishing permit process, and the Northwest Atlantic Fishery Organization exploratory fishing program. One or more of the action alternatives could be selected, in any combination, or Alternative 1/No Action.

##### **4.4.1 Alternative 1/No Action. No special programs for access, exploratory fishing, or research tracking requirements**

Under Alternative 1/No Action, the Council would not develop any new programs for special access or exploratory fishing, and would not request that researchers ask for a letter of acknowledgement.

##### **4.4.2 Alternative 2. Special access program fishing**

This alternative would implement a special access program within some or all of the deep-sea coral zones. The objectives of the program would be as follows:

- (1) To allow for continued fishery access to some or all coral areas
- (2) To ensure that such fishing does not conflict with coral conservation objectives

This program would generate sufficient data to understand fishing distributions in coral zones, as well as interactions between fishing and corals. The intent is to specify the possible the operational requirements for a vessel to fish within a coral zone.

##### **4.4.3 Alternative 3. Exploratory fishing**

This alternative would implement an exploratory fishing program within some or all of the deep-sea coral zones. The objectives of an exploratory program would be as follows:

- (1) To allow for exploration of the feasibility (technological, economic) of new fisheries
- (2) To collect data that indicate whether the new fishery conflicts with coral conservation objectives

Steps in the exploratory fishing process would be as follows:

- (1) Apply for an exempted fishing permit and letter of authorization to conduct research/exploratory fishing
- (2) Document feasibility of the fishery including evidence that the fishery does not compromise coral conservation objectives
- (3) If appropriate, add the target species to the list of special access program species via rulemaking

##### **4.4.4 Alternative 4. Research activities**

This alternative would request that individuals and organizations seek a letter of acknowledgement when conducting scientific research (see definition below) in coral zones, acknowledging that such letters are not required. A letter of acknowledgement would be useful to help NMFS and the Council keep track of research activities that may be occurring in coral zones, the results of which could benefit future management decisions.

## **4.5 FRAMEWORK PROVISIONS FOR DEEP-SEA CORAL ZONES**

These options would allow the measures adopted via this amendment to be changed via framework adjustment versus fishery management amendment. This would not preclude the Council from determining, or NMFS from recommending, that an amendment is a more appropriate vehicle for consideration of the change. In some cases, an amendment might be more appropriate, particularly if the impacts of an action are likely to be substantial. Note that the decision about whether an environmental assessment vs. environmental impact statement is prepared is separate from the decision to pursue a framework or an amendment. Alternative 1/No Action, or one or more of the action Alternatives 2-4 could be selected.

### **4.5.1 Alternative 1: No Action**

Under Alternative 1, there would be no change to framework adjustment provisions of the FMPs regarding deep-sea coral management measures.

### **4.5.2 Alternative 2: Add, revise, or remove coral zones via framework adjustment**

Alternative 2 would allow coral zones to be added, revised, or removed via framework adjustment.

### **4.5.3 Alternative 3: Change fishing restrictions in coral zones via framework adjustment**

Alternative 3 would allow the Council to change the types of fishing gears restricted within deep-sea coral zones via framework.

### **4.5.4 Alternative 4: Allow changes to special access or exploratory fishing programs via framework adjustment**

Alternative 4 would allow changes to special access or exploratory fishing programs (e.g., permit and observer requirements, move-along provisions) via framework adjustment.

## 5.0 WHAT ARE THE IMPACTS OF THE MEASURES UNDER CONSIDERATION?

As required under the National Environmental Policy Act, the Council has begun to assess the potential impacts of the management proposals in this amendment on different components of the natural and human environment. These analyses will be completed following final Council action, before the Council submits the draft amendment and environmental assessment to the National Marine Fisheries Service. If the alternatives are modified by the Council during final action, the impacts analysis will be revised accordingly.

Given the Council's problem statement, which states that "measures in this amendment will be considered in light of their benefit to corals as well as their costs to commercial fisheries", work to date has focused largely on two ecosystem components: deep-sea corals and human communities, and to a lesser extent on managed resources. The potential impacts of the alternatives on these components are summarized very briefly below. The more detailed analyses in the draft environmental assessment should be reviewed when considering recommendations for final action. Analysis of impacts on additional ecosystem components, namely managed resources (i.e. fishery species) and protected resources (i.e. marine mammals, turtles, and Endangered Species Act-listed fishes) are in progress.

Although the alternatives in this document separate coral zone designations (section 4.2) from fishing restrictions (section 4.3), these two sets of management options must be considered together when assessing impacts to corals, human communities, and other ecosystem components. This is because the gear restrictions applied in a particular coral zone determine the conservation benefits to corals as well as the impacts or lack thereof on commercial fishing activities. The general approach was to evaluate the coral zones with respect to various coral-related or fishery-related metrics, and then develop a discussion around how the metrics contribute to positive or negative impacts associated with a zone and gear restriction option.

### 5.1 IMPACTS ON DEEP-SEA CORALS

**Information considered:** Pre-2012 coral presence records, 2013-2015 exploratory coral survey data, coral habitat suitability model results (canyon/slope region only), distribution and amount of high slope (steep) habitats and water depth, current distribution of fishing by gear type.

The coral zone alternatives proposed in this amendment, whether designated as closures to bottom-tending gears or mobile bottom-tending gears, are expected to have positive impacts on deep-sea corals. All of the zones under consideration are known to encompass deep-sea coral habitats, as evident from visual sampling with remotely operated vehicles, towed cameras, or autonomous underwater vehicles. The zones differ from one another in terms of how comprehensively they are likely to encompass coral habitats in a particular location.

In particular, considering the continental slope and canyons from about 100 to 2,000m depth, the 300m broad zone (Option 1) encompasses 88% of coral presence records, 96% of the areas determined to have a high or very high likelihood of soft coral occurrence based on the suitability model, and 99% of the areas where slopes exceed 30 degrees. The 900m coral zone (Option 5) encompasses 59% of the coral records, 59% of the area likely to be soft coral habitat, and 62% of the high slope habitat. Thus, while the 900m zone still provides precautionary protection for coral habitats in the event that fishing activities in the region expand into deeper waters, the 300m zone

protects substantial additional areas of coral habitat, and would prevent existing fisheries in the slope and canyon region from damaging deep-sea corals. The other broad zone alternatives, including the preferred alternative, are intermediate to these two extremes. Added to any of these broad zones, the canyon zones would protect additional coral habitats, because the shallowest parts of the canyon zones extend beyond the footprint of the broad zones, particularly the deeper ones (Options 3-6, 500m-900m).

In combination, designating coral zones in all four Gulf of Maine locations would protect all known deep-sea coral habitats in the Gulf of Maine from the effects of fishing gear. Whether the larger (Option 1) or more refined (Option 2) zone boundaries are considered, all remotely operated vehicle and towed camera dive sites where corals have been found are encompassed within the zone boundaries. The larger Option 1 boundaries for each location are more likely to encompass the full extent of coral habitat areas. While dives and camera tows without corals help to bound the spatial footprint of coral habitats, their full extent is not well understood. High resolution bathymetry are informative at the Mt. Desert Rock, Outer Schoodic Ridge, and Jordan Basin 114 Fathom Bump sites, but such data are not available in other locations.

Some zones and fishing gear restrictions represent precautionary approaches only. These include some of the preferred alternatives. The 600m minimum depth broad zone, closed to all bottom-tending gears with an exemption for the red crab trap fishery, would not affect any existing fishing activities in the continental slope and canyons region, because the zone is beyond the depth of all bottom-tending gear fisheries, except for red crab. However, it would prevent such fisheries from expanding into the area in the future. The Outer Schoodic Ridge and Mt. Desert Rock zones are actively fished, but the vast majority of fishing activity targets American lobster. The preferred alternative, a mobile bottom-tending gear closure of these two areas, will not restrict this fishery, but does guard against mobile gear use in the areas in the future. The offshore Gulf of Maine zones, if designated as mobile bottom-tending gear closures, would prevent bottom trawl activity occurring in Jordan and Georges Basins from impacting corals within the zones.

## 5.2 IMPACTS ON MANAGED FISHERY RESOURCES

**Information considered:** Spatial distribution of NEFMC-managed species, relative to various coral zones. Designated EFH was used to indicate a species' utilization or potential utilization of a particular coral zone.

Deep-sea corals have existence value in their own right, but they also provide habitat for other invertebrates and fishes. Some of these species are managed by the Councils or the Atlantic States Marine Fisheries Commission, and are the target of commercial and/or recreational fisheries. While the population statuses of some of these managed resources are positive, other stocks are in overfished condition. For all stocks, but especially for those that are depleted, conservation of habitats used for feeding, shelter from predation, or spawning activities is important.

Other than the seamount zones, which have very limited overlap with any managed resources, all of the coral zones under consideration are used as habitat by Council or Commission managed species. The inshore and offshore Gulf of Maine zones overlap with the distribution of multiple fishery species, including redfish, American plaice, Atlantic cod, Atlantic halibut, Atlantic wolffish, haddock, pollock, witch flounder, red hake, silver hake, monkfish, smooth skate, and thorny skate. Additional species including ocean pout, windowpane, winter flounder, yellowtail flounder, little



skate, and winter skate occur in and around the inshore Gulf of Maine zones at Mt. Desert Rock and Outer Schoodic Ridge. While the magnitude of the benefits these species derive from coral habitats is not understood, many of these species have been directly observed within coral habitats, and are likely using the areas for shelter and feeding. There is some evidence for a connection between sea pen corals and redfish reproduction, as larval fish have been observed amongst the coral polyps.

A subset of the species occurring in the Gulf of Main coral zones, namely redfish, halibut, white hake, witch flounder, red hake, silver hake, offshore hake, monkfish, smooth skate, and thorny skate, plus barndoor skate and red crab, occur in the canyon/slope coral zones. Overall, conservation of coral habitats is likely to positively impact managed resources that use the habitats for feeding, shelter, and reproduction.

### 5.3 IMPACTS ON HUMAN COMMUNITIES

**Information considered:** Vessel trip report data, by gear type and species landed (2010-2015), vessel monitoring system data (2010-2012) by gear type and species landed, results of a 2016 ASMFC survey of Area 3 lobster permit holders (lobster fishery only), Maine dealer data and harvester reports for Lobster Management Area 1 (lobster fishery, inshore Gulf of Maine zones only), fishing industry information on locations and depths fished, by gear type.

Various fisheries and fishing communities could be negatively affected by the designation of coral zones, if fishing effort is displaced by the zone designations. Exemptions from gear restrictions would alleviate impacts on associated fisheries. Specific exemptions include the red crab fishery and other trap gears. The mobile bottom-tending gear restriction option would avoid impacts on gillnet or longline fisheries as well.

In addition to the gear restrictions selected, the degree of overlap between existing fisheries and potential coral zones influences the magnitude of negative impacts. The seamount zones, as well as the 900m broad zone, are entirely precautionary in nature, as fishing is not known to occur within these areas at present. Thus, these zones would have neutral impacts on fisheries and fishing communities at the present time. The 600m and 600m minimum broad zones lie beyond the footprint of all known bottom-tending gear fishing activities, with the exception of red crab. Thus, these zones will likely have neutral impacts on fisheries and fishing communities, provided a red crab fishery exemption is adopted. The 600m minimum zone allows a larger operational buffer between adjacent fishing grounds and the coral zone, which would benefit commercial fishing operations.

The shallower broad zones at 300m, 400m, and 500m, as well as the Gulf of Maine zones, would displace fishing activities, depending on the gear restrictions selected. Species including lobster, Jonah crab, squid, whiting, and monkfish are fished in and around the shallower parts of the 300-500m broad zones with traps, bottom trawls, and gillnets. Red crab are caught in deeper water. Designating these zones would have negative impacts on these fisheries and associated fishing communities, via effort displacement, depending on the gear restriction adopted.

In the inshore Gulf of Maine, lobster is the only bottom-tending gear fishery with any substantial degree of overlap with the Mt. Desert Rock and Outer Schoodic Ridge coral zones. If these areas were closed to trap gears, there would be a negative impact on federally-permitted lobster fishermen

in Area 1, Zones A and B. If trap gears are exempted, or only mobile bottom-tending gears are restricted, these negative impacts would be eliminated.

In the offshore Gulf of Maine (Jordan Basin and Lindenkohl), traps, trawls, and gillnets are used to target lobster, groundfish, and monkfish. Hagfish pots are also fished in the Jordan Basin zones. Lobster is the top revenue generator in these locations. Any of the gear restriction options would displace some fishing activity; the smallest magnitude of negative impacts would be associated with a mobile bottom-tending gear closure. Additional negative impacts would be felt from a bottom-tending gear restriction that included gillnet and trap activity as well. The smaller Option 2 zones are expected to have fewer negative impacts than the larger Option 1 zones. Vessel monitoring system data suggest approximately 100 hours of fishing time with bottom trawls in the Jordan Basin Option 2 zones, roughly half the effort shown for the Option 1 zones.

Looking beyond the fishing community, the many individuals who support conservation of deep-sea coral habitats would derive positive impacts from designation of deep-sea coral zones.

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## New England Fishery Management Council

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John Quinn, *Chairman* | Thomas A. Nies, *Executive Director*

## SUMMARY

### Deep-Sea Coral Amendment Public Hearings and Written Comments

*Covers comments made during all seven public hearings and written comments received through June 5.*

#### ***INTRODUCTION***

Between May 22 and 26, 2017, the New England Fishery Management Council (Council) held seven public hearings on the Draft Omnibus Coral Amendment. These hearings were moderated by the Habitat Committee chairman or vice chairman and staffed by Council analysts. At each hearing, staff presented the amendment timeline, alternatives under consideration, and draft impacts analysis. After an opportunity to ask questions for clarification, public comments were taken on the measures proposed in the amendment.

This document summarizes the public comments made at each hearing, by hearing location, in the order in which the comments were given. Comments are mostly in the speaker's own words, but may have been edited for clarity and brevity.

The attendance estimates for each hearing are based on the attendance sheets signed by audience members, which are available upon request. Based on the attendance sheets, over 150 people attended the hearings. Those who signed in are listed individually by hearing in the sections below. The sign-in sheets were well-publicized by the hearing officers and staff, so they are expected to reflect most of the attendees at each hearing. However, additional people may have attended without signing in. Testimony was given by approximately 50 individuals, with individuals sometimes providing comments at more than one hearing.

The Council accepted written comment on the Draft Omnibus Coral Amendment through June 5, 2017. A summary of all comments is provided below the hearing summaries, organized by alternative. Written comments are compiled as a separate document.

***MONTAUK, NY – MAY 22, 2017***

*Hearing officer:* John Quinn

*Council staff:* Michelle Bachman

*Audience members:* Victor Vecchino (NMFS Port Agent, East Hampton), Daniel J. Farnham (whiting fishery), Donald D. Ball, Kevin Maguire (F/V Evening Prayer), Laurie Nolan (MAFMC), John Nolan (F/V Seacapture), John Nolan Jr. (F/V Seacapture), Bonnie Brady (Long Island Commercial Fishing Association), Chuck Wiemar (F/V Rianda S.), Aaron Kornbluth (Pew)

The hearing began at 6 p.m. and concluded shortly before 7 p.m.

Dr. Quinn and Ms. Bachman provided an introduction, including a summary of the public process conducted to date and a presentation summarizing the alternatives under consideration, including a review of the preferred alternatives. Dr. Quinn mentioned the workshops conducted in March 2017, which some of the Montauk hearing attendees had participated in, noting that workshop participants covered a broad range of fisheries, environmental organizations, and state agencies.

***QUESTIONS***

*Laurie Nolan* asked about the discussion and decision making around the Council's preferred alternative for a 600m minimum depth broad coral zone along the continental slope. Ms. Bachman and Dr. Quinn responded that the vote on this alternative at the April Council meeting was 13 for, two against, and one abstaining. The concept behind the alternative is that it is beyond the maximum depth fished by the deepest bottom tending gear fishery in the area, the lobster fishery. Seasonally, traps are set as deep as 550m. The 600m minimum depth provides for an additional operational buffer around the boundary. Ms. Bachman indicated that the development of the NEFMC amendment has been heavily influenced by the participation of the lobster fishery and the desire to account for their spatial footprint when developing coral zones. The recently implemented MAFMC amendment did not consider restricting the lobster fishery due to a difference in NMFS guidance during development suggesting a lack of authority to regulate Commission-managed resources under the coral discretionary provisions. As a result, the MAFMC broad zone boundary is somewhat shallower than the NEFMC preferred alternative.

***COMMENTS***

*Aaron Kornbluth* provided a comment. He appreciates the Council taking action to protect deep-sea corals, and is excited to see coral protection all along the Atlantic coast from Florida to Maine at the conclusion of this process. He agreed the preferred alternative 600m minimum zone protects corals, but felt it was important to focus on the most damaging gear types, i.e. bottom trawls, and make some small changes to the zone boundary to expand the zone to include



additional areas of high slope and likely coral habitats. He felt that a relatively large amount of additional conservation could be achieved with minimal to no impact on mobile bottom-tending gear fisheries. He recommended a “compromise alternative” developed by a coalition of environmental organizations, and indicated that they were looking for feedback on the boundary they had developed. Using VMS and VTR effort data from the Northeast Ocean Data Portal and MARCO data portal, they redrew the Council’s preferred alternative to be shallower, but still fall outside the areas mapped as trawl fishing grounds. He made handouts describing the proposal available to other hearing attendees, if they were interested.

Another attendee asked where they had obtained the fishing effort data, and Mr. Kornbluth clarified that they had used the data portals. Ms. Bachman added that the Council staff/Plan Development Team have access to additional detailed information about which vessels fish in each location, species caught, where fish are landed, and ex-vessel value. The datasets available on the portal are more general and show relative amounts of effort only.

*Dan Farnham Jr.*, on behalf of the vessels in the local whiting fleet, commented that they strongly supported the Council’s preferred alternative (600m minimum zone).

*Bonnie Brady*, commenting on behalf of her husband and the F/V Kaitlyn Marie, indicated they support the Council’s preferred alternative (600m minimum zone).

*Kevin Maguire* commented that he supports the preferred alternative (600m minimum zone). He indicated that he did not want to second guess the Council’s recommendation for this zone, which was developed following extensive debate. He agreed the preferred approach would protect both corals and fisheries.

*John Nolan Jr.*, who fishes for tilefish, commented that he supported the preferred alternative (600m minimum zone).

*John Nolan Sr.* agreed with his son’s comment, as did *Laurie Nolan*.

*Don Ball* also supported the preferred alternative.

There were no comments on the Gulf of Maine alternatives, or canyon or seamount discrete zones. No one from the lobster fishery was in attendance, so discussion of issues related to the lobster fishery was minimal, during the staff presentation.

***NARRAGANSETT, RI – MAY 23, 2017***

*Hearing officer:* John Quinn

*Council staff:* Michelle Bachman

*Audience members:* Scott Olszewski (RI Marine Fisheries), Glenn Goodwin (F/V Relentless, Persistence, and Prevail), Gib Brogan (Oceana), Brad Barr (NOAA), Roy Campanale (Campanale & Sons, Inc., Narragansett, RI), Donald Fox (Town Dock - F/V Lightning Bay, Tenacity, Determination, Excalibur, Rebecca Mary, Searambler, Stephanie Bryan), Harold Loftes, Eric Reid (NEFMC/SeaFreeze), Morgan Callahan (Pew), Anthony Cherry (Pew), David Borden (Atlantic Offshore Lobstermen's Association and Atlantic Crab Company)

The hearing began at 1:00 p.m. and concluded around 2 p.m.

Dr. Quinn and Ms. Bachman provided an introduction, including a summary of the public process conducted to date and a presentation summarizing the alternatives under consideration, including a review of the preferred alternatives.

***COMMENTS***

*Gib Brogan:* Nice to see amendment moving forward. Council should keep NOAA guidance in clear focus. Guidance has a range of objectives, including protecting known coral areas, and preventing expansion of fishing into new area. 600m minimum preferred alternative does not do this. Does not protect all known corals, and allows for expansion of fishing footprint. This is inconsistent with the NOAA strategy. Can NOAA approve this alternative? Council should designate discrete zones outside the monument, and should designate a broad zone that freezes the footprint of mobile bottom-tending gear fishing, for the time being. The Council should look at fixed gears in the future. This empirical approach will support the NOAA strategy. Note that there is precedent for late-breaking alternatives being adopted by the Council. The freeze the footprint approach is well founded by the facts; Committee should forward to PDT and Council should consider in June.

*Morgan Callahan:* Agree with Gib Brogan's comments. Concerned with 600m minimum preferred alternative because it allows the expansion of MBTG fishing into sensitive areas. Have developed a "compromise broad zone" that protects more corals, respects the footprint of MBTG, includes coral science and fishermen's input from the Council's March workshop, exempts lobster and red crab gears, and is within range of alternatives analyzed already. They are looking to solicit industry input on the approach.

*Don Fox:* Representing seven draggers. Agree with preferred alternative 600m minimum zone.

*Glenn Goodwin:* Company has three vessels that fish in the area, have been doing so for approximately 35 years. Employ 100 people. Already affected by Tilefish GRA, monument, and other limits on fishing. Support the preferred alternative 600m minimum zone.

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*Roy Campanale:* Own four Pt. Judith lobster vessels. Preferred alternative for 600m minimum zone is a good compromise between fishing access and environmental conservation.

*David Borden.* For AOLA: support all preferred alternatives for canyons and GOM. This is a discretionary action. Is consistent with NOAA guidance. Council has struck an appropriate balance between fisheries access and conservation. Note that historically there was a deep water category F monkfish fishery at 350 fathoms that would be within preferred alternative. The winter lobster fishery goes to 550m so 600m is appropriate. Opposed to discrete zones – no factual basis – should be rejected. For Atlantic Red Crab Company: All five permits, processor, and about 150 employees. Have taken voluntary steps to reduce footprint, including floating line to minimize bottom contact. Fishery is Marine Stewardship Council certified. Also note (referencing habitat amendment analysis) that over time bottom contact with fishing gear has been reduced.

***NEW BEDFORD, MA – MAY 23, 2017***

*Hearing officer:* John Quinn

*Council staff:* Michelle Bachman

*Audience members:* Beth Casoni (Massachusetts Lobstermen's Association), Jim Kendall (New Bedford Seafood Consulting and Massachusetts Fishermen's Partnership), Bill Duffy (NOAA), Daniel J. Farnham (Gabby G. Fisheries), Dan Farnham (Blue Water Fisheries), David Borden (AOLA and Atlantic Crab), Capt. S. Greek (F/V Megan Marie), Grant Moore (AOLA, F/V Direction), Morgan Callahan (Pew), Eric Reid (NEFMC), Greg Wells (Pew)

The hearing began at 5:30 p.m. and concluded around 6:30 p.m.

Dr. Quinn and Ms. Bachman provided an introduction, including a summary of the public process conducted to date and a presentation summarizing the alternatives under consideration, including a review of the preferred alternatives.

*COMMENTS*

*Jim Kendall:* Alternatives and information seem overly broad. Coral bycatch rare. Environmental [organization] influence on alternatives seems problematic.

*Dan Farnham Sr.:* Own or part own three vessels. Two trawlers spend about 80% of year in areas in question targeting squid, whiting, and monkfish; one longliner for tilefish. Fish just inshore of lobster gear, don't catch corals. About 25% of trips are observed, and no interactions with corals documents. Employ about 20-24 people, plus ice and fuel companies who supply the vessels. Everyone involved in businesses supports preferred alternative (600m minimum depth zone). Tilefish gear avoids hard bottom.

*Grant Moore:* Thanks for hosting the workshops. Offshore fisheries on slope are not well understood by many. The preferred 600m minimum alternative is the only one the industry can live with. Whiting and squid are deeper in the winter as well as lobster. AOLA supports the preferred alternative.

*Beth Casoni:* Echo Grant Moore's comments. Involved through Habitat Advisory Panel, many meetings to develop amendment. Supports preferred alternatives. Concerned with data gaps in the GOM; should revisit sites over time to assess coral habitats. Let the footprint of fishing remain as it is.

*Greg Wells:* Thank you for holding the hearings. Can't support preferred alternative in canyons as it allows expansion of trawling into additional areas. Shallower areas are habitat for managed species. Expansion of footprint is contrary to the mission statement for the amendment, and contrary to NOAA guidance. Does use best available science on where corals are known, and no redfish EFH is protected. Pew has fought hard since preferred alternative came forward to think

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of ways to improve it. Council should consider a zone that allows MBTG use/footprint to continue but not expand. This will protect corals, suitable coral habitat, and areas of high slope. They have developed a proposal that will exempt lobster, red crab fisheries, based on workshop feedback re minimum fishing depths and fishing effort data. Our recommendation falls within the range of alternatives already considered. In the GOM, we recommend zones in all areas under consideration, as closures to all bottom-tending gear. Should exempt the lobster fishery, if the larger areas are selected. Recommend the Option 1 boundaries for all areas with multiple options. Given that areas are not well understood, the larger areas will be more precautionary and have a greater chance of encompassing features that support corals.

*Dan Farham, Jr.:* Spoke in Montauk. Want to add a thank you for hosting the workshops. Feels confident that the preferred alternative strikes a balance. Due to monument, lost 20% of fishing area; has a trickle-down effect on employees.

David Borden: See comments on behalf of AOLA and Atlantic Crab from Narragansett hearing. ASMFC – met in early May, and support all preferred alternatives. For GOM, smaller areas should be selected. Large alternatives without fixed gear exemption will force gear into other areas. Interactions with protected species could get worse, due to walls of gear along closure boundaries. Did not participate in MAFMC process, but views NEFMC preferred alternative as more restrictive, because it addresses fixed gears.



***GLOUCESTER, MA – MAY 24, 2017***

*Hearing officer:* Doug Grout

*Council staff:* Michelle Bachman, Rachel Feeney

*Audience members:* Al Cottone (City of Gloucester), Michael Dearborn (Gloucester, MA), Erica Fuller (EarthJustice), Frederick ? (Rockport, MA), Travis Ford and David Stevenson (NMFS/GARFO), Morgan Callahan and Katherine Duell (Pew Charitable Trusts), Mark Ring (Gloucester Fisheries Commission), and Aurther Saywer (Mass. Lobstermen's Association).

The hearing began at 1:00 p.m. and concluded around 2:00 p.m.

Doug Grout opened the hearing by explaining the history of the development of the coral amendment and how the hearing will proceed. In 2011, the Council consider protecting corals when developing the Habitat Omnibus Amendment 2, but due to the size of the amendment, the Council decided to split off the coral measures and develop them at a later date. Subsequently, coral surveys collected additional data on the presence of corals in New England waters. The Council held public workshops in March with good participation and input and selected preliminary preferred alternatives in April. Final action is expected in June.

Ms. Bachman presented additional background for the amendment, the alternatives and impacts analysis. Mr. Grout opened the hearing for questions and comments.

***QUESTIONS***

*Mr. Sawyer:* It's known that a small percentages of federally-permitted lobster vessels in Maine report - those that have groundfish permits. Maine extrapolates the data and claims that they land over \$500m in lobster. The numbers in the presentation don't add to even \$100 million.

*Ms. Bachman:* The percentage of lobster vessels from Area 1 in coastal ME that submit Vessel Trip Reports is under 10%. The approach here was to assume that the dealer data cover all landings. The numbers here aren't going to add to \$500 million, because they just are parts of Areas A and B. The analysis took the dealer data as a ceiling, and used harvester reports (reported by 10% of vessels) to get landings by zone and distance from shore. The challenge is to know how much of the total is landed within the coral zone, because the data aren't reported that was. Fishermen interviews helped identify how many fishermen fish there. The document includes a number of approaches and range of impacts, but getting to actual numbers is really hard.

*Mr. Sawyer:* What are the dates of the photographs of corals in the presentation? When was the work done?

*Ms. Bachman:* The coral surveys were mostly done in 2013-15 and were coordinated by NOAA's Deep Sea Coral Research and Technology Program. There was a pulse of funding to

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the Northeast during 2013-2015. Some of the work in Jordan Basin and Mt. Desert Rock was done in the early 2000's. We have known that coral occur in the canyons for longer.

*Mr. Sawyer:* I'd like to understand if there has been a change in corals. Lobstering has been going on east of Lindenkohl Knoll for at least the mid 1970'. If there's been a lobster fishery there for 40 years, how can the Council say that the coral is getting destroyed?

*Ms. Bachman:* We don't have longitudinal data to compare a specific site across time, but the Council can encourage revisiting these sites in the future. At the Portsmouth workshop, the public talked about the long-term nature of the fisheries (e.g., redfish). We know that corals are susceptible to impact, but we don't know the current level of impact or how these habitats may have changed over time.

*Mr. Sawyer:* The lobster industry is concerned that the Council is making decisions as if coral is now suddenly getting destroyed by lobster gear – there isn't information to say that for sure. That's why the lobster industry is against this.

*Ms. Bachman:* The Council is reacting to that, and doesn't seem interested in restricting the lobster fishery. Perhaps it's partly due to the potential economic impact as well as the uncertain about impacts.

*Mr. Cottone:* In calculating the fishing activity, is 2010 as far back as you go with the data?

*Ms. Bachman:* The analysis tries to capture recent conditions in the fisheries. Before the mid-1990s, the spatial data is poor.

*Mr. Cottone:* A 10-15 year period of fishery data would help capture the variability of the fisheries, the ebbs and flows of management and the stocks.

*Ms. Bachman:* The Habitat Committee discussed that given low ACLs for some groundfish stocks, the industry could be spending more time fishing the offshore Gulf of Maine areas for redfish and pollock.

*Ms. Fuller:* Since corals have an intrinsic value to the public, how is that value being analyzed?

*Dr. Feeney:* A quantitative assessment of the existence value of corals is very difficult. The analysis here is qualitative and reference literature where such studies have been done.

## COMMENTS

*Morgan Callahan:* Thank you to the Council for this amendment. Pew does not support the Council's preliminary preferred alternative for southern Georges Bank, because we believe it is not aligned with NOAA's guidance regarding freezing the footprint of fishing. A 600m zone doesn't protect areas where corals have been observed and coral habitat, and allows for the

expansion of trawl fishing in relatively pristine habitat. The shallower parts of the canyons and the areas in between are the most valuable habitat.

*Arthur Sawyer:* Lobster gear should be exempt from the restrictions in southern Georges Bank, because we can't show there's been any damage from lobster gear since the 60s.

*Erica Fuller:* Thanks to Michelle, Rachel and Council on the work on this amendment. For the alternatives in the Gulf of Maine, EarthJustice supports the larger alternatives for Outer Schoodic Ridge and Mt. Desert Rock, and adoption of alternatives identified in Jordan Basin and Lindenkohl Knoll, with closures to mobile bottom tending gear. For southern Georges Bank, EarthJustice does not support the preferred alternative. The 600m broad zone leaves significant areas unprotected and allows for the expansion of fisheries into areas not currently fished. I offer a solution of a more balanced solution for protecting this public resource and preserves fishing opportunities. Council should adopt a freeze the footprint alternative, which was discussed, but not yet developed in April. After the April Council meeting, several groups combined data on observed corals and predicted habitat with available VTR and VMS data on mobile bottom-tending fishing, along with industry input from the workshops and developed another broad zone with zero loss of gear an economic impact. This compromise alternative would have an exemption for lobster and red crab and meet the goals of the amendment. It protects 15% more corals and 20% more habitat. It's simpler to enforce with 150 less points. It protects the legal requirement to protect adult redfish EFH, which the 600m alternative does not. It's consistent with the Mid-Atlantic approach, with shallower depths at the heads of the canyons. It falls within the range of alternatives so should not require significant additional work. We urge the Council to select a freeze the footprint approach for the canyons.

*Fredrick ? (Rockport, MA):* I'm speaking out of deep ignorance and concern. To allow any activity in these zones before we have more exact knowledge is taking a big chance. I prefer these be preserved intact with no impact, except for scientific study. Look at the cod industry. We have been trying to regulate that for 400 years, and we haven't done well; we're in trouble again. I would take a cautious approach. I have great concern for the future. Thank you.

*Katherine Duel:* I support the prior comments from Morgan and Erica on the canyons. The preferred alternative doesn't offer enough protection for corals. There's another approach that would protect corals, not expand trawl gear and exempt red crab and lobster gear. Pew supports the larger boundaries in the Gulf of Maine areas, with a lobster gear exemption. We will be submitting a letter signed by over 9,000 members of the public in support of coral protection.

*Morgan Callahan:* With all due respect, I would like to talk about how the workshops were a "collaborative process." We did try to get people there, but the meeting notice said that the intent is to bring together active fishermen with a goal of getting industry input and help in limiting industry impacts while protecting corals. There has been a complaint that NGOs were under represented at the workshops, but it doesn't seem like we were invited. I have the proposed

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compromise alternative here if people want to see it, with maps showing the lines. We can walk through how this would impact fishing.

*Arthur Sawyer:* On the Gulf of Maine areas, there's been fisheries taking place since at least the 1970s. There is no research so far showing that the corals are getting destroyed. Until there's proof, don't limit lobster gear in these areas.

***PORTSMOUTH, NH – MAY 24, 2017***

*Hearing officer:* Doug Grout

*Council staff:* Michelle Bachman, Rachel Feeney

*Audience members:* Peter Begley (Rye NH), Morgan Callahan (Pew Charitable Trusts), Timothy Cooke (Brunswick ME), David DiMerrit, Heidi Henninger (Atlantic Offshore Lobstermen's Association), Alden Leeman III (Harpwell, ME), Allison Lorenc (Conservation Law Foundation), Ian Mango (Scarborough, ME), Bart McNeel (Portland ME), Jim Odlin (Portland ME), Maggie Raymond (Associated Fisheries of Maine), Hank Soule (Sustainable Harvest Sector), Lindsey Williams (Dover, NH), and one other.

The hearing began at 5:30 p.m. and concluded around 6:40 p.m.

Mr. Grout and Ms. Bachman provided an introduction, including a summary of the public process conducted to date and a presentation summarizing the alternatives under consideration, including a review of the preferred alternatives.

***QUESTIONS***

*Fisherman:* On the Jordan Basin area, how big is a coral garden that has been identified? It looks like the sites are under ¼ km.

*Ms. Bachman:* The spots on the map are the starting point for a dive transect which covers a few hundred meters. Within each of the management zone, there is a small area that has been sampled. The zones were drawn making inference about where corals might also be present based on bathymetry and likely suitable habitat.

*Mr. Odlin:* You mentioned that there have been studies around the world about the impacts of mobile gear on corals. Were those studies done with vessels of similar size and gear configuration as what we use here?

*Ms. Bachman:* The seamounts in the North Atlantic are quite deep, but they are shallower in other places. There have been recent studies (within the last 15 years) of seamount fisheries for species like orange roughy, but I'm not sure if the gear is roughly analogous.

*Mr. Odlin:* Seamount fisheries are conducted with vessels in excess of 250 feet and probably 7,000-8,000 hp, which is not even close to the fishing that we do here. I'm quite sure that the gear we use today has very little bottom impact. We use stand up doors and light rock hoppers that hardly touch the bottom. I'm not aware of any study, particularly in this region, on the impact of our gear on this type of bottom.

*Ms. Bachman:* That's a fair assessment.



*Mr. Odlin:* You mentioned Canadian studies. Do you know if they allow lobster traps in the Canadian coral closures? What does the Canadian study say about the impact of lobster traps?

*Ms. Bachman:* There are a few different coral closures, including recent closures in the canyons off Georges Bank. I don't recall that the gear impact work quantified trap impacts. Unfortunately, during the Habitat Amendment process, we tried developing a model using studies about habitat impacts. We aimed to use studies of similar gear. Of the global literature, there was a lot that was not relatable. In this case, we don't have specific work in our region at these sites. There is evidence from seafloor imagery of where gear has been used in and around the sites where the corals are. We also have some bycatch information. So, there is some interaction but it's hard to quantify. At the Portsmouth workshop, we talked about how fishing has been going on at these sites for some time. It was mentioned at the Gloucester hearing earlier today that we don't have longitudinal data for these sites to see change over time.

*Ms. Raymond:* The analysis says that corals provide habitat for fish and invertebrates, but everything in the ocean provides habitat for something. Are there linkages between coral areas and fish productivity?

*Ms. Bachman:* The best example of a direct relationship is that between larval redfish and sea pens, where the fish use the corals as shelter. Sea pens occur in low relief environments where there is not a lot of other structured habitat. In terms of soft corals that occur on hard bottom, there are prey species in the coral and they provide shelter as well. We don't have fish production rates associated with coral habitat.

*Ms. Raymond:* The redfish fishery is currently healthy. The Council has preferred that the lobster fishery would be exempt from closures. Are there any plans to increase observer coverage on lobster fishery to determine the vulnerability of corals to that gear?

*Ms. Bachman:* The Council has not considered that yet.

*Mr. Grout:* New Hampshire Fish and Game has partnered with offshore lobster vessels to have observers onboard, though I do not know if coral data has been collected.

*Ms. Henninger:* The study was on Georges Bank in Closed Area II. There were five trips in 2015-2016 which collected all the data that the NMFS observers collect. The data is in the NEFSC data base. Any coral interactions were recorded. This year's observer days just got published. Lobster has 33 days coast-wide, the minimum to cover SBRM.

*Ms. Raymond:* If the Council says that it wants to protect corals, and then allows a fishing gear that we have no idea of the impact on corals, there has to be some way to monitor the fishery. For future frameworks (to change gear exemptions or revise coral boundaries), there will be nothing to measure the need for change. Also, on the estimates of recent fishery revenues, is that

all lobster revenue or groundfish too? Where are the impacts on the mobile gear groundfish fishery of Lindenkohl Knoll site?

*Ms. Bachman:* The analysis includes the full database of Vessel Trip Reports. The figures and table include the top ten fishery species, gear types, landing ports, etc. for each zone. On changing zones in future through frameworks, it would likely come with additional coral data. If the Council designated a zone in all areas, then the areas where corals are known to exist would have some protection.

*Ms. Raymond:* What would be the incentive for researchers to go back to these areas to see temporal change finding new areas to close?

*Ms. Bachman:* If gear restrictions change, it would be good to go back and look. The Gulf of Maine environment is changing, and these are temperature sensitive animals. There are needs to monitor them beyond fishing impacts. We could better understand fish relationships with corals.

*Ms. Raymond:* I appreciate that the Council is trying to minimize the cost to commercial fisheries. In the Gulf of Maine, the only fishery impacted under the preferred options is the mobile gear groundfish fishery—already the most restricted fishery in this region. The impact of these closures on top of all the other closures could be extremely significant. At some point, where are the boats going to go? How are we ever going to reach the redfish quota when we have more and more closures? We support No Action at Lindenkohl Knoll and Jordan Basin.

*Mr. Odlin:* On the analysis of lost revenue, does that include knowing how many boats would go out of business? According to NMFS studies, over 60% of groundfish boats are below the break-even point. If we add a closure, someone is going out of business? Don't just provide a number. With a fleet on the edge, it's important to project how many and who will go out of business (not individually).

*Ms. Bachman:* The Lindenkohl Knoll impacts are on page 326. With Jordan Basin as an example, for trawl gear, there are 15-19 vessels, and the total revenue to the vessels is 1-2% with a few outliers. The analysis assumes VTR and VMS are good estimates of fishing activity, and there is known error with that.

*Fisherman:* When you say there's interaction between vessels and corals in Jordan Basin, do you have information on boats towing up coral there?

*Ms. Bachman:* There is a bit of data. See map 41 and page 139 of the May 15 draft document. In 2013, the observer program got better about recording corals interactions. There are about 65 records of coral bycatch region-wide, including soft coral with trawl gear interactions in Jordan Basin (12-15 interactions).

*Fisherman:* Can you say that the trawl towed it up vs picking up a loose coral detached by lobster gear? I've been fishing in Jordan Basin since 1980. Corals are still there.

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*Ms. Bachman:* It may be possible that the corals were already detached. The data are insufficient to calculate bycatch rates.

*Fisherman:* Did anyone think about interviewing the skipper of a boat to ask if he has knowledge about coral presence as a requirement for fishing in an area? There is a difference.

*Ms. Bachman:* No. There are areas with good scientific data and there are other areas where the fishermen know more regarding the bottom types that occur there.

### COMMENTS

*Jim Odlin:* We have three vessels operating in the areas in the Gulf of Maine. I personally fished in the areas for 20 years. I'm opposed to Jordan Basin and Lindenkohl Knoll closures. You don't have the data to make the decision, don't know the impact of modern fishing on the bottom, don't know the economic impact, don't know what will happen when vessels are displaced. We fish for healthy stocks there (redfish, pollock, hake) that we should want people fishing. Where are those vessels going to go? We don't know how many boats are going out of business. There's no data to exempt a certain gear type. You haven't talked about if the goal is to eliminate or minimizing interactions with coral. If the goal is to eliminate, you aren't doing it with this. You'll displace 12 trawls and increase lobster traps by an unlimited number. We can't say that traps don't have an impact. Lobster effort will increase. It's my understanding that there is no requirement to do the amendment. The benefit isn't measurable. Redfish could benefit, but somehow under current fishing, redfish got to be at almost record levels. We can't even catch what we have. You have a long way to. Should monitor the area to see what damage is being done, then at that time take action if needed. There's zero information on the trawl gear. I'm opposed to the closures in Jordan Basin and Lindenkohl Knoll. Probably you can close the canyons and Mt. Desert, because no one fishes there with trawls, and then you can measure that.

*Odlin Leeman:* I've been fishing for 36 years in Jordan Basin. I live there. It's 90% of my effort. I know where a lot of the coral areas are, learning from the captain I started with, where the "coral trees" are. We don't go near there. We have towed around these areas, and I've never seen a coral, because I don't go there. On keeping fixed gear there, when I'm towing around these places, it's all lobster gear. If there's any record of trawl bycatch, it was damaged by lobster gear and drifted around. I firmly believe we don't do damage. The areas would greatly impact me and the company I work for and a few other people also. You need a lot more research. Close some areas where no mobile gear goes and monitor it. We don't want to go near it. These areas are obscenely huge. I'm fishing the F/V William Lynn. I go through there a lot. I highly recommend No Action. Consider a lot more research, but I think we are protecting now. Don't pinpoint groundfish boats. If there was some new fishermen, who didn't know and trawled through, there would learn fast.

*Morgan Callahan:* Pew does not support the Council's preliminary preferred alternative for southern Georges Bank, because we believe it is not aligned with NOAA's guidance regarding

freezing the footprint of fishing. A 600m zone doesn't protect areas where corals have been observed and coral habitat, and allows for the expansion of trawl fishing in relatively pristine habitat. Pew supports a compromise broad zone alternative and have brought information about it.

*Alison Lorenc:* Thank you for the opportunity to comment. The majority of the Council's preferred alternatives do not adequately protect coral. In April, the Council tasked the PDT to analyze smaller boundaries. We are concerned with this approach. The PDT said that the original zones would encompass habitat. We hope the Council will follow the PDT input. The Council can and should do better. We support the compromise alternative developed by Pew. We feel the process has been biased towards the industry. The process has been rushed, and it's better to get this right than rush an amendment that does not protect enough corals.

*Bart McNeel:* I've been fishing Jordan Basin since the late 1970s and am opposed to any closures, especially exempting the lobster gear. Most of the interaction is with lobster gear. Trawlers don't go through corals.

*Maggie Raymond:* We support No Action on Jordan Basin and Lindenkohl Knoll. The frequency of interactions on mobile gear is low relative to the amount of fishing activity in those areas. It's important to keep in mind that there's no other bottom trawl fishery operating there besides groundfish (e.g., no squid). We have the most severe restrictions and are under the most scrutiny. We are at the limit of what we can sustain.

***ELLSWORTH, ME – MAY 25, 2017***

*Hearing officer:* Doug Grout

*Council staff:* Michelle Bachman

*Audience members:* At least 68, based on sign-in sheets, likely a few more. All self-identified as lobstermen (vessel owners/operators, or sternmen) unless otherwise noted. Stephen Rappaport (Ellsworth American), Jack Merrill (Northeast Harbor, ME), Roger Fleming (Earthjustice, Hallowell, ME), Jeff S. (Harrington, ME), David Fraser Jr. (Harrington, ME), Roman Jordan (Milbridge, ME), Brandon Beal (Milbridge, ME), Joshua Strout (Harrington, ME), James Sinclair (Cherryfield, ME), Bryan Mills (Franklin, ME), Jason Chipman (Milbridge, ME), Travis Perry (Harrington, ME), C. Lesbinez (Columbia, ME), Kyle Kennedy (Milbridge, ME), Joshua Beal (Milbridge, ME), James Hardison (Northeast Harbor), Chad Kenton (Harrington, ME), Morgan Callahan (Pew), Joseph L. Tyson (Deer Isle, ME), Kim Ervin Tucker (IMLU, Lincolnville, ME), Rocky Allen (IMLU, Jonesport, ME), John Williams (Stonington, ME), Sheila Dassatt (DELA, Belfast, ME), Hilton Turner (DELA, Stonington, ME), Susan Jones (Stonington, ME), Donald Jones (Stonington, ME), Richard Larabee (Stonington, ME), Garrett Steck (Stonington, ME), Darrell Williams (Deer Isle, ME), Ben Hady (Deer Isle, ME), Richard Larabee Jr. (Stonington, ME), S. H. Hutchins (Deer Isle, ME), R. S. (Cherryfield, ME), M. T. (Cherryfield, ME), Jason Strout (Harrington, ME), Travis Alley (Addison, ME), Spencer Thompson (Harrington, ME), Ben Weerd (Stonington, ME), Jeff Nichols (DMR, Augusta), Alan Starwood (Harrington, ME), B. Robinson Jr. (Harrington, ME), Philip R. (Addison), Joshua S. (Milbridge), David Cousens (ME), L. Cousens (ME), Sarah Cotnoir (DMR), Kathleen Reardon (DMR), Melissa Smith (DMR), Frank Thompson (Harrington, ME), Suki Pinkham (ME), Isiah Pinkham (ME), Joel E Strout (Harrington, ME), Josiah Rhys (Deer Isle, ME), Jason Colby (Milbridge, ME), Michael Hurt (Corea, ME), Sam S. (Stonington, ME), Scott P. (Harrington, ME), Dean Barrett (Addison, ME), Jared Coffin (Steuben, ME), Arnold Francis, Jr. (Steuben, ME), Richard Howland (Isleford, ME), John Huddsworth (Lamoine, ME), Patrick Shepard (Maine Center for Coastal Fisheries, Stonington, ME), Julianne Taylor (Mt. Desert, ME), Charles Peterson III (Cherryfield, ME), Clint Colson (Ellsworth, ME), Jeff Grey (Southwest Harbor, ME), Patrick Kelliher (DMR)

The hearing began at 5:00 p.m. and concluded around 6:20 p.m.

Mr. Grout and Ms. Bachman provided an introduction, including a summary of the public process conducted to date and a presentation summarizing the alternatives under consideration, including a review of the preferred alternatives. There were no questions.

***COMMENTS***

*Patrick Keliher:* Serious issue; state of Maine appreciates the hearing in Ellsworth to listen to these concerns. I'm the Commissioner of Maine Department of Marine Resources. DMR has

worked diligently with Council process to develop alternatives to protect corals and reduce impacts to extent practicable, and has sought to ensure that the Council has the data to analyze them. These include effort, spatial, and economic data. This complements use of VTR data which vastly underestimates effort. DMR supports the preferred alternative. Lobster is the backbone of the community most of the year, with around 50 vessels fishing in these areas, many year round. The ASMFC technical committee estimated a direct impact of \$4.5 million but DMR surveys suggest that the number of months in which fishermen are active and the number of trips they take are higher than previously estimated. Thus the initial estimate is expected to be very conservative. Lobster fishermen are territorial, and displacement is a very significant concern to DMR and fishermen. Closures will lead to gear conflicts, lower catch rates, and higher densities of traps elsewhere. This leaves us deeply concerned about the implications for the Large Whale Take Reduction Plan vertical line regulations, because walls of gear around closures could lead to higher rates of interactions with whales. Industry has already made large investments upgrading gear. In closing, DMR would like to underscore that Council should fairly consider costs relative to perceived benefits of zones. Economic hardships are certain to occur. We will supply detailed written comments in the next few days.

At this point in the hearing, Mr. Grout asked for a show of hands as to how many would support the preferred alternative to restrict only mobile bottom-tending gears from the areas. Most or all of the audience members agreed that they would.

*Patrick Shepard:* We are in support of preferred alternative. Will add that they operate a survey for cod in these areas, and if and when a fishery comes back would like to be able to fish with hooks in those areas.

*Roger Fleming:* Wanted to comment on the canyon areas and put a compromise alternative on the table. Earthjustice represents many conservation organizations and fishing groups. Opposed to preferred alternative in the canyon region. Allows expansion of MBTG into additional areas. Inconsistent with purpose of amendment. Council can do better by adopting a balanced alternative that will allow fishing to continue where it currently occurs. A freeze the footprint approach was discussed at April council meeting when preferred alternatives were selected, but had not yet been developed. The approach developed after this meeting with input from various groups includes workshop feedback and would exempt lobster and red crab. The approach includes more observed corals and coral habitat than the preferred alternative (17% and 20% respectively). Council should move forward with this. Simpler to enforce, would protect redfish habitat. Includes shallower areas in canyon heads, and falls within the range of alternatives. Will require little additional work to be considered at June meeting. We do support the prohibition of MBTG in all GOM sites. Urge council to freeze footprint. We have had concerns about public process, including the decision to hold committee meeting before end of comment period, and that the draft amendment was made available after comment period opened. Council must abide by NEPA and APA. Should allow for additional time to get it right a needed. We have information about the compromise alternative if people are interested.



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*Morgan Callahan:* Mostly going to speak on canyons, but support Commissioner on inshore GOM. NOAA guidance on DSC is to freeze footprint, and the preferred alternative doesn't do that. Leaves out observed corals and large areas of predicted deep-sea coral habitat. Allows expansion of trawl gears. Cannot support. Compromise proposal would exempt lobster and red crab fisheries.

*Hilton Turner:* Here to speak for preferred alternative in the inshore GOM areas. More difficult to maintain historically fished grounds. Closures would force fishermen into areas they don't normally operate around fishermen they don't normally fish around, whose practices they aren't familiar with. Will lead to gear conflict – don't want to add more fuel to this fire.

*David Cousens:* strongly support preferred alternative with trap fishery exemption for reasons we have already heard. Two things – people will be displaced and will have to go elsewhere. Will create gear conflicts, and problems we don't need. Traps will have to go somewhere – wall of rope won't be good for right whales. Have worked hard to accommodate right whale conservation. Lots of money – bet it's close to 8-9 million in these areas. If these areas are taken away, not only taking income away, but will have social impacts as well. We will submit written comment at a later time.

*Rocky Alley:* President of Maine Lobstermen's Union. Nothing left to say that hasn't been said – will impact industry and those that fish in area. Economic multiplier 3-5 times ex-vessel per Main Lobster Institute. Also right whale issue.

*Jack Merrill:* Board MLA, Cranberry Isles Fish Coop, board of Maine Lobster Institute. Support preferred alternative (Option 2). You have already heard some of my comments – closure would create extreme economic and social pressures. Lobster is a top economic engine for coastal Maine. Overcrowding could cause problems for whales. Evidence suggests that corals appear to be thriving and coexisting with trap fishery. Lobster gear is set away from steep edges where coral grows. Environmental causes for coral die-offs. Have experience with neuston net tows throughout the Atlantic – many pollutants have been observed at surface. Environmental conditions are more important to corals than trap fishing. Global warming, pollution, ocean acidification are the real concerns. Lobster warps actually provide habitat for many species – my hypothesis is that collectively, many thousands of lobster warps are helping to feed the ocean. Positive productivity of lobster lines should be accounted for. Coral gardens – do they thus need to be tended/pruned/cut back at times? Do coral respond this way?

*Richard Howland:* Wish to reiterate Commissioner's comment. Support preferred alternative – think about all of the family members and employees of those here today.

A question was asked as to why the Council had not held earlier meetings in eastern Maine; Mr. Grout responded that we have held public hearings across the range of areas affected.

***WEBINAR HEARING – MAY 26, 2017***

*Hearing officer:* John Quinn

*Council staff:* Michelle Bachman, Lou Goodreau, Janice Plante

*Audience members:* Katie Almeida (Town Dock, RI), Morgan Callahan (Pew Charitable Trusts), Ryan Earley (TetraTech), Erica Fuller (Earthjustice), Heidi Henniger (Atlantic Offshore Lobstermen's Association), Meghan Lapp (SeaFreeze Ltd.), Pam Lyons Gromen (Wild Oceans), Rob Moir (Ocean River Inshtitute), Greg Wells (Pew Charitable Trusts), Nick Welz (TetraTech), Eric Reid (NEFMC member), Sarah Winter Whelan (Littoral Society), Aaron Kornbluth (Pew Charitable Trusts), Danielle Palmer (NOAA), Robin Hadlock Seeley (Cornell University)

The hearing began at 1:00 p.m. and concluded around 1:55 p.m.

Dr. Quinn and Ms. Bachman provided an introduction, including a summary of the public process conducted to date and a presentation summarizing the alternatives under consideration, including a review of the preferred alternatives.

***COMMENTS***

*Megan Lapp:* We support the Council's preferred alternative (600m minimum zone on slope).

*Morgan Callahan:* Pew has developed a compromise broad zone alternative. We have spoken about it at every hearing.

*Rob Moir:* In 2014 Martha Nizinski provided a background presentation on corals. She was surprised to see demersal hake and skate in coral habitats. Many species depend on deep sea corals for habitat. Deep sea corals grow slowly. A study in West Ireland evaluated fishery bycatch of corals. Although only 5 of 229 hauls caught corals, the amount of coral in these hauls was substantial. Carbon dating suggested that some of the colonies were around 4,500 years old. I am urging adoption of an alternative that protects corals. I support the preferred mobile bottom-tending gear closures in the Outer Schoodic Ridge and Mt. Desert Rock zones, also in Jordan Basin and Lindenkohl Knoll. In the canyons, I recommend an alternative that prevents use of mobile bottom-tending gears where corals have been observed.

*Katie Almeida:* Town Dock supports the preferred alternative for a 600m minimum depth zone in the canyons/slope.

***LISTING OF WRITTEN COMMENTS***

The following individuals and organizations provided written comments. All were received before close of business on June 5, 2017, unless otherwise noted. The letters are provided as separate attachments. The author of an organizational comment is indicated in parentheses. City and state are provided below when they were noted by the commenter. Note that one of the comments was submitted on behalf of nearly 10,000 United States residents who signed on to a letter developed by the Pew Charitable Trusts, and another was submitted by Oceana on behalf of nearly 19,000 individuals, including residents of all states and the District of Columbia.

- Abrashkin, Diana
- Alley, John, ME
- Associated Fisheries of Maine (Maggie Raymond), South Berwick, ME (comment received 6/7/17)
- Atlantic Offshore Lobstermen's Association (Grant Moore), Dover, NH
- Atlantic States Marine Fisheries Commission (Robert Beal)
- Beal, Joshua, Millbridge, ME
- Bilodeau, Cathy
- Billings, Joel, ME
- Bosworth, Weldon, Gilford, NH
- Bray, Jarod
- Brooke, Sandra, Florida State University
- Caitlin (no last name provided)
- Carol Ann (no last name provided)
- Carroll, Winn
- Carter, Shane (F/V Emily Catherine), Bar Harbor, ME
- Casoni, Beth
- Citizens for Sludge Free Land (Caroline Snyder), North Sandwich, MA
- Coffin, Jonathon, Steuben, ME
- Cohen, Theresa
- Colby, Jason (Milbridge, ME)
- Conant, Susan
- Corcoran, Imogen
- Cosgrove, Rachel
- Daly-Zeras, Sheilagh
- Drenzo, J.S.
- Dow, David, East Falmouth, MA
- Downeast Lobstermen's Associate (Hilton Turner), Belfast, ME
- Douglas, Wayne G., Narragansett, RI
- Duggan, Michael
- Dupree, Jerald
- Foster, Will
- Francis, Arnold, Steuben, ME
- Gaiser, Jorg, Baiersbronn, Germany

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- Goldsmith, Ken, Falmouth, MA
- Harbaugh, Mary, St. Albans, VT
- Henry, Amy
- Hesse, Susanne, and Dyer, Doug
- Holmes, Don, Sedgwick, ME
- Joyce, Jason, F/V Andanamra, Swan's Island, ME
- Kellam, Marcia
- Kleinschmidt, Klaus, Concord, MA
- Klem, Sue, Gloucester and Lincoln, MA
- Koch, Joann, Lebanon, CT
- Leonard, H., ME
- Lunds Fisheries (Jeff Reichle), Cape May, NJ
- Maine Department of Marine Resources (Patrick C. Keliher), Augusta, ME
- Maine Lobstermen's Association, Inc. (Patrice McCarron), Kennebunk, ME
- Maine State Legislature (Rep. Walter Kumiega, Sen. Joyce Maker, Sen. Brian Langley, Rep. Robert Alley, Rep. Ralph Chapman, Rep. Brian Hubbell, Rep. Richard Malaby, Rep. Anne Perry, Rep. William Tuell)
- Marine Conservation Institute (Lance Morgan), Seattle, WA
- Marquis, Sharon
- Matronas Lobster Co. (Gary Matronas)
- McDonald, Genevieve Kurilec, F/V Hello Darlin' II, Stonington, ME
- McGeary, Jessica
- McMullin, William, Royal Oak, MI
- Moore, Barbara
- Musetti, Ronald, Northeast Harbor, ME
- Mystic Aquarium (Katie Cubina), CT
- Nancy (no last name provided)
- New Hampshire Animal Rights League (Linda Dionne), Concord, NH
- Northeast Seafood Coalition (Jackie Odell), Gloucester, MA (comment received after C.O.B. on 6/5/17)
- Oceana (Gib Brogan), Washington, DC
- Oceana, on behalf of 18,854 individuals from all 50 states and the District of Columbia
- Olsen, Marjorie
- Papsun, Alan, Stockbridge, MA
- Parker, James (Milbridge, ME)
- Passow, Fletcher, Ithaca, NY
- Pew Charitable Trusts (Peter Baker), Washington, DC; Wild Oceans (Pam Lyons Gromen), Waterford, VA; Conservation Law Foundation (Peter Shelley), Boston, MA; and Earthjustice (Roger Fleming), San Francisco, CA
- Pew Charitable Trusts, on behalf of 9,758 U.S. residents
- Philbrook, Steven, Islesford, ME (comment received after C.O.B. 6/5/17)
- Price, Nadine, Fitchburg, MA
- Reinhardt, John
- Roane, Christine M., Springfield, MA

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- Rooney, Diane, El Cerrito, CA
- Rosand, Louise, Laconia, NH
- The Safina Center (Carl Safina, Shelley Dearhart), Setauket, NY
- Salman, Tristan, ME (Zone C lobsterman)
- Schoppee, Devin, ME
- Seafreeze, Ltd. (Meghan Lapp), North Kingstown, RI
- Shafmaster Fishing (Jonathan Shafmaster), Newington, NH
- Snyder, Tiffany A., Boulder CO
- Staples, Eric, Swans Island, ME
- Storm, Laurie
- Teal, John
- Telles, Doris P.
- Thye, Pamela
- The Town Dock (Katie Almeida)
- Towner, Erline, Milford, NH
- Tripp, Brian, Sedgwick, ME
- Vaillancourt, Denise
- Villanova, Carolyn
- Voices of Wildlife, NH
- Wilkas, Mary
- Wisler, Elizabeth
- Worcester, Jane D.
- Yates, John, Westbrook, ME
- Zimmerman, Leda, Lexington, MA

### ***SUMMARY OF WRITTEN COMMENTS***

Comments were submitted by 55 individuals, plus on letter from Pew representing 9,758 U.S. residents. Of the individual comments that indicated where the commenter was from, many but not all were from residents of New England states. Most of the individual comments were in favor of strong coral conservation measures and encouraged the Council to go beyond their preferred alternatives during final action. Twelve comments were submitted on behalf of organizations; some of these are conservation groups, while others are fishing businesses or management entities (*ASMFC*).

#### **COMMENTS ON NO ACTION AREAS**

The Council should recommend that the Northeast Canyons and Seamounts Marine National Monument shallow boundary be made consistent with the Council's preferred alternative for coral management, so that fishing grounds near the heads of the canyons can be made accessible again (*ASMFC, Lund's Fisheries Inc.*).

#### **COMMENTS ON THE CONTINENTAL SLOPE AND CANYON ZONES**

Comments oppose/strongly oppose the preferred alternative, and support designation of a zone closed to mobile bottom-tending gear outside the current footprint of those gears; zone should include additional areas relative to the preferred alternative that protect known coral habitats as well as predicted habitats (*Citizens for Sludge Free Land, Conservation Law Foundation, Earthjustice, Marine Conservation Institute, Mystic Aquarium, New Hampshire Animal Rights League, Oceana, Pew Charitable Trusts, The Safina Center, Wild Oceans, Voices of Wildlife, 41 individual commenters, plus those who signed on to the Pew letter*). A detailed description of this zone including methods, data used, maps, and evaluation of coral attributes, is included in the Pew et al. letter.

NEFMC proposed zones differs from MAFMC zones in that a single broad area at a single depth is proposed, and shallower areas of canyons are not protected via discrete zones. 600m minimum zone (Option 6) would permit expansion of mobile bottom-tending gear footprint, contrary to NOAA guidance. The Council should fully evaluate the compromise alternative (proposed by Pew Charitable Trusts) and seriously consider this option during final action (*Sandra Brooke, many others agreed this alternative should be considered*).

A one-size-fits-all approach that aggregates across different gears (mobile and fixed) unnecessarily aggregates across gears with different characteristics and effects on corals (*Oceana*).

Comments oppose designation of any coral zones inside of 600 meters (550 meters in an earlier version of this comment). There is significant lobster trap gear in the canyons targeting Jonah crab and lobster between 100-600 meters. Have had no interaction with offshore coral; corals in these areas are pristine. Grounds in Veatch, Block, and Atlantis Canyons have been held from



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other lobstermen, draggers, and scallopers for decades. Displacement would force vessels into the Gulf of Maine which would create gear conflicts and interactions with whales. (*Mataronas Lobster Co.*)

Council's preferred alternative makes eminent sense. Do not eliminate bottom-tending gear access to depths shallower than 600m (*Shafmaster Fishing*).

Support the preferred alternative with an exemption for the red crab fishery (*Lund's Fisheries Inc., Atlantic Offshore Lobstermen's Association, Beth Casoni*). Preferred alternative is consistent with NOAA guidance and protects most of the known corals (AOA). Effort displacement and gear conflicts as a result of a shallower zone are of significant concern (AOA). Do not support discrete zones in the canyons which would be difficult for compliance and enforcement (*Lund's Fisheries Inc.*).

### COMMENTS ON THE DISCRETE SEAMOUNT ZONES

None identified in the written comments, comments focus on broad zones which encompass the seamounts.

### COMMENTS ON THE GULF OF MAINE ZONES

Corals in the Gulf of Maine are genetically distinct from conspecifics elsewhere and should be protected to maintain genetic diversity of these species (*Citizens for Sludge Free Land, Conservation Law Foundation, Earthjustice, Marine Conservation Institute, Mystic Aquarium, New Hampshire Animal Rights League, Oceana, Pew Charitable Trusts, The Safina Center, Wild Oceans, Voices of Wildlife, 41 individual commenters, plus those who signed on to the Pew letter*).

Larger Option 1 zones increase the likelihood of fully encompassing coral habitats (*Citizens for Sludge Free Land, Conservation Law Foundation, Earthjustice, Marine Conservation Institute, Mystic Aquarium, New Hampshire Animal Rights League, Oceana, Pew Charitable Trusts, The Safina Center, Wild Oceans, Voices of Wildlife, 41 individual commenters, plus those who signed on to the Pew letter*).

The Gulf of Maine zones are small and fragmented. The Option 2 boundaries could allow for suspended sediments from trawling to reach corals, and cause problems with feeding and respiration. The corals' mechanism for protection is production of mucous, which is energetically costly to them. The larger (Option 1) zones provide more of a buffer around the coral areas to confer protection from sediment stress, as well as accidental gear deployment in the zones. Larger more regular zones also facilitate enforcement (*Sandra Brooke*).

Coral zones overlap with designated EFH for a number of Council-managed species (*Conservation Law Foundation, Earthjustice, Pew Charitable Trusts, Wild Oceans*).

### COMMENTS ON THE INSHORE GULF OF MAINE ZONES

Comments from Maine lobstermen (16 individual letters) support the preferred alternative, which prevents mobile gears (Option 2) but allows use of lobster traps (Option 2 does not include fixed gears). Some of these comments provided more detailed rationale. Council should support the preferred alternative given concerns about effort displacement, gear conflict, and loss of gear should the areas close (*Jason Joyce*). Corals occur in steep rocky areas and lobster fishermen work to the edges of these areas only; setting traps in coral habitats would result in loss of gear (*Shane Carter*). The option to use fixed gear for groundfish in the future should be preserved (*Shane Carter*). Corals appear to coexist with the lobster fishery (*Tristan Salman*).

Identified coral areas lie in the heart of some of the most lucrative lobstering grounds in Eastern Maine. Areas fished mostly in winter, but sometimes year-round. Based on DMR surveys and Maine Center for Coastal Fisheries outreach, an estimated 50 fishermen work each zone. Each vessel employs 1-2 crew and supports at least ten people in terms of crew and family members. DMR work shows that ASMFC technical committee work underestimates revenue losses. Coral habitats and fishing grounds co-exist in close proximity, and have done so for hundreds of years. Displacement of lobster trap effort outside the inshore GOM coral zones would lead to gear conflicts and increase vertical line density and reverse the effects of the Atlantic Large Whale Take Reduction Plan. Option 2 (mobile bottom-tending gear restriction only) would allow fixed gear fishing opportunities in the eastern Maine groundfish fishery (*Genevieve McDonald*).

Council should adopt the preferred alternative for these sites. Very concerned about gear conflicts and forcing fishermen into areas where they are not as familiar with vessels operating there and their typical patterns of activity, gear marking, etc. Not that we are against protecting our ecosystem, but we must look at the impact this will have on our fishery, fishermen, and their families (*Downeast Lobstermen's Association*).

Other comments also support designation of Mt. Desert Rock and Outer Schoodic Ridge zones as mobile bottom-tending gear closures (Option 2), but express clear preference for the larger Option 1 boundary for Mt. Desert Rock (*Citizens for Sludge Free Land, Conservation Law Foundation, Earthjustice, Marine Conservation Institute, Mystic Aquarium, New Hampshire Animal Rights League, Oceana, Pew Charitable Trusts, The Safina Center, Wild Oceans, Voices of Wildlife, 41 individual commenters, plus those who signed on to the Pew letter*).

Support protection of coral communities from bottom-tending gear. Cringe each time further encroachment occurs on overexploited fisheries stocks and species that support the food chain in the Gulf of Maine. What does it take to convince resource managers we have already gone too far and need to protect habitats not already compromised? Should appreciate shifting baselines. Not an adequate scientific foundation to allow resource managers to fully understand the consequences of putting more harvesting pressure on these coral communities. A conservative resource manager upholding the public trust should err on the side of precaution when making this decision (*Weldon Bosworth*).

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### *COMMENTS ON THE OFFSHORE GULF OF MAINE ZONES*

Comments oppose taking no action, and support designation of Option 1 zones at Jordan Basin and Lindenkohl Knoll as mobile bottom-tending gear closures (Option 2, *Citizens for Sludge Free Land, Conservation Law Foundation, Earthjustice, Marine Conservation Institute, Mystic Aquarium, New Hampshire Animal Rights League, Oceana, Pew Charitable Trusts, The Safina Center, Wild Oceans, Voices of Wildlife, 41 individual commenters, plus those who signed on to the Pew letter*).

Our fleet fishes exclusively in Lobster Conservation and Management Area 3, and is strongly opposed to finite and discrete closure areas being considered for the Gulf of Maine, most particularly in regards to lobstering. No evidence that lobster pots have had an adverse impact on corals or coral populations over the past 40 or more years. Corals have been described as pristine. Dislocation of gear from these areas will cause major gear conflicts which is a significant issue (*Shafmaster Fishing*).

Support taking no action. Offshore areas are important grounds for catching pollock and redfish (*Northeast Seafood Coalition, Associated Fisheries of Maine*). Wary of use of exemptions for some bottom tending gears if mobile bottom-tending gears are excluded, where corals have been identified and comprehensive protection is desired (*Northeast Seafood Coalition*). Sometimes it is reasonable and warranted to accept some impacts from some gears in some places (*Northeast Seafood Coalition*).

### COMMENTS ON SPECIAL MANAGEMENT PROGRAMS AND FRAMEWORK PROVISIONS

Opposed to removal or reduction of fishing restrictions in coral zones using framework adjustments; support additional protections via framework (*Oceana*).

Council should not create special access or exploratory programs at this time; these are premature, would require substantial analysis (*Oceana*).

Council should support a permitting process for future scientific research (*Oceana*).

### OTHER COMMENTS

Comment period is short (draft amendment on May 15, comments due May 24 for Committee consideration). The Council should consider a delay to allow for a more thorough evaluation of the alternatives and development of optimal management strategies (*Sandra Brooke, Oceana*).

“Once these corals are destroyed, it will not be possible to replace them, and an ecosystem that supports our fisheries long-term will have been sacrificed for short-term gain” (*Barbara Moore, other comments included similar themes*).

Commenter would prefer to see coral management addressed via the Habitat Area of Particular Concern process, with conservation efforts managed by the NOAA Fisheries Office in Gloucester. Unfortunate that corals were not addressed in Omnibus EFH Amendment 2, before

this conservation challenge became embroiled in political conflict surrounding the Northeast Canyons and Seamounts Marine National Monument (*David Dow, NOAA, retired, and former Habitat PDT member*).

A precautionary approach should be adhered to, considering predictions about negative impacts of climate change on ocean health and fisheries (*Citizens for Sludge-Free Land*).

Thirteen written comments were very generally in support of coral conservation, without clear reference to particular alternatives. Some of these referenced the need to go beyond the preferred alternatives to better protect coral habitats from the effects of fishing gear. Many took a long term, ecosystem viewpoint as to the need to protect corals and preserve these habitats for future generations (*e.g. John Teal, Sue Klem*).

Amendment problem statement is inconsistent with NOAA strategic plan for conservation of deep-sea coral and sponge ecosystems (*Oceana*).

Workshop process had potential, but fell short as limited “information” was provided by industry (*Oceana*). Workshop outcomes should be characterized as “feedback”, not as factual basis or rationale for decision making (*Oceana*).