

Omnibus Essential Fish Habitat Amendment 2

PUBLIC HEARING DOCUMENT



New England
Fishery Management
Council

SECTION 1

How to Submit Comments

Comment period October 10, 2014 to January 8, 2015



Written Comments By **MAIL**

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Comments"*

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Introduction

3.1 Why is the Council Developing this Amendment?

The New England Fishery Management Council (Council) is required by the Magnuson-Stevens Fishery Conservation and Management Act to periodically revise and update habitat management measures. The Council must review essential fish habitat (EFH) designations, as well as any rules in place that minimize adverse fishery effects on EFH to the extent practicable and must identify other actions that encourage conservation and enhancement of fish habitat. The Omnibus Habitat Amendment 2 addresses these requirements.

As part of the Amendment, the Council intends to update its EFH designations, potentially designate Habitat Areas of Particular Concern (HAPCs) and Designated Habitat Research Areas (DHRAs), improve protection for juvenile groundfish and their habitat, and reduce impacts on spawning groundfish and their spawning activity.

3.2 What is the Timeline for Completion of the Amendment?

The Council will accept public comments on the amendment from October 10, 2014 to January 8, 2015. The public can attend one of the public hearings during this comment period, submit written comments and provide them at that time, or use the email or fax information provided in this document.

After the comment period has ended, the Council's Habitat Committee will consider all the comments and recommend its preferred management alternatives to the Council. The Council will then review the Committee recommendations and the public comments before deciding on final preferred alternatives.

The final preferred alternatives may differ from those discussed in this public hearing document and the Draft Environmental Impact Statement (DEIS). The Council identified the current preferred alternatives to help the public focus their comments on alternatives that are more likely to be put into effect than others.

After the Council approves its final preferred alternatives, staff will complete the Final Environmental Impact Statement (FEIS). The FEIS will be submitted to the National Marine Fisheries Service (NMFS) and the Secretary of Commerce for review and approval. The Secretary of Commerce may approve, disapprove, or partially approve the amendment based on agency review. If approved, NMFS will publish proposed regulations in the Federal Register. There will be an additional written public comment period on the proposed regulations.

NMFS will respond to comments from the public on the proposed regulations when it publishes a final rule in the Federal Register, which is the official version of the new regulations. The measures in the amendment will go into effect after the final rule is published, probably in late 2015 or early 2016.

3.3 Where Do I Find Information in the Draft Environmental Impact Statement?

Habitat Amendment DEIS Contents

Volume 1 – Introduction and Background

Section 1: Executive summary of the DEIS

Section 2: Table of Contents for Volume 1

Section 3: Need and purpose for action, goals and objectives, relevant management background

Section 4: Description of the affected environment, including physical habitats, managed resources and fisheries, and protected resources

Volume 2 – EFH and HAPC Designations

Section 1: Table of Contents for Volume 2

Section 2: Essential Fish Habitat (EFH) and Habitat Area of Particular Concern (HAPC) designation alternatives

Section 3: Environmental impacts of EFH and HAPC designation alternatives

Volume 3 – Spatial Management Alternatives

Section 1: Table of Contents for Volume 3

Section 2: Spatial management alternatives including areas included, fishing restrictions, maps, and rationale

Section 3: Considered and rejected spatial management alternatives

Section 4: Environmental impacts of spatial management alternatives on the physical environment, managed species, the human community, and protected resources

Volume 4 – Summary of Impacts and Compliance with Law

Section 1: Table of Contents for Volume 4

Section 2: Practicability analysis

Section 3: Cumulative effects of the management alternatives combined with past, present, and future actions

Section 4: Compliance with the Magnuson Stevens Act

Section 5: Compliance with the National Environmental Policy Act

Section 6: Compliance with other applicable laws

Section 7: References, including a glossary, literature cited, and an index

Volume 5 - Appendices

A: EFH designation methods

B: EFH supplementary tables

C: EFH maps identified as preferred during 2007

D: Swept Area Seabed Impact (SASI) analysis

E: Groundfish distribution (hotspot) analysis

F: Groundfish distribution modeling report (cod and yellowtail flounder)

G: Summary of non-fishing impacts to EFH



New England
Fishery Management
Council

The Draft Environmental
Impact Statement Can Be
Found Online At:

[www.nefmc.org/library/
omnibus-habitat-amendment-2](http://www.nefmc.org/library/omnibus-habitat-amendment-2)



Summary of Alternatives

The alternatives are structured under three broad categories: EFH and HAPC designations, spatial management alternatives, and a framework adjustment and monitoring approach.

4.1 EFH and HAPC Designations

The EFH and HAPC designation alternatives are described and analyzed in **Volume 2** of the DEIS. EFH and HAPC designations do not have a direct influence on when and where fishing vessels may operate.

4.1.1 Essential Fish Habitat (EFH) Designations

EFH are those waters and substrate necessary to a fish for spawning, breeding, feeding, or growth to maturity. EFH designations consist of text descriptions and the map representations. An area is only considered EFH if it is both displayed in an EFH map and meets the conditions defined in the text description.

This document includes three types of EFH designation alternatives:

- No action (designations currently in place)
- Preferred alternatives (see Appendix C of the DEIS)
- Non-preferred alternatives (2007 DEIS)

EFH text descriptions summarize the life history information needed to understand the relationship of each species and life history stage to various habitats. A major improvement in the new text descriptions is the inclusion of specific depth and temperature ranges that more explicitly connect with the map representations of EFH.

EFH maps show the geographic boundaries for the EFH of each species and life stage, subject to the habitat requirements as defined in the text descriptions. Mapping methods are described in detail in Appendix A of the DEIS.

Most EFH designations rely largely on data from trawl surveys. Different designation methods were applied to Atlantic salmon, Atlantic deep-sea red crab, Atlantic

halibut, Atlantic wolffish, offshore hake, ocean pout, winter flounder eggs, and Atlantic herring eggs because they are seldom caught in the trawl surveys or are beyond the range of the surveys.

4.1.2 HAPC designations

This amendment also includes a number of alternatives that would designate habitat areas of particular concern, or HAPCs. An area's status as an HAPC should lead to more careful evaluations of the impacts of all potential activities in addition to fishing in that area. Management measures such as gear restrictions are not proposed in this amendment as part of the HAPC designations.

There currently are cases where an HAPC and a habitat/EFH closure area overlap, for example, the No Action juvenile cod HAPC on the northern edge of Georges Bank. However, because decisions for the HAPC designations and area closure/gear restrictions are made separately, modifying one does not affect the other.

The HAPCs include the following:

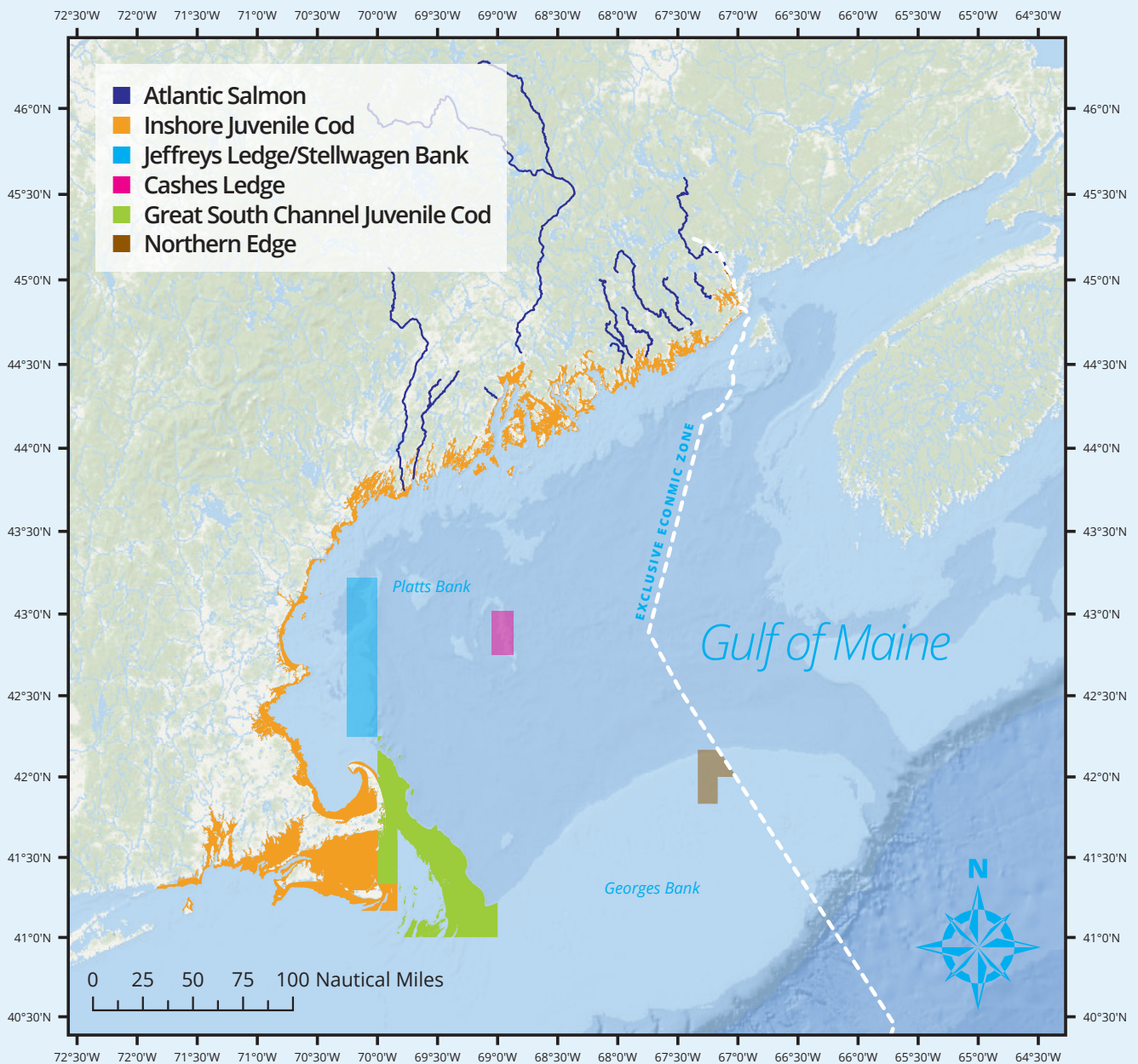
- Inshore Juvenile Cod HAPC
- Great South Channel Juvenile Cod HAPC
- Cashes Ledge HAPC
- Jeffreys Ledge/Stellwagen Bank HAPC
- Bear and Retriever Seamounts HAPC
- Heezen Canyon HAPC
- Lydonia/Gilbert/Oceanographer Canyons HAPC
- Hydrographer Canyon HAPC
- Veatch Canyon HAPC
- Alvin/Atlantis Canyon HAPC
- Hudson Canyon HAPC
- Toms, Middle Toms, and Hendrickson Canyon HAPC
- Wilmington Canyon HAPC
- Baltimore Canyon HAPC
- Washington Canyon HAPC
- Norfolk Canyon HAPC

Some of the original HAPC areas exceeded the depth of the proposed EFH designations. The boundaries of various seamount and canyon HAPCs were changed in order to be consistent with the depth of the Council's preferred EFH designation alternatives.

Maps 1 through 3 show the various HAPCs. The Atlantic Salmon HAPC and the Northern Edge Cod HAPC are currently in place.

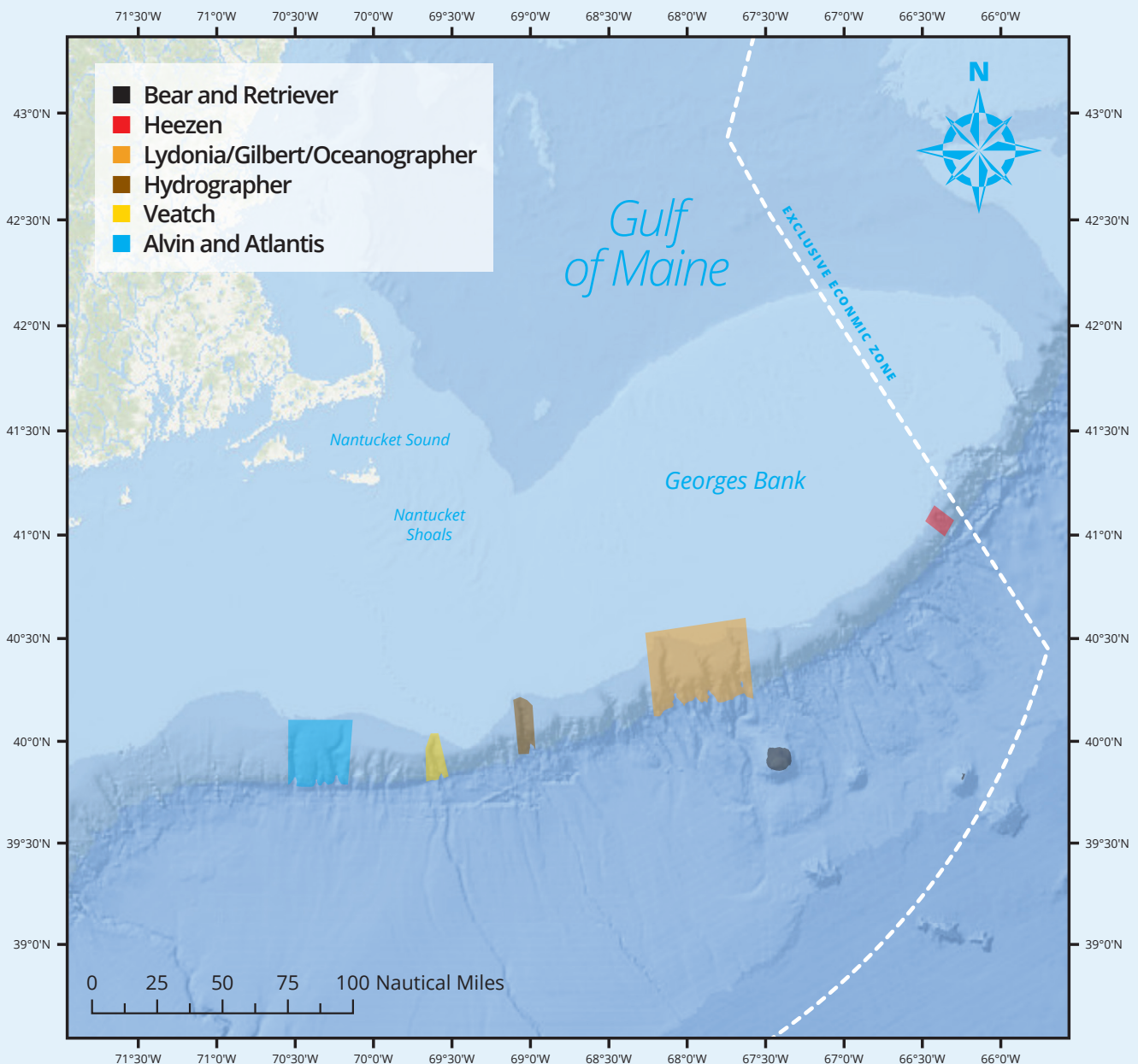
MAP 1

Continental Shelf Habitat Areas of Particular Concern



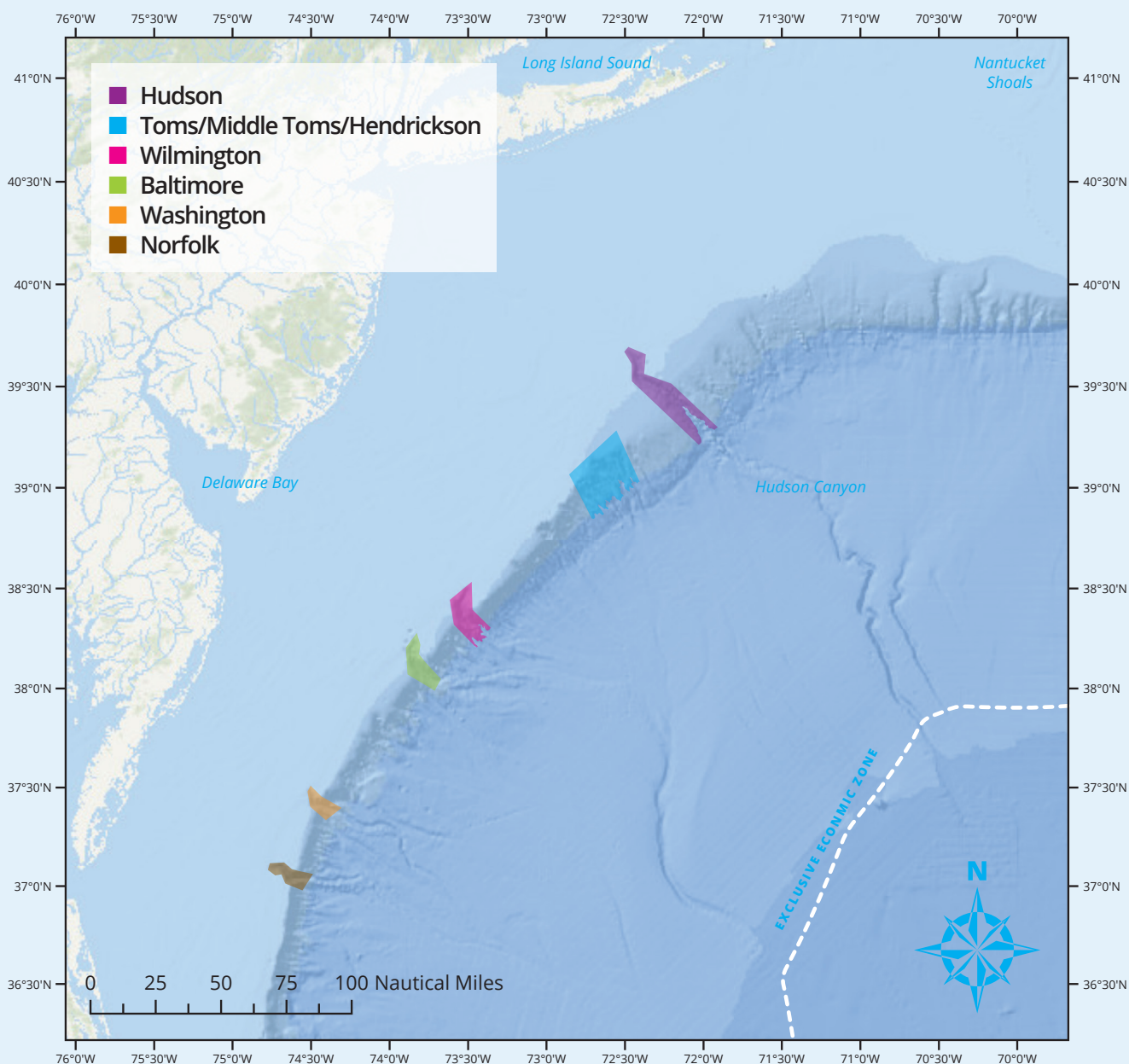
MAP 2

New England Region Seamount and Canyon Habitat Areas of Particular Concern



MAP 3

Mid-Atlantic Region Canyon Habitat Areas of Particular Concern



4.2 Spatial Management Alternatives

Currently, spatial management in our region consists of two types of year-round closures: the habitat closure areas and groundfish closures. The habitat closure areas restrict mobile-bottom tending gear. The year-round groundfish closures restrict “gears capable of catching groundfish” including mobile bottom-tending gears (*Table 1* outlines qualifying gears). Both year-round habitat and groundfish closures also provide some benefits to EFH by minimizing adverse impacts within areas not currently fished. Seasonal and year-round closed areas have been used to meet many objectives, including to protect spawning cod and haddock on Georges Bank, reduce discards of yellowtail flounder in Southern New England and cod in the Gulf of Maine, reduce mortality on certain overfished groundfish stocks, and make Day-at-Sea management more effective.

The alternatives related to habitat management, spawning protection, and research areas are described and analyzed in **Volume 3** of the DEIS. The habitat management and spawning protection alternatives consist of sub-regional (habitat) or regional (spawning) combinations of current areas, modified versions of current areas, and newly identified areas.

The alternatives were developed to help minimize adverse effects or to address spawning protection objectives. Fishing restrictions vary by area and alternative type, and in some cases there are multiple options for fishing restrictions that the Council may select. The general alternatives are outlined in *Table 2*.

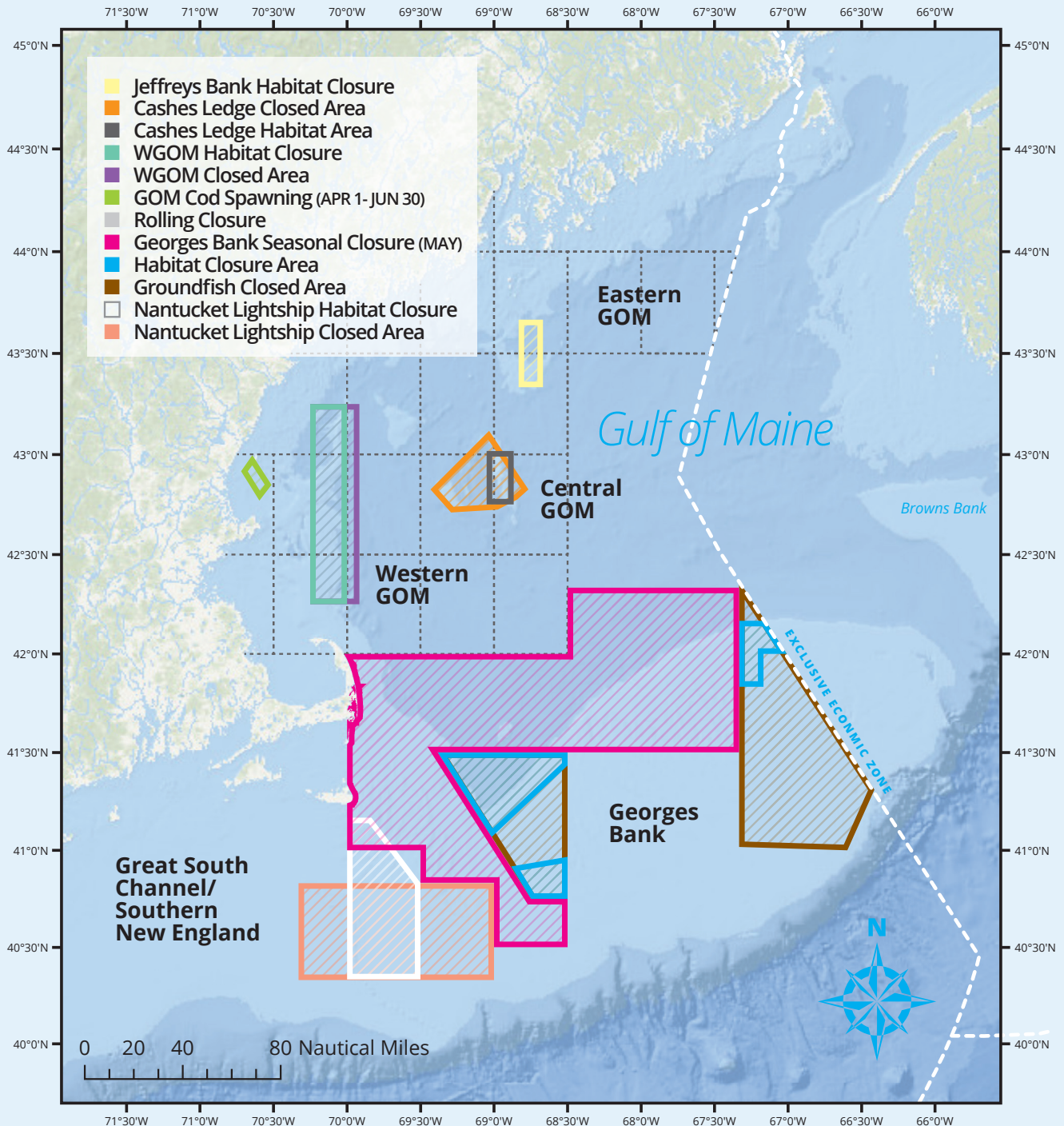
This amendment also includes an alternative that would revise the list of spatial management measures that the Council could modify in a framework adjustment, as well as suggested monitoring approaches. Both are described and analyzed in **Volume 3** of the DEIS. To date, preferred alternatives have been identified in most categories, with the exception of habitat management areas in the Georges Bank and Great South Channel/Southern New England sub-regions.

TABLE 1. Mobile Bottom Tending Gear and Gears Capable of Catching Groundfish. Gears in Italics are Mobile Bottom-Tending Gear But Not Considered Gear Capable of Catching Groundfish

| Mobile Bottom-Tending Gear and Gears Capable Of Catching Groundfish | Gears Capable of Catching Groundfish |
|---|--------------------------------------|
| Beam trawl | Beam trawl |
| Bottom longline | Bottom longline |
| Bottom pair trawl | Bottom pair trawl |
| Danish seine | Danish seine |
| Fish bottom otter trawl | Fish bottom otter trawl |
| Haddock separator trawl | Haddock separator trawl |
| Hand line/rod & reel | Hand line/rod & reel |
| Haul seine | Haul seine |
| Midwater pair trawl | Midwater pair trawl |
| Midwater trawl | Midwater trawl |
| Mussel dredge | Mussel dredge |
| <i>Ocean quahog/surfclam dredge</i> | |
| Other bottom otter trawl | Other bottom otter trawl |
| Other dredge | Other dredge |
| Purse seine | Purse seine |
| Ruhle trawl | Ruhle trawl |
| Scallop bottom otter trawl | Scallop bottom otter trawl |
| Scottish seine | Scottish seine |
| Sea scallop dredge | Sea scallop dredge |
| Sea scallop dredge with chain mat | Sea scallop dredge with chain mat |
| <i>Shrimp trawl</i> | |
| Sink gillnet | Sink gillnet |
| Twin bottom otter trawl | Twin bottom otter trawl |
| Urchin dredge | Urchin dredge |

MAP 4

No Action Spatial Management Alternatives



MAP 5

Preferred Spatial Management Alternatives

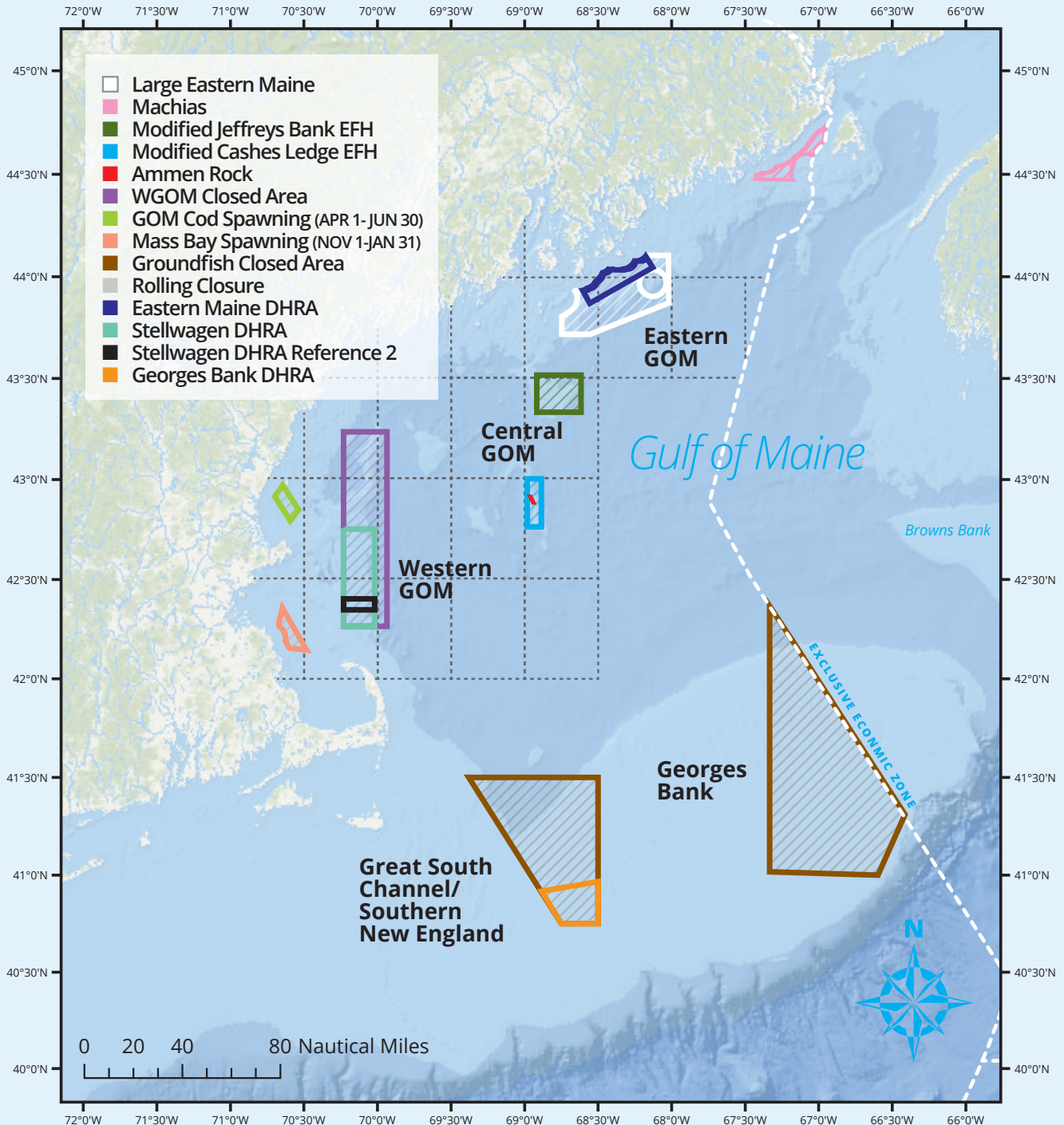


TABLE 2. Types of Spatial Management Alternatives That Affect Fishing Activities

| Alternative Type | Year Round or Seasonal | Which Areas Comprise the Action Alternatives? | Type of Restrictions (Generally) | Rationale |
|---------------------|--|--|---|---|
| Habitat protection | Year round, long term | Modified versions of existing habitat management areas in groundfish and scallop FMPs, new areas based upon Swept Area Seabed Impact (SASI) and groundfish hotspot analyses. | Prohibit use of mobile bottom-tending gear, or allow dredges and require gear modifications for trawls only. Option to exclude hydraulic clam dredges from the prohibition. Some areas (Eastern Maine, Ammen Rock) consider broader restrictions. | Minimize adverse effects of fishing on highly structured seafloor habitats with long recovery times to protect the areas ability to shelter fish and fish prey. Some areas focus on encompassing habitats for juvenile large-mesh multispecies in particular. |
| Spawning protection | Seasonal, long term | Existing rolling and year-round closures, re-designated as spawning areas; new area in Massachusetts Bay | Closed to gears capable of catching groundfish, with exemptions as appropriate. Options to include recreational groundfishing. | Avoid capture of fish during their spawning season, prevent disruption of spawning activity |
| Habitat research | Year-round, triggered sunset provision | Subsets of existing habitat management areas, or new habitat management areas | At minimum, prohibit use of mobile bottom-tending gears. Stellwagen area maintains current restrictions and also includes a reference area that would further restrict recreational groundfish catch. | Create opportunity for research that investigates the relationship between habitat, fishing, and fish productivity |

TABLE 3. Summary of the Habitat Protection Alternative Structure

| Alternative | Description |
|---------------------------------------|---|
| 1 - No Action | Mobile-bottom tending gear closures first identified via Northeast Multispecies Amendment 13 Year-round groundfish closures Provide some of the same benefits in terms of minimizing adverse effects on EFH, at least within areas not currently fished |
| 2 - "No Closure" | No year-round habitat management areas Does not preclude seasonal closures for spawning, or year-round management areas employed for other purposes (e.g. research) |
| 3 - 8 (2-3 for eastern Gulf of Maine) | Combinations of new or modified habitat management areas In some cases, different alternatives in a sub-region include smaller and larger versions of an area. Associated maps clarify which area is included in a given alternative |

4.2.1 Habitat Protection

This amendment is based on the premise that there are habitats, which are vulnerable to fishing, that allow for the higher survival and/or growth rates of juvenile fish. Protection of these vulnerable habitats is expected to increase productivity of managed species with life stages that rely on those habitats.

The Council’s Habitat Plan Development Team (PDT) and Habitat Committee used multiple analyses and other information to identify candidate Habitat Management Areas (HMAs). A key component was the development of the Swept Area Seabed Impact (SASI) model described in Appendix D. The final candidate management areas were based on local groupings of vulnerable habitat and Habitat Committee discussions.

Additional areas were later identified by the Council’s Closed Area Technical Team and Groundfish Committee, based on an analysis of juvenile groundfish distributions, combined with information about the current status of various stocks and their affinities for vulnerable habitat types (a complete description of the analysis is provided in **Volume 1** of the DEIS and Appendix E).

All of the habitat management areas described in this section would be implemented on a year-round basis, indefinitely with fishing restriction measures primarily focused on minimizing impacts from mobile bottom-tending gears. The habitat protection alternatives are grouped by sub-region to facilitate discussion, analysis,

and decision making. Each sub-region has a unique mix of habitat types, stocks, and fisheries (*Table 3*).

With the exception of the Ammen Rock area (proposed as a closure to all fishing), management measures for each area can generally be selected from the five options outlined in *Table 4*. Lobster trap fishing would not be restricted in any habitat areas. Different measures could be selected in each area.

TABLE 4. Potential Management Measures That Could Be Applied to Habitat Protection Alternatives

| Option | Description |
|--------|--|
| 1 | Complete restrictions on the use of mobile bottom-tending gears |
| 2 | Restrictions on the use of mobile bottom-tending gear with an exemption for hydraulic clam dredges |
| 3 | Bottom trawl vessels must use ground cables modified with 20 centimeter diameter elevating disks spaced at 5 fathoms, with a length per side capped at 45 fathoms. Use of dredges would be permitted |
| 4 | Bottom trawl vessels must eliminate ground cables entirely and cap bridle lengths at 30 fathoms per side. Use of dredges would be permitted |
| 5 | Complete restriction on gears capable of catching groundfish |

Table 5 provides a summary of proposed habitat management alternatives by sub-region. It was developed to aid in discussion of potential alternatives and, ultimately, for decision making. The areas included vary by alternative, as do the potential fishing restriction options.

TABLE 5. Summary of Areas Included in the Various Habitat Management Alternatives

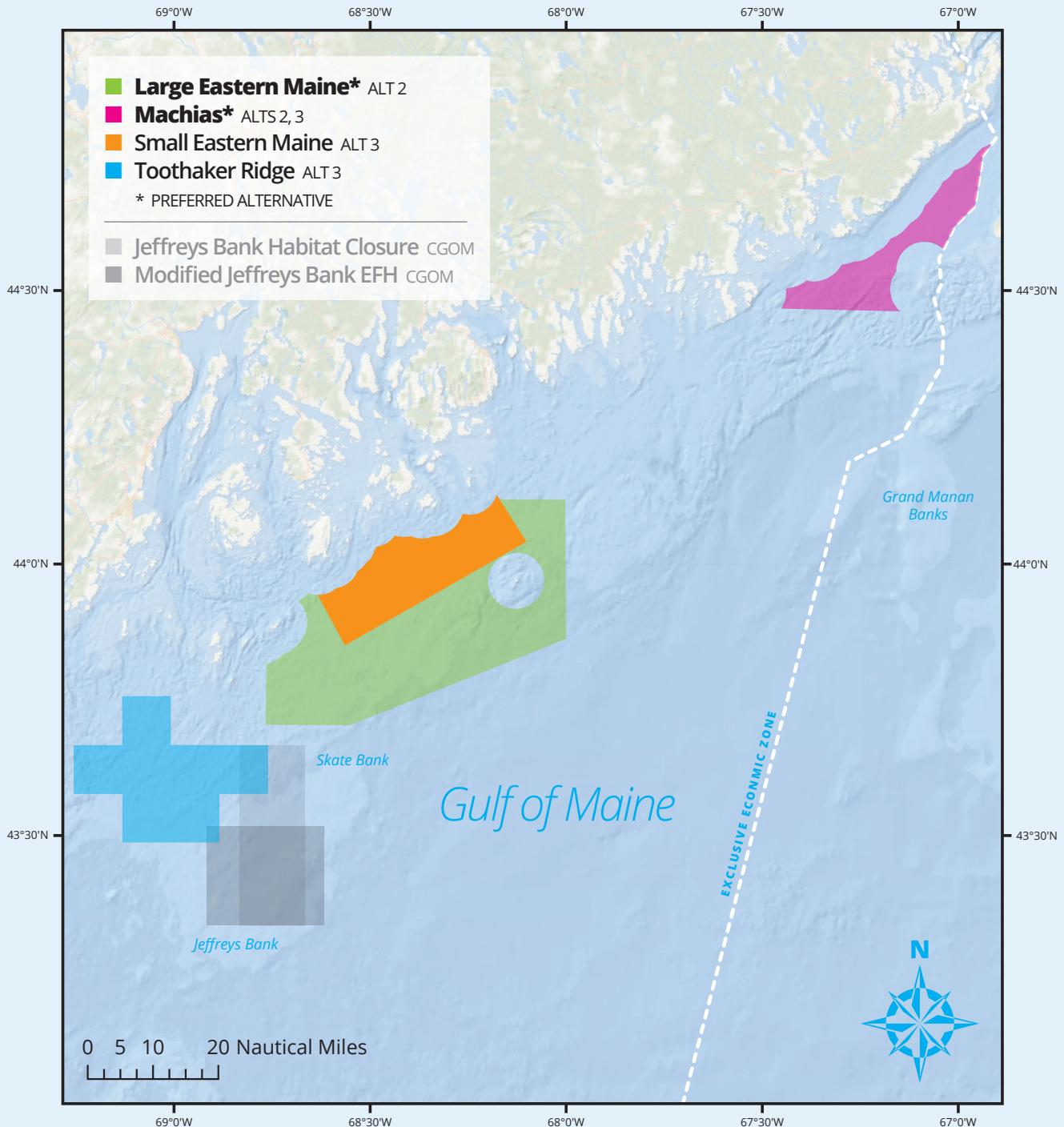
(HMA = Habitat Management Area; EFH = Essential Fish Habitat; GF = Groundfish; MBTG = Mobile Bottom Tending Gear; NE = Northern Edge; GS = Georges Shoal; NG = Northern Georges; NSW = Nantucket Shoals West; GSC = Great South Channel; CL = Cox Ledge)

| Sub-region | Alternative | Areas Included | Fishing Restriction Options |
|--|---------------------------|--|---|
| Eastern Gulf of Maine | 1 (No Action, no closure) | None | n/a |
| | 2 | Large Eastern Maine HMA, Machias HMA | 1-5 |
| | 3 | Small Eastern Maine HMA, Machias HMA, Toothaker Ridge HMA | 1-4 |
| Central Gulf of Maine | 1 (No Action) | Jeffreys Bank Habitat Closure Area, Cashes Ledge Habitat Closure Area, Cashes Ledge Closed Area | Current measures |
| | 2 (no closure) | None | n/a |
| | 3 | Modified Jeffreys Bank EFH HMA, Modified Cashes Ledge EFH HMA, Ammen Rock HMA, Fippennies Ledge HMA, Platts Bank HMA | 1-4, Ammen Rock closed to all fishing |
| | 4 | Modified Jeffreys Bank EFH HMA, Modified Cashes Ledge EFH HMA, Ammen Rock HMA | 1-4, Ammen Rock closed to all fishing |
| Western Gulf of Maine | 1 (No Action) | Western Gulf of Maine Habitat Closure Area, Western Gulf of Maine Closed Area | Current measures |
| | 2 (no closure) | None | n/a |
| | 3 | Large Bigelow Bight HMA, Large Stellwagen HMA | 1-4 |
| | 4 | Large Bigelow Bight HMA, Small Stellwagen HMA, Jeffreys Ledge HMA | 1-4 |
| | 5 | Small Bigelow Bight HMA, Small Stellwagen HMA, Jeffreys Ledge HMA | 1-4 |
| | 6 | Large Stellwagen HMA | 1-4 |
| | 7a | Inshore Roller Gear Restricted Area | Trawl roller gear limited to 12 inches diameter |
| | 7b | Alternate Roller Gear Restricted Area | Trawl roller gear limited to 12 inches diameter |
| Georges Bank | 1 (No Action) | CAI and CAII EFH, CAI and CAII GF | Current measures |
| | 2 (no closure) | None | n/a |
| | 3 | Northern Edge HMA | 1-4 |
| | 4 | Northern Edge HMA and Georges Shoal Gear Modified Area | NE: 1-4, GS: 3-4 |
| | 5 | Georges Shoal 1 MBTG HMA and Northern Georges Gear Modified Area | GS: 1-2, NG: 3-4 |
| | 6a | EFH Expanded 1 HMA | 1-4 |
| | 6b | EFH Expanded 2 HMA | 1-4 |
| | 7 | Georges Shoal 2 MBTG HMA and EFH South MBTG HMA | 1-2 |
| Great South Channel/ Southern New England | 1 (No Action) | Nantucket Lightship Habitat Closure Area, Nantucket Lightship Closed Area | Current measures |
| | 2 (no closure) | None | n/a |
| | 3 | Great South Channel East HMA and Cox Ledge HMA | 1-4 |
| | 4 | Great South Channel HMA and Cox Ledge HMA | 1-4 |
| | 5 | Nantucket Shoals HMA and Cox Ledge HMA | 1-4 |
| | 6 | Nantucket Shoals West MBTG HMA, Great South Channel Gear Modified Area, Cox Ledge HMA | NSW: 1-2, GSC: 3-4, CL: 1-4 |

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Eastern Gulf of Maine Habitat Management Areas and Alternatives

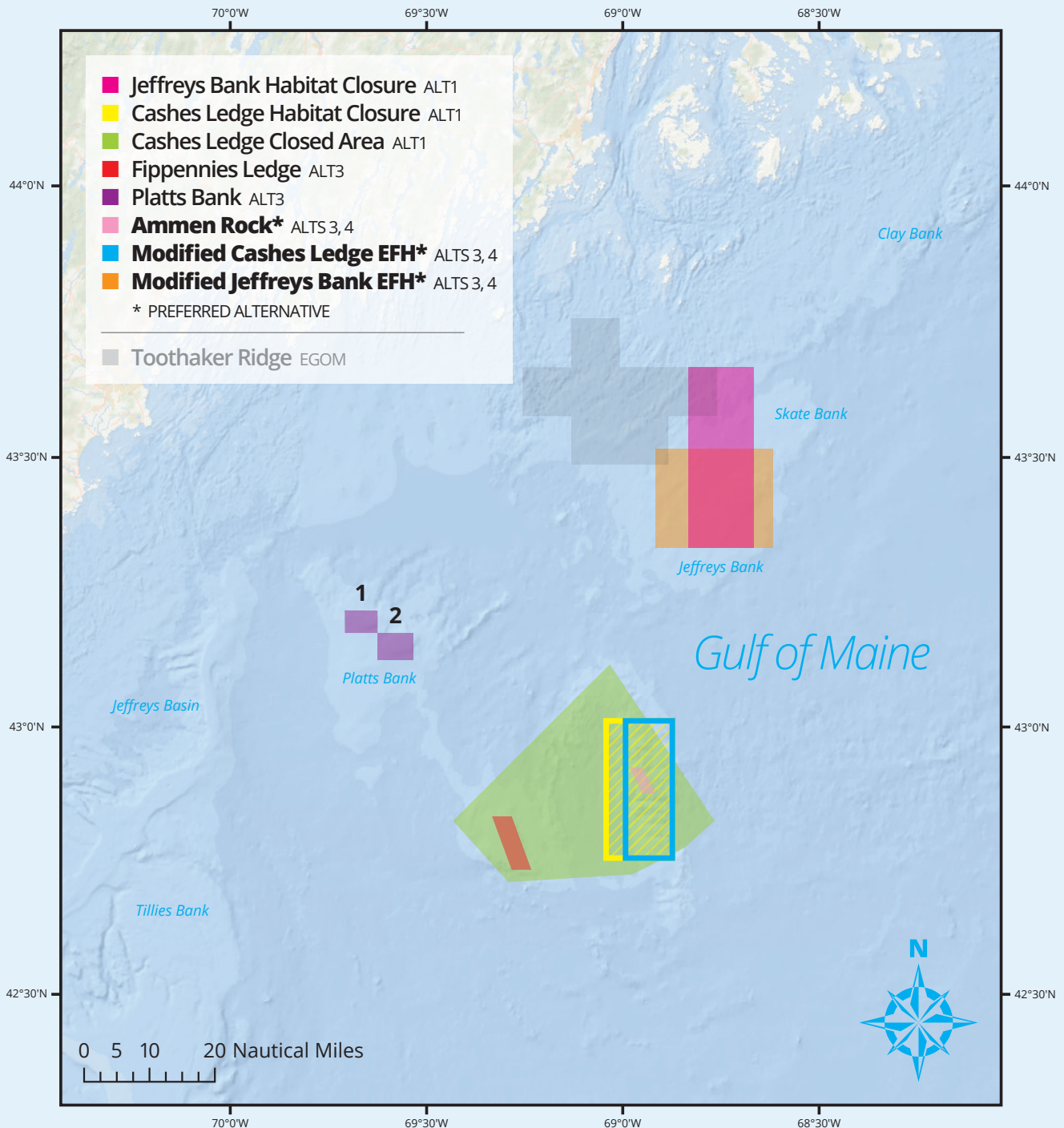
Although not grouped in this sub-region, the Jeffreys Bank areas are shown since they overlap with the Toothaker Ridge area.



MAP 7

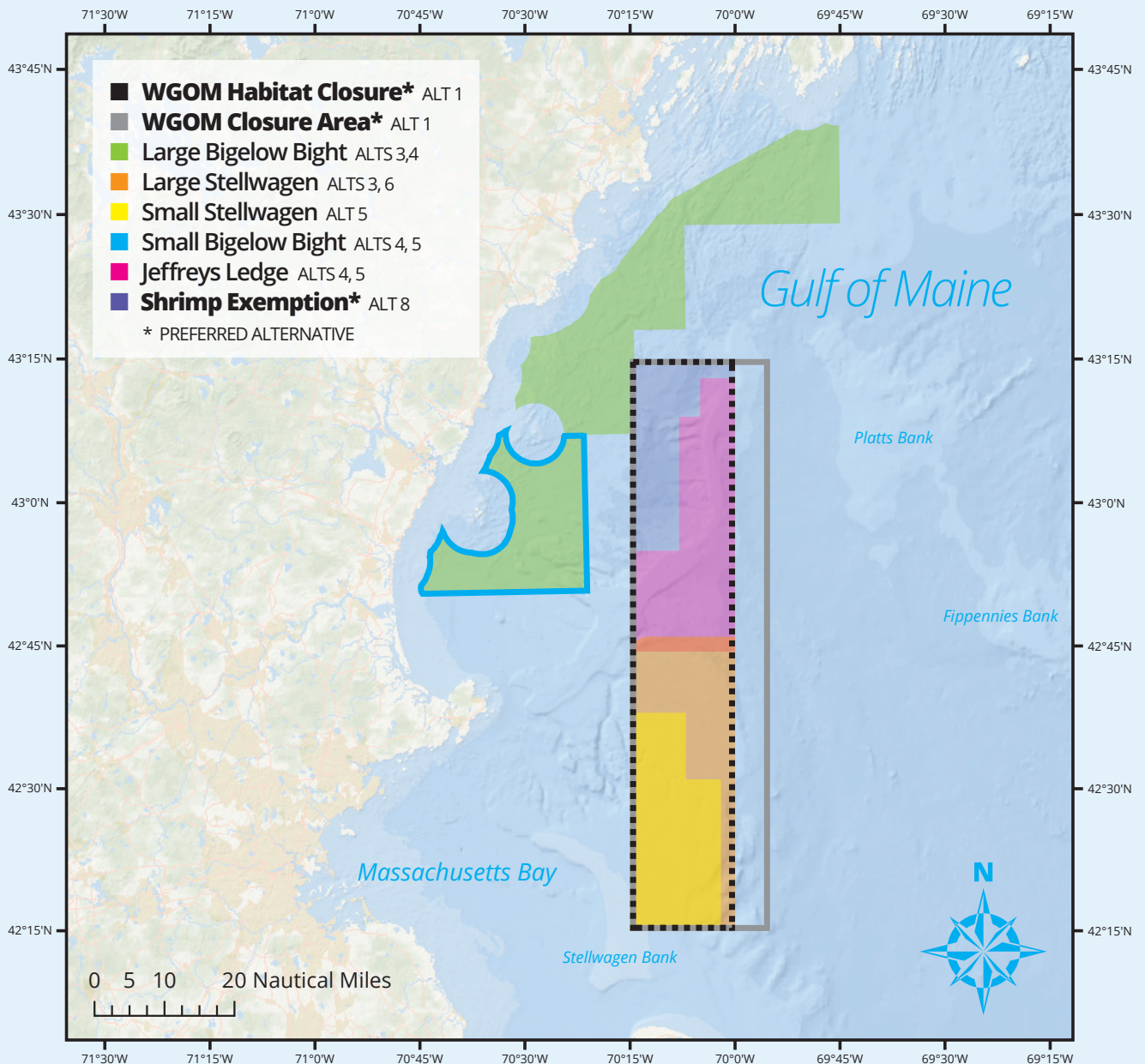
Central Gulf of Maine Habitat Management Areas and Alternatives

Although not grouped in this sub-region, the Toothaker Ridge is shown since it overlaps with the Jeffreys Bank area.

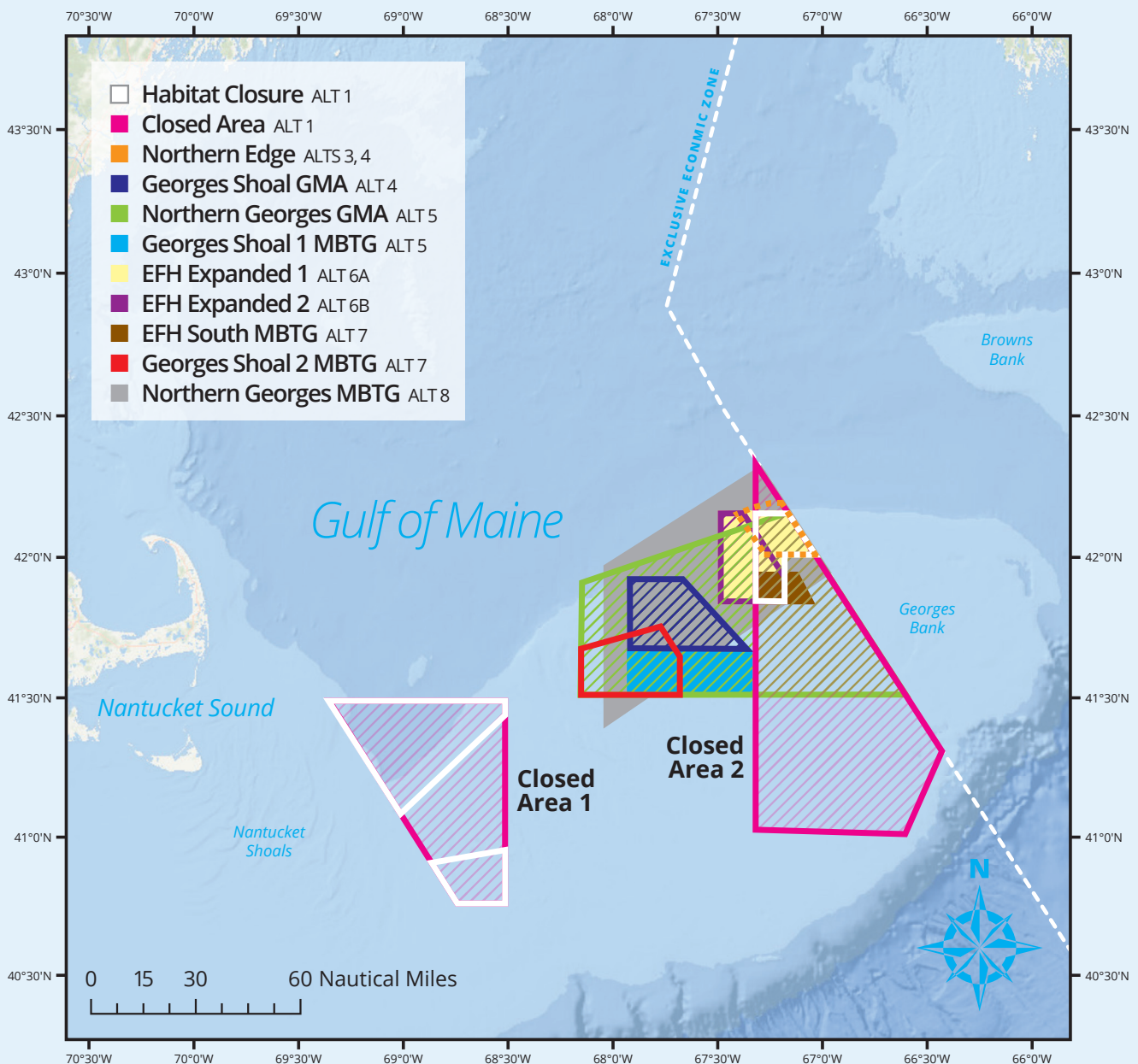


MAP 8

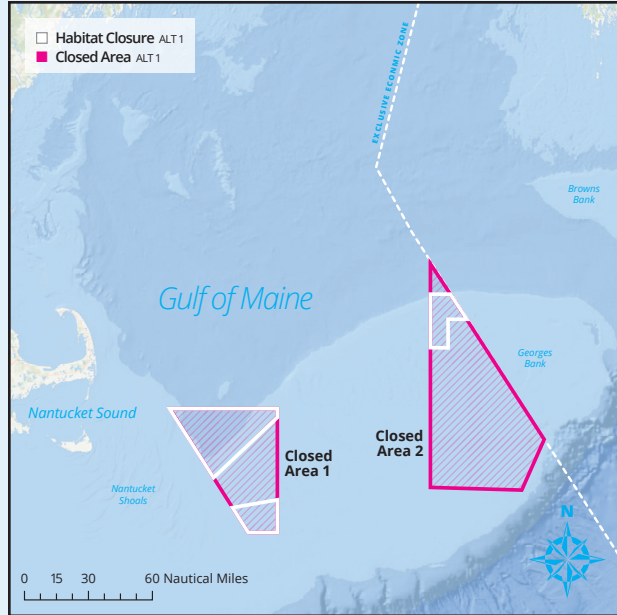
Western Gulf of Maine Habitat Management Areas and Alternatives



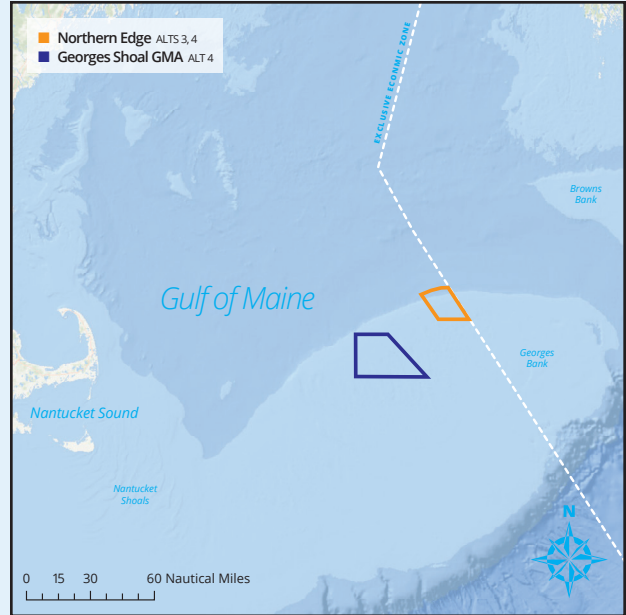
Georges Bank Habitat Management Areas and Alternatives



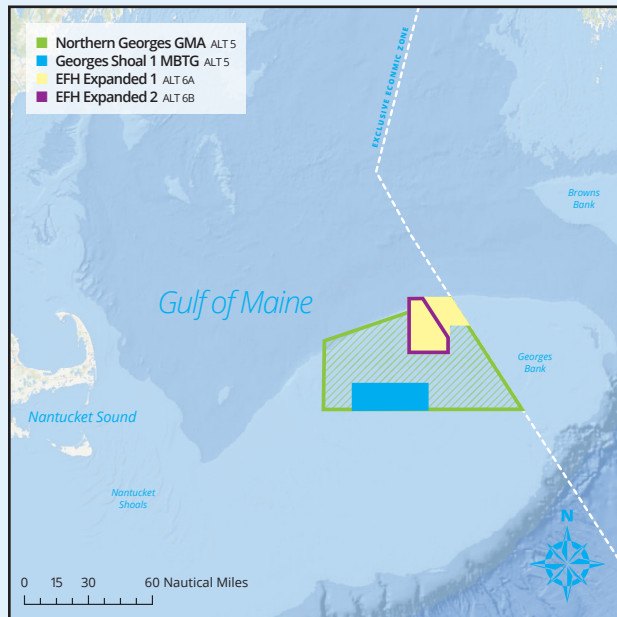
— MAP 9A —
Alternative 1



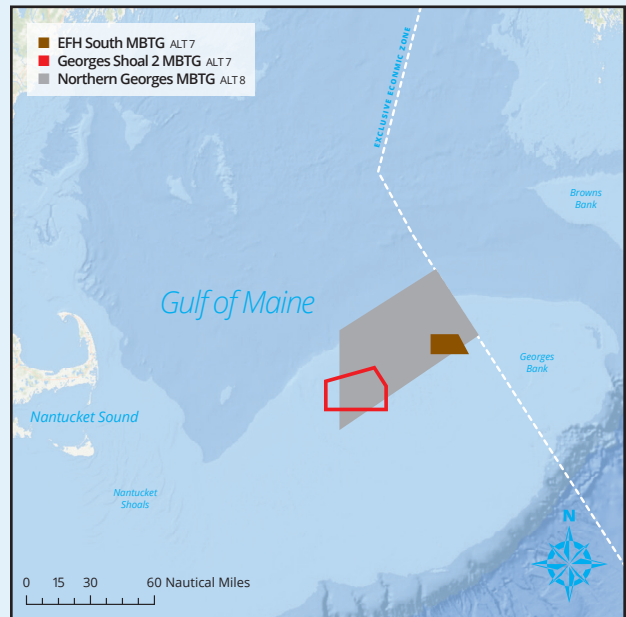
— MAP 9B —
Alternatives 3-4



— MAP 9C —
Alternatives 5-6

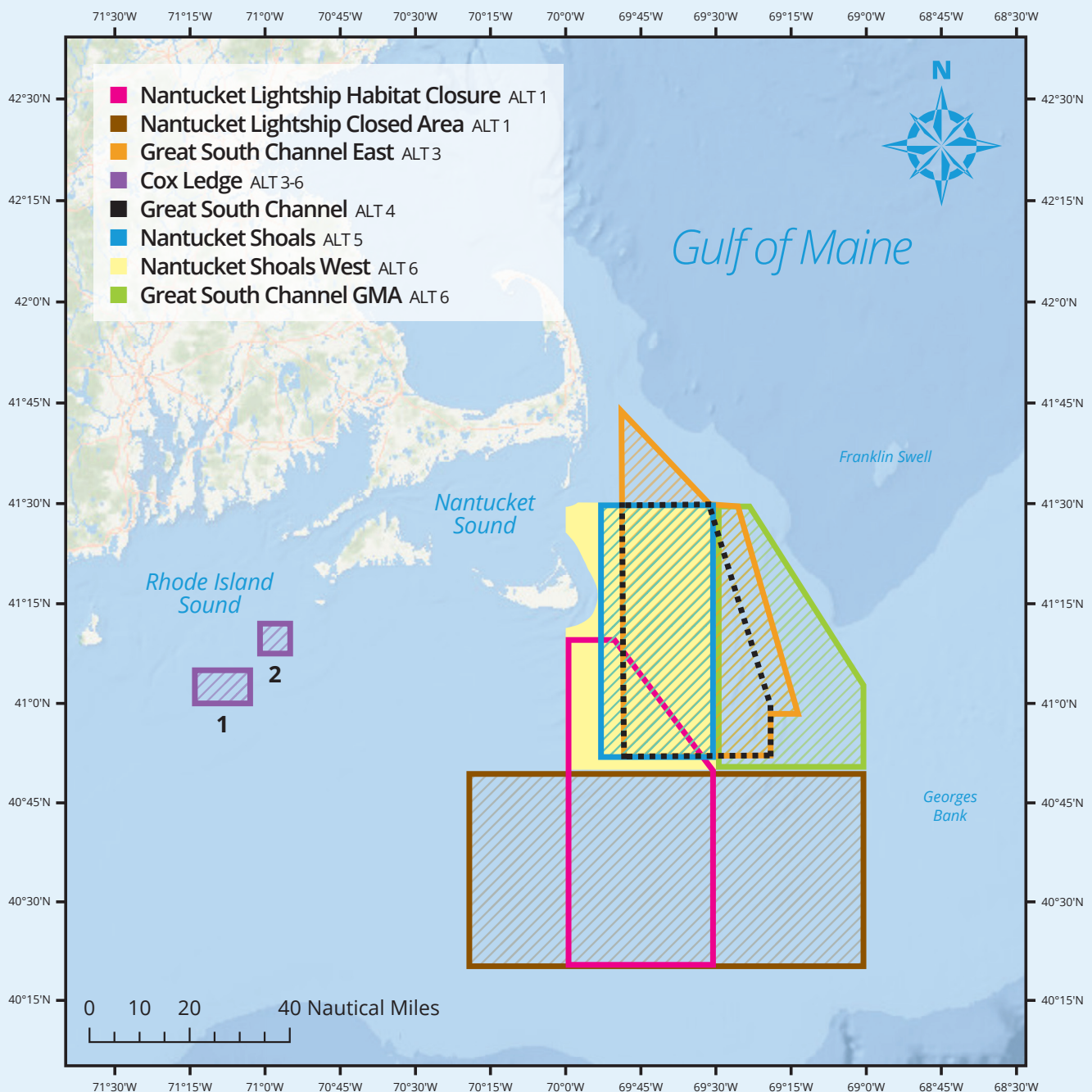


— MAP 9D —
Alternatives 7-8



MAP 10

Great South Channel/Southern New England Habitat Management Areas and Alternatives



4.2.2 Spawning Protection

The spawning management alternatives are designed to improve groundfish spawning protection, and improve access to both the use and non-use benefits arising from closed area management across gear types, and fisheries. These objectives reflect the Council’s intent to shift the focus of groundfish area management designations from mortality reduction to

the protection of specific attributes that contribute to stock productivity, such as spawning.

All of the spawning protection alternatives would seasonally limit the use of gears that are capable of catching groundfish within these areas. Possible exemptions may be implemented for recreational groundfish fishing or other fisheries, as appropriate.

TABLE 6. Gulf of Maine Alternatives

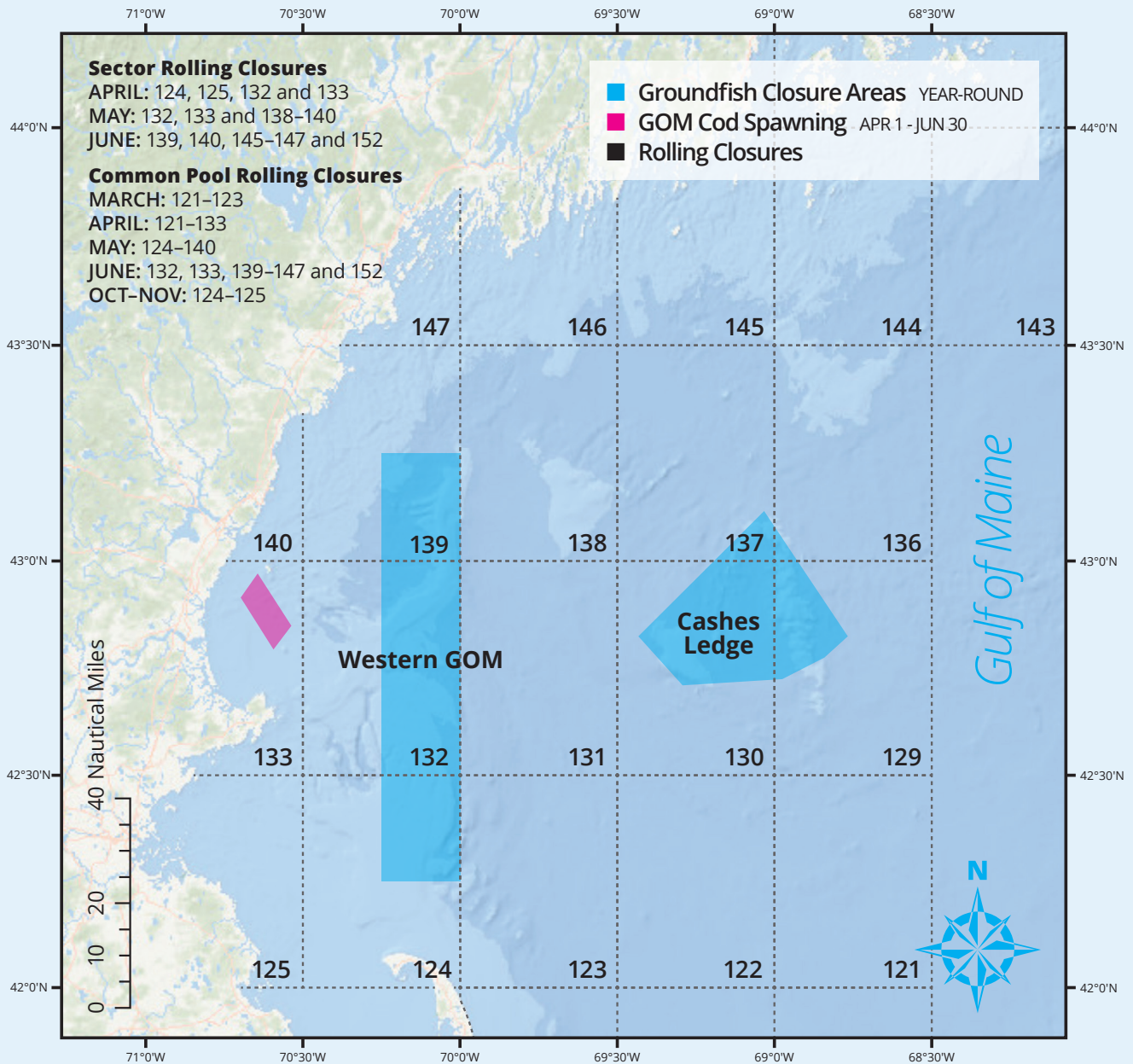
| Alternative | Description | Rationale |
|---------------|--|---|
| 1 – No Action | <p>Would retain:</p> <p>(1) the Western Gulf of Maine Closure Area and the Cashes Ledge Closure Area,</p> <p>(2) the Gulf of Maine Rolling Closures Areas that apply to sector and common pool vessels, and</p> <p>(3) the Gulf of Maine Cod Spawning Protection Area, commonly referred to as the ‘Whaleback’ area.</p> | The existing measures provide fishing mortality reduction and protection for spawning groundfish. The Gulf of Maine Cod Spawning Protection Area was designed specifically to protect spring cod spawning activity. |
| 2 | <p>Maintains the existing rolling closures that currently apply to sector enrolled vessels during April, May, and June for groundfish spawning protection purposes</p> <p>Closed areas would apply from April to June to all vessels capable of catching groundfish, whether the vessel is in the common pool or enrolled in a sector, with possible exemptions</p> <p>Designate the Massachusetts Bay Cod Spawning Protection Area, which would be closed from November 1 through January 31 with the same restrictions as the Gulf of Maine Cod Spawning Protection (Whaleback) Area</p> <p>March-June common pool rolling closures would be eliminated</p> <p>Western Gulf of Maine and Cashes Ledge Closure Areas would also be eliminated unless maintained for habitat protection purposes</p> <p>The Gulf of Maine Cod Spawning Protection (Whaleback) Area would be maintained as is</p> | The rolling closures appear to be sufficiently broad to capture variability in the timing and geographical range of annual spawning activity. The Massachusetts Bay Cod Spawning Protection Area would protect known aggregations of winter spawning cod, in order to improve productivity of the Gulf of Maine cod stock. |
| 2 – Option A | Restrict commercial gears only from the rolling closures | Fishing disrupts spawning activity. It is not clear that recreational fishing would disturb more widely distributed spawning activity. Therefore, recreational groundfishing would be allowed in the larger April, May, and June closures. |
| 2 – Option B | Restrict commercial and recreational gears | Groundfish spawning protection areas should be closed to all gears and fisheries capable of catching and in particular targeting groundfish. In addition to commercial vessels, recreational fishermen can quickly target concentrations of spawning cod and haddock, which if there are enough vessels is likely to disrupt spawning and remove actively spawning fish before they have had the opportunity to successfully reproduce. |
| 3 | <p>Designate the Massachusetts Bay Spawning Protection Area as described under Alternative 2A/2B</p> <p>Intent was that this designation could be combined with Alternative 1/No Action</p> | This area is being studied by the Massachusetts Division of Marine Fisheries and their research partners for the presence and duration of cod spawning behavior. It has been identified by fishermen as a unique site that often supports winter cod spawning and is consistent with industry-based survey catches and survey catch analysis of large spawning groundfish, particularly cod. |

TABLE 7. Georges Bank/Southern New England Alternatives

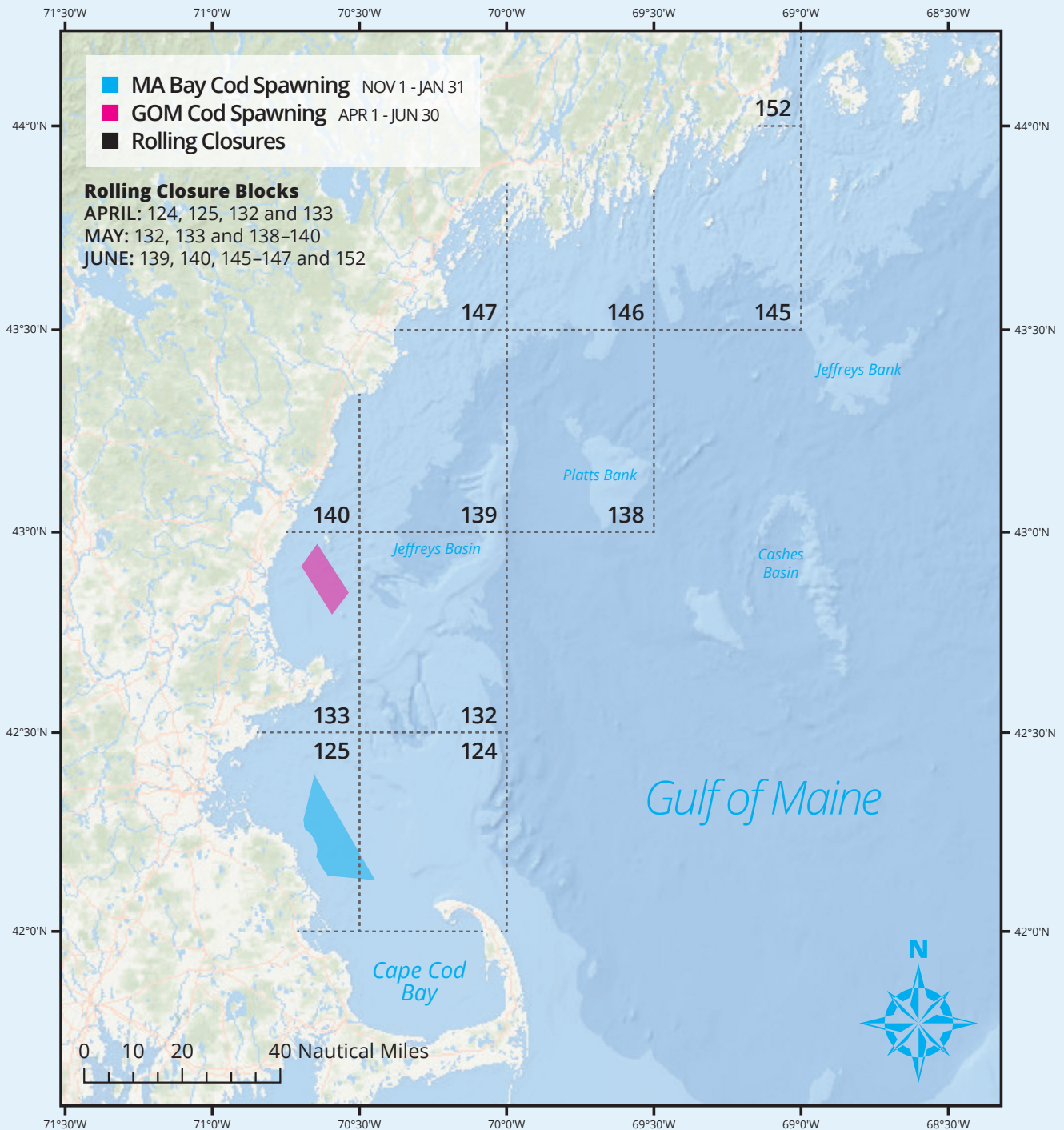
| Alternative | Description | Rationale |
|---------------|---|--|
| 1 – No Action | Retains the existing year round closed areas on Georges Bank and in southern New England, specifically Closed Area I, Closed Area II, the Nantucket Lightship Closed Area, and the Georges Bank Seasonal Closure Area, which is in place during May | The existing measures provide fishing mortality reduction and some protection for spawning groundfish. Closed Area I and Closed Area II, in particular, were originally designed to protect cod and haddock spawning activity. |
| 2 | Retain as spawning closures Closed Area I and Closed Area II during the months of February, March, and the first half of April The Nantucket Lightship Closed Area and the Georges Bank Seasonal Closure Area would be eliminated | |
| 2 – Option A | Consider closure to only commercial gears in Closed Areas I and II between Feb1 – Apr 15 Exemptions for some gears, such as purse seines, pelagic longlines, and recreational , would be in place (full list available in Volume 3) | It is not clear that recreational fishing would disturb more widely distributed spawning activity. Scallop dredge vessels would be restricted under this alternative as they catch various species of groundfish and could disrupt spawning activity. |
| 2 – Option B | Similar to Alternative 2 – Option A except it also restricts recreational gear | Groundfish spawning protection areas should be closed to all gears and fisheries capable of catching and in particular targeting groundfish. Scallop dredge vessels would be restricted under this alternative as they catch various species of groundfish and could disrupt spawning activity. |
| 2 – Option C | Consider an exemption for sea scallop dredges This could be implemented in combination with Alternative 2 Option A or B | Scallop dredge vessels do not target groundfish and are limited by sub-Annual Catch Limits for certain stocks. Scallop access area measures currently do not allow scallop fishing in the southern half of Closed Area II between August 15 and November 15, when bycatch rates of yellowtail flounder are high relative to scallop yield. Cod and haddock spawning occur in spring (February to April); yellowtail flounder spawning takes place in June to August. |
| 3 – Option A | Consider closures to commercial gears in the northern part of Closed Area I only | It is not clear that recreational fishing would disturb more widely distributed spawning activity. Scallop dredge vessels would be restricted as they catch various species of groundfish and could disrupt spawning activity. The northern portion of Closed Area I was identified by the Council as an area that might contain the majority of Closed Area I spawning activity. |
| 3 – Option B | Consider closures to commercial and recreational gears in the northern part of Closed Area I only | Groundfish spawning protection areas should be closed to all gears and fisheries capable of catching and in particular targeting groundfish. Scallop dredge vessels would be restricted under this alternative as they catch various species of groundfish and could disrupt spawning activity. The northern portion of Closed Area I was identified by the Council as an area that might contain the majority of Closed Area I spawning activity. |
| 3 – Option C | Consider an exemption for sea scallop dredges in the northern part of Closed Area I only | Scallop dredge vessels do not target groundfish and are limited by sub-Annual Catch Limits for certain stocks. Scallop access area measures currently do not allow scallop fishing in the southern half of Closed Area II between August 15 and November 15, when bycatch rates of yellowtail flounder are high relative to scallop yield. Cod and haddock spawning occur in spring (February to April); yellowtail flounder spawning takes place in June to August. |

MAP 11

Gulf of Maine Spawning Alternative 1/No Action

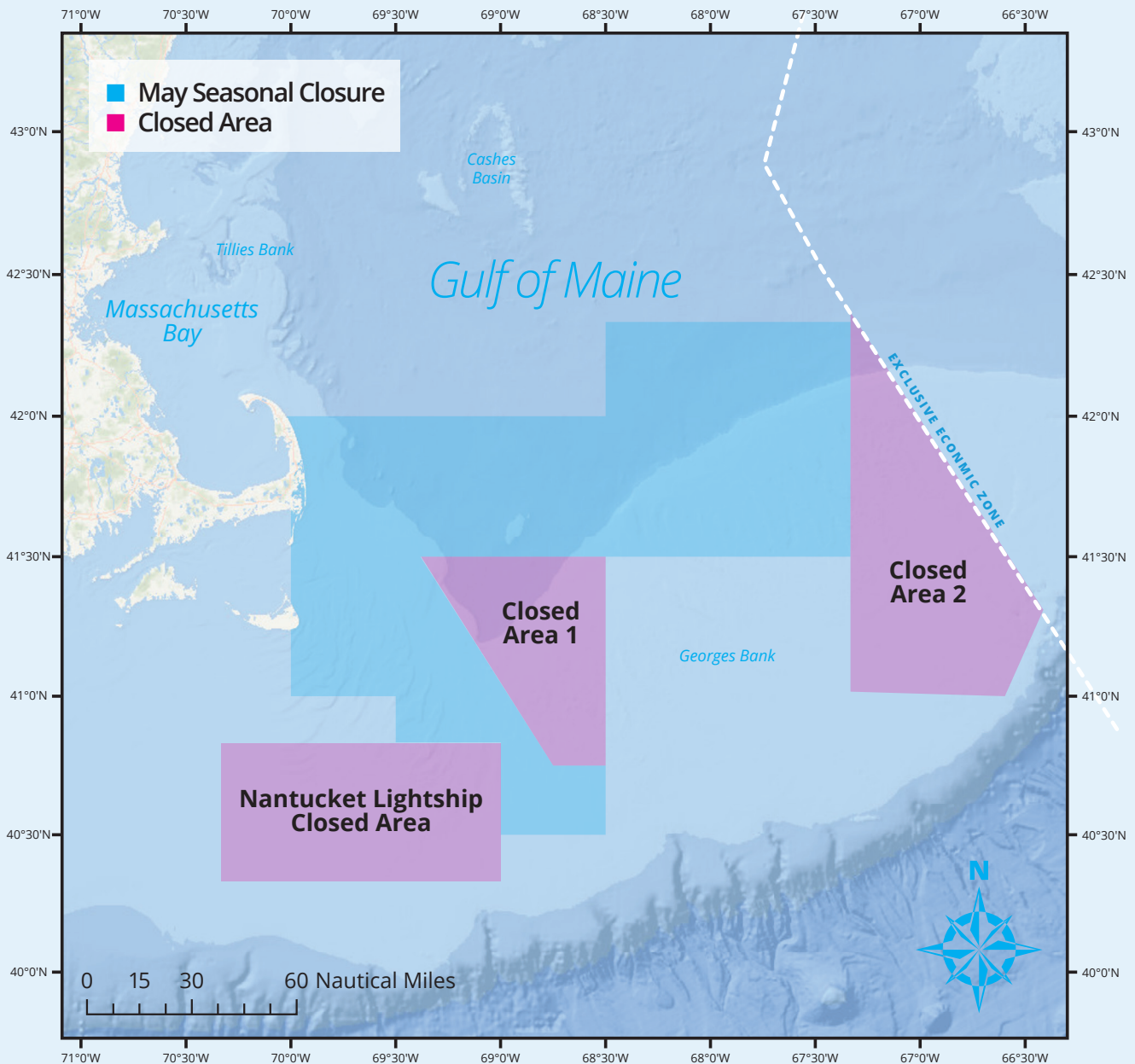


Gulf of Maine Spawning Alternative 2



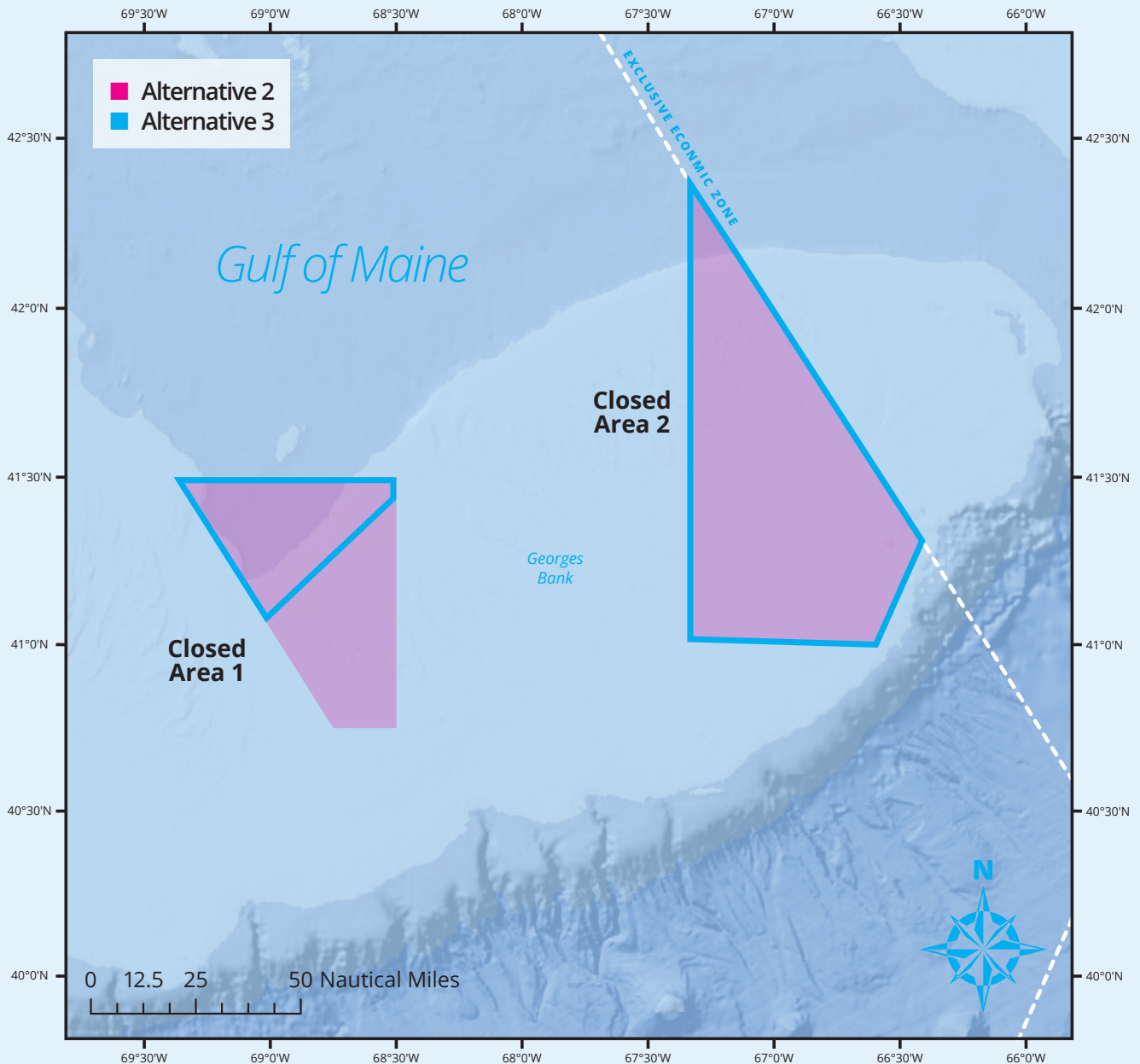
MAP 13

Georges Bank/Southern New England Spawning Alternative 1/No Action



MAP 14

Georges Bank/Southern New England Spawning Alternatives 2 and 3



4.2.3 Habitat Research Areas

The understanding of the linkages between habitat and the productivity of managed species (and their prey) must be improved in order to better target management and conservation actions.

The Council proposes to designate Dedicated Habitat Research Areas (DHRAs) in conjunction with the Habitat Management Areas. These DHRAs would allow coordinated research to provide information to managers, improve understanding of the ecological effects of fishing across a range of habitats, and inform future habitat management.

The Council identified a set of priority research questions that the DHRAs should address based on four broad focus areas: gear impacts, habitat recovery, natural disturbance, and productivity. Further details are in the draft Amendment.

- Gear impacts, for example, how do different types of bottom tending fishing gear affect the

susceptibility and recovery of seabed habitat, and what gear modifications could be made;

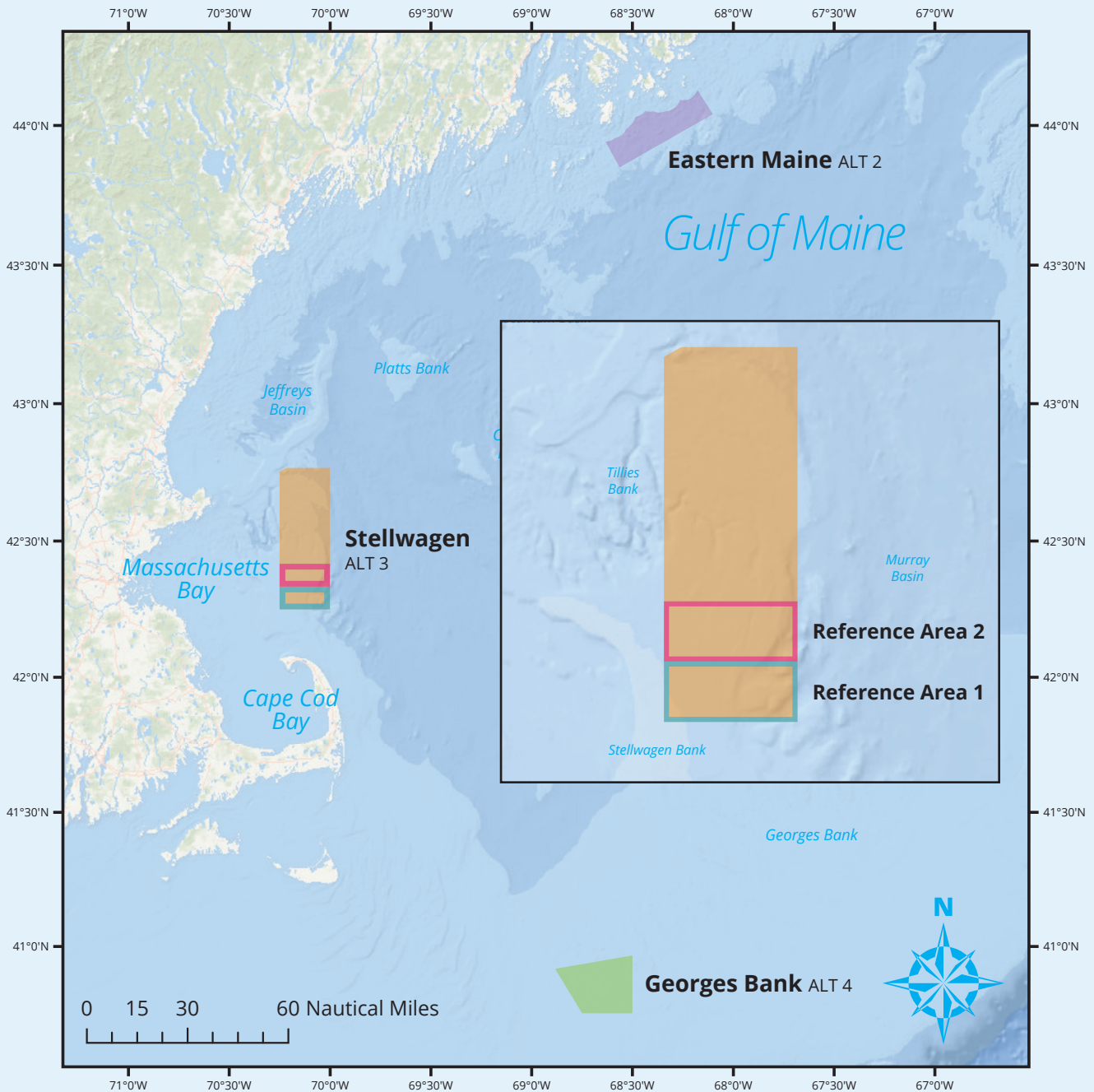
- Habitat recovery, for example, how does seafloor habitat recover and at what rate;
- Natural disturbance, for example, does the magnitude of disturbance affect recovery, does non-impacted habitat improve resilience to disturbance, is a first disturbance more harmful than repeated disturbances, and how does natural disturbance affect habitat and analysis of fishing disturbance;
- Productivity, for example, how does productivity of managed species and prey species vary across habitat types and how does this change with fishing gear disturbance.

DHRA designations would be considered as separate but overlapping management area designations, potentially with different restrictions on fishing activity than the habitat and/or spawning areas that they overlap with.

TABLE 8. Dedicated Habitat Research Area Alternatives

| Alternative | Description | Rationale |
|---------------------------|--|--|
| 1 – No Action | No designation of DHRA | |
| 2 – Eastern Gulf of Maine | DHRA designated in the eastern Gulf of Maine Closed to all mobile bottom-tending gear, year round DHRA measures would take precedence if it overlaps with habitat management areas with less restrictive measures | To facilitate the study of: Fishing gear impacts on benthic habitats, Habitat recovery, The effects of natural vs. anthropogenic disturbance on fish habitats, and The effects of fishing and habitat type on the productivity of managed resources. Designation of the DHRA should help to focus research efforts on this location, and facilitate the permitting process for those projects. Routine sampling of fishery and prey species in this area could help to identify ecological linkages. |
| 3 – Western Gulf of Maine | DHRA designated in the western Gulf of Maine Closures to mobile bottom-tending gear, sink gillnet gear, demersal longline gear, year round Mid-water and pelagic gears permitted Optional reference area that would be closed to recreational and party/charter GF fishing DHRA measures would take precedence if it overlaps with habitat management areas with less restrictive measures | Same as for Alternative 2 above but the DHRA area also contains a wide array of habitat types and species, and there are numerous baseline studies of the area that could be built upon in the future. The purpose of the reference area is to create a site where removals of groundfish are limited, to be able to study how the ecology of the reference area may change under such conditions. If there are significant ecosystem effects of limiting groundfish removals from the major sources, they will be more likely to be detected with a substantial before/after contrast. |
| 4 – Georges Bank | DHRA designated on Georges Bank Closure to mobile bottom tending gear Research gear is exempt DHRA measures would take precedence if it overlaps with habitat management areas with less restrictive measures | Similar to Alternatives 2 and 3 above, except this alternative would encourage research on Georges Bank. |
| 5 – Sunset Provision | Sunset provision for DHRAs Council could remove DHRA 3 years after implementation Would apply to all DHRAs Continuation after 3 years dependent on: Documentation of active and ongoing research in the DHRA area, pending or approved proposals or funding requests (including ship time requests) with objectives focused on DHRA topics | The three-year review would evaluate whether appropriate research activities were either ongoing or imminent. Allowing for research activities to be in the planning stage but not yet on the water at the three year mark acknowledges the fact that proposal development, submission, review, and allocation of funds can be a long process. |

Dedicated Habitat Research Area Alternatives



4.3 Framework and Monitoring Approach

Currently, there is no schedule for evaluating or updating spatial management measures. Furthermore, Council research priorities related to spatial management are developed separately for each FMP and they are updated periodically by Plan Development Teams, FMP Committees, Advisory Panels, and the Scientific and Statistical Committee. *Table 9* outlines the framework and monitoring approach alternatives included in this amendment. The alternative review described in Alternative 2 should consider but is not limited to the following questions:

Habitat Protection

- Is juvenile abundance increasing in habitat management areas, compared with adjacent open fishing areas?
- Is overall stock-wide recruitment increasing due to better survival of juvenile fish in closed areas?
- Is growth of juveniles faster inside the closed areas than elsewhere?
- Are biotic factors (stomach contents, size at age, prey abundance) of juvenile fish different inside closed areas than elsewhere?
- Are there stronger associations with habitat types in closed areas than elsewhere?
- Is natural mortality for juvenile fish different inside closed areas than elsewhere?
- How long do juvenile fish remain in closed fishing area?
- Does performance relative to the metrics listed above vary with closed area size?

Spawning Protection

- How well does the timing of spawning coincide with the spawning closures?
- Does fishing actually disrupt spawning activity (apart from the effect of removing spawners)?
- Have the closed areas actually improved stock-wide recruitment?
- What is the variability of spawning activity (location and timing) over time? Are spawning

closures as configured able to protect spawning activity, given this variability?

- Have new sub-populations of spawners been identified that require specific protection?

New types of data to enable a satisfactory review of area management performance include:

- Spawning condition and other life history characteristics (stomach content, size at age, robustness)
- Juvenile fish condition, distribution, and movement
- Changes in prey availability
- Habitat quality (type, structure, cover, and size) associated with high abundance of juvenile fish
- Observation of fish spawning behavior within closed and open fishing areas
- Movement and migration
- Before-After-Control-Impact comparison of changes in fish biomass and characteristics before and after a closure, inside a closed area and in surrounding fished areas
- More intensive egg and larval surveys at various times throughout the year
- Oceanographic information that affects egg and larval dispersion

Funding sources could be developed or promoted by a future management action that include, but are not limited to:

- Research set-asides from annual groundfish ACLs and/or extra landings allocations while conducting fishery impact research in habitat or spawning management areas
- Sector set-asides to fund research that collects information that sectors would use to justify closed or restricted area exemptions
- Experimental fisheries
- Cooperative research
- Enhancement of observer coverage in specific areas (e.g. modify Standardized Bycatch Reporting Methodology sampling allocations)
- More intensive survey sampling in and around closed or gear restricted areas.

TABLE 9. Framework and Monitoring Approach Alternatives

| Alternative | Description | Rationale |
|---------------|--|--|
| 1 - No Action | <p>No change to list of framework-able items in FMPs</p> <p>No change to procedures for reviewing effectiveness of spatial management measures</p> | <p>The Council can use the existing framework adjustment procedures to respond to new fish habitat science or changing circumstances.</p> |
| 2 | <p>Would specify that the designation or removal of habitat management areas and changes to fishing restrictions within habitat management areas are frameworkable in all FMPS</p> <p>Would establish a review process to routinely evaluate the boundaries, scope, characteristics, and timing of habitat and spawning protection areas; completed at 10 year intervals</p> <p>Building on what the Council learned during the review of the performance of existing closed areas and the development of new EFH management, the Council would identify and periodically revise research priorities to improve habitat and spawning area monitoring</p> | <p>A regular review process would help ensure that reevaluation of spatial management performance and effects on groundfish productivity would be conducted in a holistic rather than piecemeal fashion.</p> <p>The proposed review process is not intended to replace the Council's authority to reconsider specific management issues at any time, or to respond to new science. It is also not intended as a substitute for the sunset evaluation process for Dedicated Habitat Research Areas which is intended to promote habitat research in unfished areas for a period not less than three years.</p> <p>The ten year review interval is suggested because enough time is needed to gather sufficient information to analyze the effects of area closures and any statistically significant changes in fish populations. Recent research suggests that at least three generation times are needed to see population changes due to closed areas (Moffitt et al. 2013), which would be more than 15 years for Atlantic cod.</p> |

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Impacts of the Management Alternatives

5.1 EFH and HAPCs

The alternatives that designate Essential Fish Habitat and Habitat Areas of Particular Concern are administrative in nature and do not restrict fishing activities (**Volume 2**). The impacts of the EFH and HAPC designations primarily relate to their usefulness in the EFH consultation process. Narrowly-defined designations are more useful during an EFH consultation that identifies target areas for conservation actions. The cumulative effects of the three suites of EFH designation alternatives are summarized in *Table 10*.

The species range designation alternatives are more general and broadly cover any areas where the species was caught, e.g. in the Northeast Fisheries Science Center trawl surveys. Because these designations are non-specific, they are less useful for helping to recommend target conservation measures.

Collectively, the preferred alternatives maintain an HAPC for Atlantic salmon in select rivers along the coast of Maine, an HAPC for juvenile cod on

the northern edge of Georges Bank, and designate additional HAPCs. These additional designations are expected to have indirect positive impacts on the fishery management process.

5.2 Impacts of Spatial Management on Seabed Habitats

The full analysis is included in Section 4 of **Volume 3** of the DEIS. The impacts are included in both quantitative and qualitative terms. It is difficult to quantify the benefits of habitat protection, particularly economic benefits. It is easier to quantify potential losses to industry as a result of restrictions than to quantify the potential future benefit of those restrictions. Despite these challenges, economic analyses are required.

This analysis is focused solely on the habitat alternatives and doesn't take into account other management strategies that would provide additional economic benefits such as rebuilding stocks or access programs to allow the harvest of scallops or possibly other species.

The spatial management alternatives (**Volume 3**) affect the types of fishing activities that can occur

TABLE 10. Cumulative Effects of EFH Designation Alternatives

| Alternatives | Cumulative Impacts on the Physical and Biological Environment and Managed Resources | Cumulative Impacts on Human Communities and the Fishery | Cumulative Impacts on Protected Resources |
|------------------------|--|--|---|
| No Action Alternatives | Expected to have indirect, low positive impacts through improvements to management and EFH consultation process. | Expected to have indirect, low positive impacts through improved management and conservation of fishery resources and their habitats. | Expected to have no discernable impacts, as the designations were not developed with protected resource considerations in mind. |
| Preferred Alternatives | Expected to have indirect, high positive impacts through improvements to management and EFH consultation process. | Expected to have indirect, high positive impacts through improved management and conservation of fishery resources and their habitats. | |
| Other Alternatives | Expected to have indirect, slightly positive or slightly negative impacts relative to No Action via influence on the EFH consultation process. | Expected to have indirect, slightly positive or slightly negative impacts relative to No Action via influence on the EFH consultation process. | |

in specific management areas. Therefore, they can have substantial positive and negative impacts on the physical and biological environment, human communities and protected resources. To read the full direct effects analysis, please see **Volume 3, Section 4**. This document will provide summaries of the impact analyses with the help of tables.

The impacts analysis tables use the symbols and color coding shown in **Table 11**. **Tables 12 through 17** provide a summary of the impacts. The analysis uses terms such as ‘highly’, ‘moderately’, and ‘slightly’ to describe the magnitude of the impacts. The overall impact may be neutral not only because it is not expected to be significant but because it contains both positive and negative impacts that can result in an overall neutral impact.

The analyses also refer to large mesh groundfish resources. This is defined here as all species regulated under the Northeast Multispecies FMP – cod, haddock, yellowtail flounder, American plaice, witch flounder, winter flounder, redfish, white hake, pollock, windowpane flounder, ocean pout, Atlantic halibut, and Atlantic wolffish.

In many cases, different short-term vs. long-term impacts are anticipated. For example, there could be short-term negative economic and social impacts if there is a short-term displacement of effort, but long-term stock benefits that would eventually provide

positive benefits. For this reason, the summary tables discuss short and long-term human and community impacts separately. For the economic impacts analysis, the magnitude of a positive or negative impact is generally related to the overall condition of the fishery.

Fisheries will not “respond” in the same way to the same alternative; impacts will vary in type and in magnitude. Similarly, impacts may be substantial when considered locally, but only slightly positive or negative when considering the fishery as a whole.

TABLE 11. Summary of Symbol and Color Coding of Impact Analysis

| Symbol | Meaning |
|--------|----------------------|
| +++ | Highly Positive |
| ++ | Moderately Positive |
| + | Slightly Positive |
| 0 | Neutral |
| - | Slightly Negative |
| -- | Moderately Negative |
| --- | Highly Negative |
| Negl | Negligible |
| Unk | Unknown or Uncertain |

TABLE 12. No Action Spatial Management Alternatives

| Alt. Type | Sub-region or Region | # | Areas Included | Fishing Restriction Options |
|-----------|--|---|--|-----------------------------|
| Habitat | Eastern Gulf of Maine | 1 | None | None |
| Habitat | Central Gulf of Maine | 1 | Jeffreys Bank Habitat Closure Area, Cashes Ledge Habitat Closure Area, Cashes Ledge Closed Area | Current measures |
| Habitat | Western Gulf of Maine | 1 | Western Gulf of Maine Habitat Closure Area, Western Gulf of Maine Closed Area | Current measures |
| Habitat | Georges Bank | 1 | Closed Areas I and II Habitat Closure Areas, Closed Areas I and II | Current measures |
| Habitat | Great South Channel/ Southern New England | 1 | Nantucket Lightship Habitat Closure Area, Nantucket Lightship Closed Area | Current measures |
| Spawning | Gulf of Maine | 1 | Western Gulf of Maine Closure Area, Cashes Ledge Closure Area, sector rolling closures, common pool rolling closures, Gulf of Maine Cod Spawning Protection Area | Current measures |
| Spawning | Georges Bank/ Southern New England | 1 | Closed Areas I and II, Nantucket Lightship Closed Area, Georges Bank May Seasonal Closure Area | Current measures |
| Research | All | 1 | No DHRAs designated | None |

5.2.1 No Action Alternatives

The No Action alternatives includes existing year-round habitat and groundfish closed areas, rolling closures and seasonal closures, and the Gulf of Maine Cod Spawning Protection Area (*Table 12, Map 4*). These management areas and the fishing restriction measures associated with each are described in detail in **Volume 3, Section 2**.

The impacts of the No Action alternatives range from highly negative to positive, with neutral impacts for many resources and fisheries other than groundfish. There are some positive impacts on the skate resource and some slightly positive and negative impacts on other resources and fisheries (*Table 13*). This table is a summary of the analysis of direct effects located in **Volume 3, Section 4**.

The No Action habitat management alternative in the eastern Gulf of Maine sub-region does not include any management actions and provides no benefit compared to the action alternatives proposed. Because of this, the eastern Gulf of Maine no action alternative has overall neutral to slightly negative impacts. Aside from the eastern Gulf of Maine, the other No Action habitat management alternatives, in combination with each other, are expected to have a positive impact on seabed habitats, large mesh groundfish resources and habitats,

and the skate resource. No changes are expected to the status quo social impacts, or to the impacts on protected resources.

Collectively, the alternatives have some locally positive effects on the herring and summer flounder resources by protecting the benthic habitats for these species. There are some locally negative fishery impacts associated with these alternatives because of lost opportunities for additional exemption programs in the small-mesh fishery, gear restrictions that affect the skate and summer flounder fisheries, closure of some scallop beds on Georges Bank, monitoring requirements associated with the Georges Bank groundfish closures that affect the herring fishery, and closure of clam fishing grounds on Nantucket Shoals.

The impacts of not designating any dedicated habitat research areas are generally negative to neutral, resulting from lost opportunities to study habitat and groundfish resource impacts of fishing.

Economic impacts vary widely depending on the area. The western and, to a lesser extent, central Gulf of Maine habitat alternatives, and the Gulf of Maine spawning alternatives are all expected to have positive impacts.

MAP 4

No Action Spatial Management Alternatives

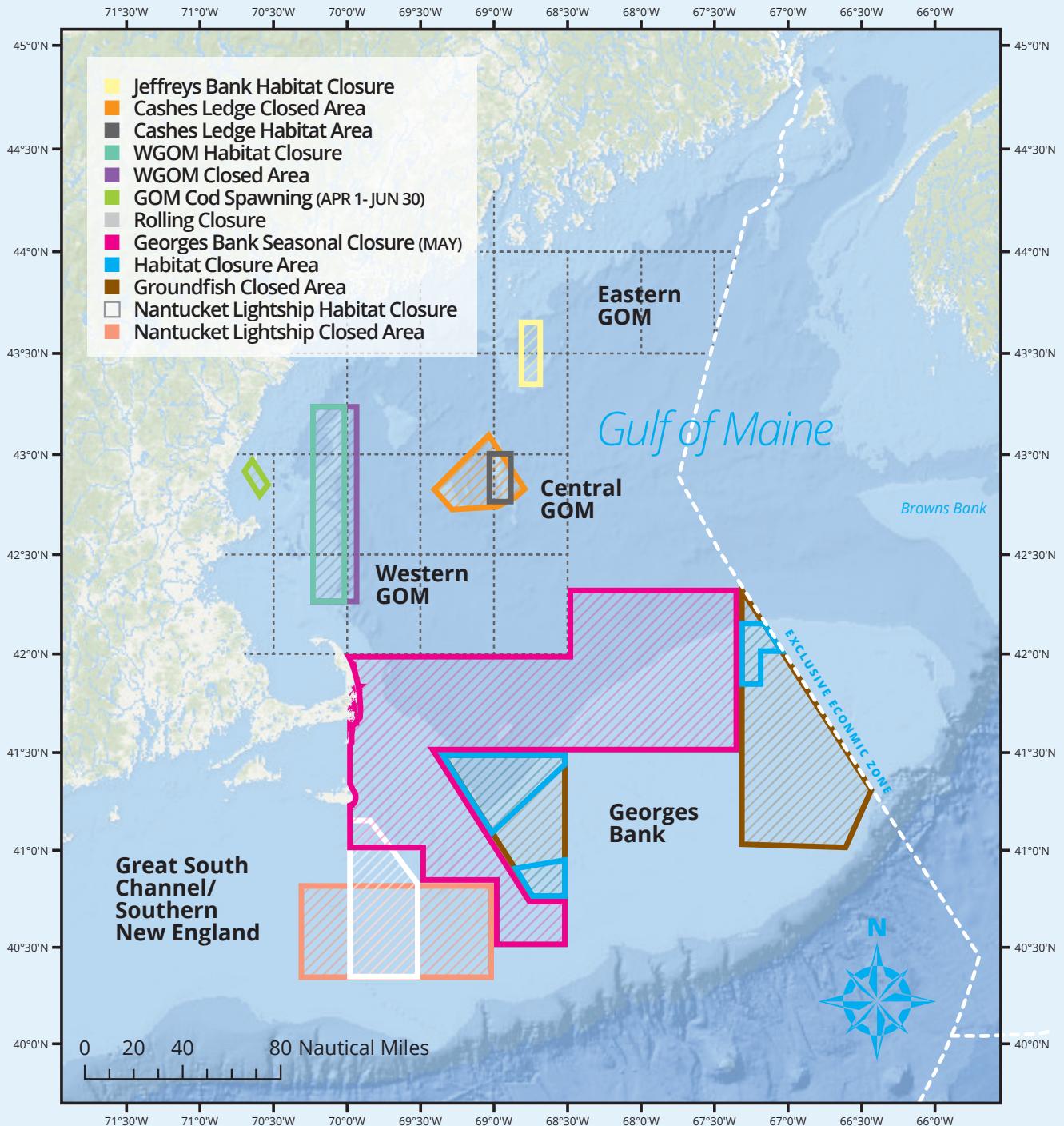


TABLE 13A. Impacts of the No Action Spatial Management Alternatives. Overall Habitat, Economic, Social, and Protected Resources Impacts, Plus Impacts on NEFMC Fisheries/Species.

| Type | Sub-Region/Region | Alt | Resources | | | | | | | | | Fishery | | | | | Socio-Economic | | | | |
|---------|-------------------|-----|-----------|------------|-----------|------------|----------|-------|-------------|---------|----------|------------|----------|-------|-------------|---------|----------------|--------------------|---------------------|------------------|-------------------|
| | | | Habitat | Large Mesh | Protected | Small Mesh | Monkfish | Skate | Sea Scallop | Herring | Red Crab | Small Mesh | Monkfish | Skate | Sea Scallop | Herring | Red Crab | Economic Long-Term | Economic Short-Term | Social Long-Term | Social Short-Term |
| Habitat | EGOM | 1 | - | - | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | CGOM | 1 | +++ | + | 0 | - | 0 | + | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | + | + | 0 | 0 | |
| Habitat | WGOM | 1 | +++ | + | 0 | - | 0 | ++ | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | ++ | ++ | 0 | 0 | |
| Habitat | GB | 1 | ++ | ++ | 0 | 0 | 0 | + | 0 | + | 0 | 0 | - | - | 0 | 0 | -- | -- | 0 | 0 | |
| Habitat | GSC-SNE | 1 | - | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | 0 | 0 | 0 | -- | -- | 0 | 0 | |
| Spawn. | GOM | 1 | - | ++ | Negl | Unk | 0 | + | 0 | + | 0 | 0 | - | 0 | - | 0 | ++ | ++ | - | - | |
| Spawn. | GB-SNE | 1 | - | ++ | 0 | Unk | 0 | ++ | 0 | + | 0 | 0 | - | 0 | - | 0 | -- | -- | + | - | |
| Res. | n/a | 1 | -- | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | + | |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderately Negative ■ = Highly Negative

TABLE 13B. Impacts of the No Action Spatial Management Alternatives. Impacts on Species and Fisheries Managed by the Mid-Atlantic Fishery Management Council or the Atlantic States Marine Fisheries Commission.

| Type | Sub-Region/Region | Alt | Resources | | | | | | | Fishery | | | | | | | | |
|---------|-------------------|-----|-----------|----------|-------|---------|-----------|----------|--------|---------|------|----------|-------|---------|-----------|----------|--------|---------|
| | | | Clam | Bluefish | M/S/B | Dogfish | Sf/Sc/Bsb | Tilefish | Shrimp | Lobster | Clam | Bluefish | M/S/B | Dogfish | Sf/Sc/Bsb | Tilefish | Shrimp | Lobster |
| Habitat | EGOM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | CGOM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | GB | 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | GSC-SNE | 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | - | 0 | 0 | - | 0 | 0 | 0 | 0 |
| Spawn. | GOM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spawn. | GB-SNE | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Res. | n/a | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderately Negative ■ = Highly Negative

In general, the No Action areas are expected to provide positive benefits for the groundfish fishery via continued protection of groundfish stocks, a number of which are depleted. However, the No Action Georges Bank habitat alternative has highly negative economic impacts because it would continue to restrict fishing opportunities for scallops and surf clams, which have a high economic value.

Because direct impacts on protected resources are generally neutral, the No Action alternatives in this amendment are not expected to influence the overall trends in this category.

5.2.2 Preferred Alternatives

The preferred alternatives combine both No Action and action alternatives for habitat protection, spawning protection, and research (*Table 14, Map 5*). These alternatives and the fishing restriction options associated with each management area are described in detail in **Volume 3, Section 2**. The Council has not selected any preferred habitat alternatives in the

Georges Bank or Great South Channel/Southern New England sub-regions. However, the analysis includes these sub-regions.

The Council did not identify Cashes Ledge Closure Area as a preferred habitat management alternative. However, it was included in the impacts analysis of Gulf of Maine Spawning Alternative 1 in order to describe the impacts of all existing management areas that might affect groundfish spawning. As a year-round closure to many gears capable of catching groundfish, the Cashes Ledge Closure Area limits the catch of spawning fish, and also the influence of fishing on spawning behavior in the closure.

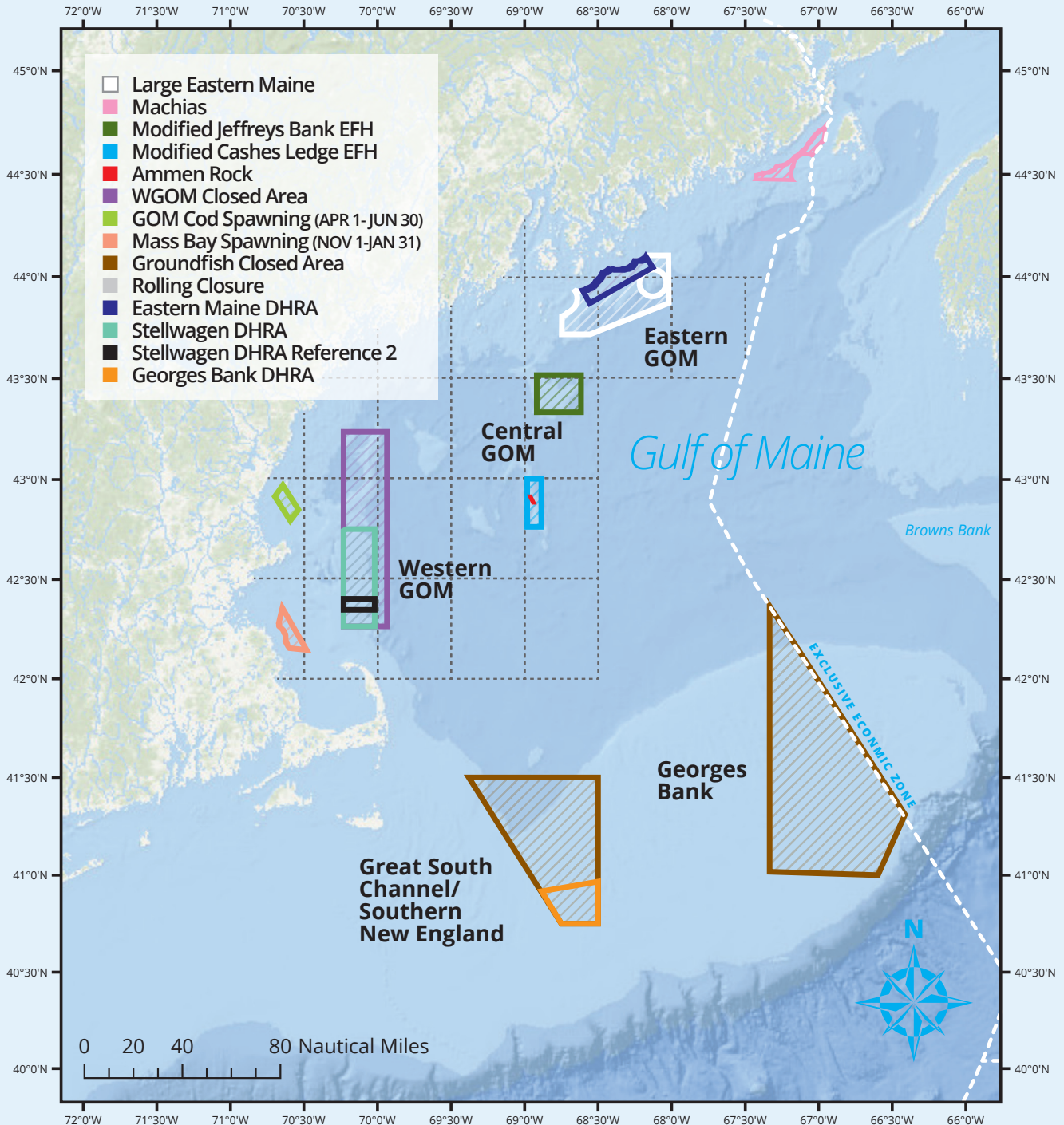
The impacts of the preferred alternatives range from negative to positive across the various categories, with neutral impacts for many resources and fisheries other than groundfish (*Table 15*). There are some slightly positive and negative impacts on other resources and fisheries as well. This table broadly summarizes the

TABLE 14. Preferred Spatial Management Alternatives. Fishing Restriction Options Are Outlined In Table 4

| Alt. Type | Sub-Region Or Region | # | Areas Included | Fishing Restriction Options |
|-----------|---------------------------------------|----|--|---|
| Habitat | Eastern Gulf of Maine | 2 | Large Eastern Maine HMA, Machias HMA | Options 1 and 5 |
| Habitat | Central Gulf of Maine | 4 | Modified Jeffreys Bank EFH HMA, Modified Cashes Ledge EFH HMA, Ammen Rock HMA | Option 1, Ammen Rock closed to all fishing |
| Habitat | Western Gulf of Maine | 1 | Western Gulf of Maine Habitat Closure Area, Western Gulf of Maine Closed Area | Current measures |
| Habitat | Western Gulf of Maine | 7a | Inshore Roller Gear Restricted Area | Trawl roller gear limited to 12 inches diameter |
| Habitat | Western Gulf of Maine | 8 | WGOM Shrimp Trawl Exemption Area | Shrimp trawls exempted from mobile bottom-tending gear closure |
| Spawning | Gulf of Maine | 1 | Western Gulf of Maine Closure Area, Cashes Ledge Closure Area**, Sector rolling closures, common pool rolling closures, GOM Cod Spawning Protection Area | Current measures |
| Spawning | Georges Bank/ Southern New England | 2b | Closed Areas I and II | Option 5 including recreational gears |
| Research | Eastern Gulf of Maine | 2 | Eastern Maine DHRA | Option 1 |
| Research | Western Gulf of Maine | 3b | Stellwagen DHRA and northern reference area | Options 1 and 5, recreational gears capable of catching groundfish in reference area only |
| Research | Georges Bank | 4 | Georges Bank DHRA | Option 1 |
| Research | All | 5 | Applies to any DHRAs designated | DHRA sunsets after 3 years if not being used |

MAP 5

Preferred Spatial Management Alternatives



detailed analysis of direct effects, which is in **Volume 3, Section 4**.

If the impacts were summed across categories, for the current preferred alternatives, they would be slightly positive to positive. Exceptions include slightly negative impacts of the central Gulf of Maine habitat alternatives relative to no action, due to expected long-term negative impacts on large mesh resources from opening the Cashes Ledge groundfish closure. There are also negative social impacts associated with the eastern Gulf of Maine preferred habitat alternative (Option 5) because it closes the area to gear capable of catching groundfish, which would restrict purse seining in the area. Within the western Gulf of Maine Habitat

Alternatives (7A and 8) are expected to have neutral and neutral to slightly positive impacts, respectively.

While the overall impacts are positive for the preferred alternatives, there are some local negative impacts. For example, the Georges Bank spawning preferred alternative would have negative impacts on species that spawn in Closed Areas I and II during other times of year they would now be open, from April 16 to January 31. The Stellwagen DHRA (Alternative 3B) has slightly positive to positive impacts overall, but negative economic impacts on local recreational (i.e. charter/party) groundfishing.

Because direct impacts on protected resources are generally neutral or only slightly negative, the preferred alternatives in this amendment are not expected to

TABLE 15A. Impacts of the Preferred Spatial Management Alternatives. Overall Habitat, Economic, Social, and Protected Resources Impacts, Plus Impacts on NEFMC Fisheries/Species.

| Type | Sub-Region/Region | Alt | Habitat | Resources | | | | | | | | Fishery | | | | | | Socio-Economic | | | | |
|---------|-------------------|---------------------|---------|------------|---------|------------|----------|-------|-------------|---------|----------|------------|----------|-------|-------------|---------|----------|--------------------|---------------------|------------------|-------------------|---|
| | | | | Large Mesh | Protect | Small Mesh | MonkFish | Skate | Sea Scallop | Herring | Red Crab | Small Mesh | MonkFish | Skate | Sea Scallop | Herring | Red Crab | Economic Long-Term | Economic Short-Term | Social Long-Term | Social Short-Term | |
| Habitat | EGOM | Alt. 2 Opt. 1, 2, 5 | + | ++ | 0 | + | 0 | + | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | + | - | + | - |
| Habitat | CGOM | Alt. 4 Opt. 1 and 2 | ++ | - | - | - | 0 | - | 0 | 0 | 0 | 0 | 0 | + | + | 0 | 0 | - | + | - | - | |
| Habitat | WGOM | Alt. 1 | +++ | + | 0 | - | 0 | ++ | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ++ | ++ | 0 | 0 | |
| Habitat | WGOM | Alt. 7A | + | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Habitat | WGOM | Alt. 8 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spawn. | GOM | Alt. 1 | - | ++ | Negl | Unk | 0 | + | 0 | + | 0 | 0 | 0 | - | 0 | - | 0 | ++ | ++ | - | - | |
| Spawn. | GOM | Alt. 3 | - | ++ | Negl | Unk | 0 | + | 0 | - | 0 | 0 | 0 | 0 | + | 0 | 0 | + | - | - | - | |
| Spawn. | GB-SNE | Alt. 2B | + | + | - | Unk | 0 | - | ++ | - | 0 | 0 | 0 | + | ++ | + | 0 | + | + | + | + | |
| Res. | EGOM | Alt. 2 | ++ | ++ | Negl | + | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | - | 0 | 0 | |
| Res. | WGOM | Alt. 3B | ++ | ++ | Negl | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | ++ | 0 | 0 | 0 | + | - | + | - | |
| Res. | GB | Alt. 4 | ++ | + | Negl | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | + | - | + | + | |
| Res. | n/a | Alt. 5 | 0 | + | Negl | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | ++ | ++ | |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderately Negative ■ = Highly Negative

influence the overall trends in this category (positive for marine mammals and sea turtles, more negative for sturgeon and salmon).

5.2.3 Other Alternatives Under Consideration

In addition to the No Action and preferred alternatives, many other management areas and measures are under consideration in this action (Table 15). Full descriptions of the alternative areas and fishing restriction options are provided in Volume 3, Section 2. In addition to Options 1 and 5 described in the previous section, Option 2 would be a mobile bottom-tending gear restriction with an exemption provided for hydraulic clam dredges. Options 3 and 4 would require specific ground cable lengths and configurations on bottom trawls. Due to the large number of areas, these other alternatives are very difficult to display on a single map, but maps of each alternative are available in Volume 3, both in Section 2 and throughout the impacts analysis in Section 4.

Many of the alternatives within a region or sub-region consist of the same areas in different combinations (e.g.

western Gulf of Maine habitat alternatives, spawning alternatives) or different but spatially overlapping areas (Georges Bank and Great South Channel/Southern New England habitat alternatives). Accordingly, the list below should not be viewed as a possible combination scenario. Because there were no preferred alternative recommendations from the Council for the Georges Bank and Great South Channel/Southern New England sub-regions, impacts that might result from different combinations are discussed generally in terms of where various alternatives fall on a continuum of impacts.

The impacts of the additional management alternatives under consideration range from highly negative to highly positive across the various categories, with neutral impacts for many resources and fisheries other than groundfish (Table 17). Positive impacts to the monkfish, skate, and scallop fisheries are associated with some alternatives, and negative impacts to the scallop, clam, and shrimp fisheries are associated with others. There are some slightly positive and negative impacts on other resources and fisheries as well. This table broadly summarizes the detailed analysis of

TABLE 15B. Impacts of the Preferred Spatial Management Alternatives. Impacts on Species and Fisheries Managed by Mid-Atlantic Fishery Management Council or Atlantic States Marine Fisheries Commission.

| Type | Sub-Region/ Region | Alt | Resources | | | | | | | | Fishery | | | | | | | |
|---------|-----------------------|---------------------|-----------|----------|-------|---------|-----------|----------|--------|---------|---------|----------|-------|---------|-----------|----------|--------|---------|
| | | | Clam | Bluefish | M/S/B | Dogfish | Sf/Sc/Bsb | Tilefish | Shrimp | Lobster | Clam | Bluefish | M/S/B | Dogfish | Sf/Sc/Bsb | Tilefish | Shrimp | Lobster |
| Habitat | EGOM | Alt. 2 Opt. 1, 2, 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | CGOM | Alt. 4 Opt. 1 and 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 7A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 |
| Spawn. | GOM | Alt. 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spawn. | GOM | Alt. 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spawn. | GB-SNE | Alt. 2B | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | + | + | + | + | 0 | 0 | - |
| Res. | EGOM | Alt. 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Res. | WGOM | Alt. 3B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 |
| Res. | GB | Alt. 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Res. | n/a | Alt. 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderately Negative ■ = Highly Negative

TABLE 16. Additional Spatial Management Alternatives Under Consideration

| Alt. Type | Sub-Region Or Region | # | Areas Included | Fishing Restriction Options |
|-----------|--|----|--|--|
| Habitat | Eastern Gulf of Maine | 3 | Small Eastern Maine HMA, Machias HMA, Toothaker Ridge HMA | Options 1-4 |
| Habitat | Central Gulf of Maine | 2 | None | None |
| Habitat | Central Gulf of Maine | 3 | Modified Jeffreys Bank EFH HMA, Modified Cashes Ledge EFH HMA, Ammen Rock HMA, Fippennies Ledge HMA, Platts Bank HMA | 1-4, Ammen Rock closed to all fishing |
| Habitat | Western Gulf of Maine | 2 | None | None |
| Habitat | Western Gulf of Maine | 3 | Large Bigelow Bight HMA, Large Stellwagen HMA | Options 1-4 |
| Habitat | Western Gulf of Maine | 4 | Large Bigelow Bight HMA, Small Stellwagen HMA, Jeffreys Ledge HMA | Options 1-4 |
| Habitat | Western Gulf of Maine | 5 | Small Bigelow Bight HMA, Small Stellwagen HMA, Jeffreys Ledge HMA | Options 1-4 |
| Habitat | Western Gulf of Maine | 6 | Large Stellwagen HMA | Options 1-4 |
| Habitat | Western Gulf of Maine | 7b | Alternate Roller Gear Restricted Area | Trawl roller gear limited to 12 inches diameter |
| Habitat | Georges Bank | 2 | None | None |
| Habitat | Georges Bank | 3 | Northern Edge HMA | Options 1-4 |
| Habitat | Georges Bank | 4 | Northern Edge HMA and Georges Shoal Gear Modified Area | NE: 1-4, GS: 3-4 |
| Habitat | Georges Bank | 5 | Georges Shoal 1 MBTG HMA and Northern Georges Gear Modified Area | GS: 1-2, NG: 3-4 |
| Habitat | Georges Bank | 6a | EFH Expanded 1 HMA | Options 1-4 |
| Habitat | Georges Bank | 6b | EFH Expanded 2 HMA | Options 1-4 |
| Habitat | Georges Bank | 7 | Georges Shoal 2 MBTG HMA and EFH South MBTG HMA | Options 1-2 |
| Habitat | Georges Bank | 8 | Northern Georges MBTG HMA | Options 1-2 |
| Habitat | Great South Channel/ Southern New England | 2 | None | None |
| Habitat | Great South Channel/ Southern New England | 3 | Great South Channel East HMA and Cox Ledge HMA | Options 1-4 |
| Habitat | Great South Channel/ Southern New England | 4 | Great South Channel HMA and Cox Ledge HMA | Options 1-4 |
| Habitat | Great South Channel/ Southern New England | 5 | Nantucket Shoals HMA and Cox Ledge HMA | Options 1-4 |
| Habitat | Great South Channel/ Southern New England | 6 | Nantucket Shoals West MBTG HMA, Great South Channel Gear Modified Area, Cox Ledge HMA | NSW: 1-2, GSC: 3-4, CL: 1-4 |
| Spawning | Gulf of Maine | 2a | Sector rolling closures, GOM Cod Spawning Protection Area, Massachusetts Bay Cod Spawning Protection Area | Option 5 (recreational gears in GOM and MassBay Cod Spawning Protection Areas) |
| Spawning | Gulf of Maine | 2b | Sector rolling closures, GOM Cod Spawning Protection Area, Massachusetts Bay Cod Spawning Protection Area | Option 5 including recreational gears |
| Spawning | Gulf of Maine | 3 | Massachusetts Bay Cod Spawning Protection Area | Option 5 including recreational gears |
| Spawning | Georges Bank/Southern New England | 2a | Closed Areas I and II | Option 5 |
| Spawning | Georges Bank/Southern New England | 2c | Closed Areas I and II | Scallop dredges exempt from closure |
| Spawning | Georges Bank/Southern New England | 3a | Closed Area I North and Closed Area II | Option 5 |
| Spawning | Georges Bank/Southern New England | 3b | Closed Area I North and Closed Area II | Option 5 including recreational gears |
| Spawning | Georges Bank/Southern New England | 3c | Closed Area I North and Closed Area II | Scallop dredges exempt from closure |
| Research | Western Gulf of Maine | 3a | Stellwagen DHRA and southern reference area | Options 1 and 5, recreational gears capable of catching groundfish in ref. area only |
| Research | Western Gulf of Maine | 3c | Stellwagen DHRA (no reference area) | Options 1 and 5 |

direct effects in **Volume 3, Section 4** and does not show contrasting short vs. long term effects, as well as heterogeneous impacts between individual fish stocks.

The other management alternatives summarized in **Table 17** have highly variable impacts within and across categories, depending on the areas and fishing restriction measures included. A vast number of potential scenarios can be constructed from these alternatives.

Note that the direction and magnitude of the economic and social impacts depends on the fisheries affected and the amount of effort potentially displaced by each set of management areas. In general, the high value of fishing for scallops, and to a lesser extent for clams, tends to dominate the net impact determinations in areas where these fisheries are very important.

Generally speaking, the impacts on most Mid-Atlantic species and fisheries are neutral or low, so the choice of alternatives should have limited impacts. In these cases, ongoing management actions in these fisheries will have the greatest influence on Mid-Atlantic Council-managed resources, fisheries, and fishing communities. An exception to this is that some of the Georges Bank and Great South Channel habitat alternatives are expected to have moderately negative impacts on the clam fishery. While significant biological impacts on the clam resource are not expected, some of the habitat management areas identified encompass important clam fishing grounds, and the fishery probably will expand on Georges Bank in the future. While the bulk of the clam fishery is outside New England, some of the alternatives proposed in this action could combine with other actions affecting the clam fishery to produce negative cumulative effects.

There is also the potential for negative impacts on the shrimp fishery due to closure of some shrimp fishing grounds in the Gulf of Maine under western Gulf of Maine Alternatives 3, 4, and 5. While there is currently

a moratorium in this fishery, these areas would be important to the fishery if they reopen in the future. Direct management of the shrimp fishery by the Atlantic States Marine Fisheries Commission is expected to have a far larger impact on that fishery and associated fishing communities than the other alternatives, but similar to the clam fishery discussion above, these alternatives could have a large influence on the shrimp fishery given the substantial overlap with the management areas and past shrimp trawling effort. To the extent that water temperature influences the abundance of shrimp, climate-mediated environmental changes could exacerbate negative impacts in this fishery.

The most significant impacts identified (i.e. highly positive or highly negative) would be expected to have the greatest influence on overall cumulative effects. For example, central Gulf of Maine habitat Alternative 3 and Georges Bank habitat Alternative 8 are expected to have highly positive impacts on habitats, and western Gulf of Maine habitat Alternatives 3 and 4 are expected to have highly positive impacts on large-mesh groundfish juveniles and their associated habitats. The “no habitat management area”/Alternative 2 measures are expected to have highly negative impacts in some sub-regions, including the central and western Gulf of Maine, and on Georges Bank. While non-fishing actions and protected resource management actions could also affect the large-mesh groundfish fishery, fishery management actions in are expected to have the greatest effect on the status of large-mesh groundfish.

Again, because direct impacts of the preferred alternatives on protected resources are not expected to have a large influence on their overall trends (slightly positive for mammals and turtles, more negative for sturgeon and salmon) overall they are generally neutral or only slightly negative.

TABLE 17A. Impacts of Other Spatial Management Alternatives Under Consideration. Overall Habitat, Economic, Social, and Protected Resources Impacts, Plus Impacts on NEFMC Fisheries/Species.

| Type | Sub-Region/Region | Alt | Habitat | Resource | | | | | | | | Fishery | | | | | | Socio-Economic | | | |
|---------|-------------------|------------------|---------|------------|-----------|------------|----------|-------|-------------|---------|----------|------------|----------|-------|-------------|---------|----------|-------------------|--------------------|------------------|-------------------|
| | | | | Large Mesh | Protected | Small Mesh | Monkfish | Skate | Sea Scallop | Herring | Red Crab | Small Mesh | Monkfish | Skate | Sea Scallop | Herring | Red Crab | Economic Long Run | Economic Short Run | Social Long Term | Social Short Term |
| Habitat | EGOM | Alt. 2 Opt. 3-4 | Unk | 0 | 0 | - | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - | |
| Habitat | EGOM | Alt. 3 Opt. 1-2 | ++ | ++ | 0 | + | 0 | + | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | + | - | + | - | |
| Habitat | EGOM | Alt. 3 Opt. 3-4 | Unk | 0 | 0 | - | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - | |
| Habitat | CGOM | Alt. 2 (No area) | --- | -- | - | - | 0 | - | 0 | 0 | 0 | 0 | + | + | 0 | 0 | - | + | - | + | |
| Habitat | CGOM | Alt. 3 Opt. 1-2 | +++ | - | - | - | 0 | - | 0 | 0 | 0 | 0 | + | - | 0 | 0 | - | + | - | - | |
| Habitat | CGOM | Alt. 3 Opt. 3-4 | --- | -- | - | - | 0 | - | 0 | 0 | 0 | 0 | + | + | 0 | 0 | - | - | - | - | |
| Habitat | CGOM | Alt. 4 Opt. 3-4 | --- | -- | - | - | 0 | - | 0 | 0 | 0 | 0 | + | + | 0 | 0 | - | - | - | - | |
| Habitat | WGOM | Alt. 2 (No area) | -- | -- | - | - | 0 | -- | 0 | - | 0 | + | + | 0 | 0 | 0 | -- | ++ | -- | + | |
| Habitat | WGOM | Alt. 3 Opt. 1-2 | +++ | +++ | - | + | 0 | - | 0 | + | 0 | -- | + | 0 | 0 | - | 0 | ++ | -- | ++ | -- |
| Habitat | WGOM | Alt. 3 Opt. 3-4 | --- | -- | - | - | 0 | 0 | 0 | + | 0 | 0 | + | 0 | 0 | - | 0 | -- | - | -- | -- |
| Habitat | WGOM | Alt. 4 Opt. 1-2 | +++ | +++ | - | + | 0 | 0 | 0 | + | 0 | -- | + | 0 | 0 | - | 0 | ++ | -- | + | -- |
| Habitat | WGOM | Alt. 4 Opt. 3-4 | --- | -- | - | - | 0 | 0 | 0 | + | 0 | 0 | + | 0 | 0 | - | 0 | -- | - | -- | -- |
| Habitat | WGOM | Alt. 5 Opt. 1-2 | +++ | ++ | - | + | 0 | 0 | 0 | + | 0 | - | + | 0 | 0 | - | 0 | ++ | -- | + | -- |
| Habitat | WGOM | Alt. 5 Opt. 3-4 | --- | -- | - | - | 0 | 0 | 0 | + | 0 | 0 | + | 0 | 0 | - | 0 | -- | - | - | - |
| Habitat | WGOM | Alt. 6 Opt. 1-2 | -- | - | - | - | 0 | - | 0 | - | 0 | Negl | + | 0 | 0 | 0 | 0 | - | + | - | + |
| Habitat | WGOM | Alt. 6 Opt. 3-4 | --- | -- | - | - | 0 | - | 0 | - | 0 | + | + | 0 | 0 | 0 | 0 | -- | - | -- | - |
| Habitat | WGOM | Alt. 7B | + | + | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderatly Negative ■ = Highly Negative

TABLE 17A. Continued.

| Type | Sub-Region/Region | Alt | Habitat | Resource | | | | | | | | Fishery | | | | | | Socio-Economic | | | |
|---------|-------------------|---------------------|---------|------------|-----------|------------|----------|-------|-------------|---------|----------|------------|----------|-------|-------------|---------|----------|-------------------|--------------------|------------------|-------------------|
| | | | | Large Mesh | Protected | Small Mesh | Monkfish | Skate | Sea Scallop | Herring | Red Crab | Small Mesh | Monkfish | Skate | Sea Scallop | Herring | Red Crab | Economic Long Run | Economic Short Run | Social Long Term | Social Short Term |
| Habitat | GB | Alt. 2 (No area) | -- | --- | - | 0 | 0 | - | 0 | - | 0 | + | ++ | + | +++ | 0 | 0 | +++ | +++ | -- | ++ |
| Habitat | GB | Alt. 3 Opt. 1 | ++ | -- | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | - | 0 | 0 | ++ | +++ | -- | ++ |
| Habitat | GB | Alt. 3 Opt. 2 | ++ | -- | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | - | 0 | 0 | ++ | +++ | -- | ++ |
| Habitat | GB | Alt. 3 Opt. 3-4 | -- | -- | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | +++ | 0 | 0 | ++ | +++ | -- | ++ |
| Habitat | GB | Alt. 4 Opt. 1 | ++ | -- | - | 0 | 0 | - | 0 | + | 0 | - | ++ | ++ | - | 0 | 0 | ++ | +++ | -- | ++ |
| Habitat | GB | Alt. 4 Opt. 2 | ++ | -- | - | 0 | 0 | - | 0 | + | 0 | - | ++ | ++ | - | 0 | 0 | ++ | +++ | -- | ++ |
| Habitat | GB | Alt. 4 Opt. 3-4 | -- | -- | - | 0 | 0 | - | 0 | + | 0 | - | ++ | ++ | +++ | 0 | 0 | ++ | +++ | -- | ++ |
| Habitat | GB | Alt. 5 | -- | -- | - | 0 | 0 | - | 0 | + | 0 | - | ++ | ++ | +++ | 0 | 0 | ++ | ++ | - | - |
| Habitat | GB | Alt. 6A Opt. 1 | +++ | - | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | -- | 0 | 0 | --- | -- | -- | -- |
| Habitat | GB | Alt. 6A Opt. 2 | +++ | - | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | -- | 0 | 0 | --- | -- | -- | -- |
| Habitat | GB | Alt. 6A Opt. 3-4 | -- | -- | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | +++ | 0 | 0 | +++ | +++ | -- | + |
| Habitat | GB | Alt. 6B Opt. 1 | - | --- | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | + | 0 | 0 | +++ | +++ | -- | ++ |
| Habitat | GB | Alt. 6B Opt. 2 | - | --- | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | + | 0 | 0 | +++ | +++ | -- | ++ |
| Habitat | GB | Alt. 6B Opt. 3-4 | -- | --- | - | 0 | 0 | - | 0 | + | 0 | 0 | ++ | ++ | +++ | 0 | 0 | +++ | +++ | -- | + |
| Habitat | GB | Alt. 7 Opt. 1-2 | + | --- | - | 0 | 0 | - | 0 | + | 0 | - | 0 | 0 | +++ | 0 | 0 | +++ | +++ | - | ++ |
| Habitat | GB | Alt. 8 Opt. 2-2 | +++ | ++ | - | 0 | 0 | - | 0 | + | 0 | - | - | -- | --- | 0 | 0 | --- | --- | -- | -- |
| Habitat | GSC-SNE | Alt. 2 (No area) | + | - | - | 0 | 0 | 0 | 0 | - | 0 | Negl | + | + | 0 | 0 | 0 | + | + | - | + |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderatly Negative ■ = Highly Negative

TABLE 17A. Continued.

| Type | Sub-Region/Region | Alt | Habitat | Resource | | | | | | | | Fishery | | | | | | Socio-Economic | | | |
|---------|-------------------|-----------------|---------|------------|-----------|------------|----------|-------|-------------|---------|----------|------------|----------|-------|-------------|---------|----------|-------------------|--------------------|------------------|-------------------|
| | | | | Large Mesh | Protected | Small Mesh | Monkfish | Skate | Sea Scallop | Herring | Red Crab | Small Mesh | Monkfish | Skate | Sea Scallop | Herring | Red Crab | Economic Long Run | Economic Short Run | Social Long Term | Social Short Term |
| Habitat | GSC-SNE | Alt. 3 Opt. 1 | ++ | + | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | -- | - | 0 | --- | --- | - | -- |
| Habitat | GSC-SNE | Alt. 3 Opt. 2 | + | + | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | -- | - | 0 | --- | --- | - | -- |
| Habitat | GSC-SNE | Alt. 3 Opt. 3-4 | 0 | Unk | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | 0 | - | 0 | ++ | ++ | + | + |
| Habitat | GSC-SNE | Alt. 4 Opt. 1 | + | Unk | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | 0 | - | 0 | + | -- | ++ | -- |
| Habitat | GSC-SNE | Alt. 4 Opt. 2 | + | Unk | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | 0 | - | 0 | - | ++ | ++ | + |
| Habitat | GSC-SNE | Alt. 4 Opt. 3-4 | 0 | Unk | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | 0 | - | 0 | -- | ++ | - | + |
| Habitat | GSC-SNE | Alt. 5 Opt. 1 | + | Unk | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | 0 | - | 0 | + | - | ++ | -- |
| Habitat | GSC-SNE | Alt. 5 Opt. 2 | + | Unk | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | 0 | - | 0 | + | + | ++ | + |
| Habitat | GSC-SNE | Alt. 5 Opt. 3-4 | 0 | Unk | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | 0 | - | 0 | -- | + | - | + |
| Habitat | GSC-SNE | Alt. 6 | 0 | Unk | - | 0 | 0 | 0 | 0 | + | 0 | Negl | + | 0 | 0 | - | 0 | -- | -- | -- | -- |
| Spawn. | GOM | Alt. 2A | - | ++ | Negl | Unk | 0 | - | 0 | - | 0 | 0 | 0 | + | 0 | + | 0 | - | + | 0 | 0 |
| Spawn. | GOM | Alt. 2B | - | ++ | Negl | Unk | 0 | - | 0 | - | 0 | 0 | 0 | + | 0 | + | 0 | - | + | - | - |
| Spawn. | GB-SNE | Alt. 2A | + | + | - | Unk | 0 | - | ++ | - | 0 | 0 | 0 | + | ++ | + | 0 | + | + | 0 | 0 |
| Spawn. | GB-SNE | Alt. 2C | + | + | Negl | Unk | 0 | - | 0 | - | 0 | 0 | 0 | + | 0 | + | 0 | + | + | + | + |
| Spawn. | GB-SNE | Alt. 3A | + | + | - | Unk | 0 | - | ++ | - | 0 | 0 | 0 | + | ++ | + | 0 | + | + | + | + |
| Spawn. | GB-SNE | Alt. 3B | + | + | - | Unk | 0 | - | ++ | - | 0 | 0 | 0 | + | ++ | + | 0 | + | + | + | + |
| Spawn. | GB-SNE | Alt. 3C | + | - | Negl | Unk | 0 | - | 0 | - | 0 | 0 | 0 | + | 0 | + | 0 | + | + | + | + |
| Res. | WGOM | Alt. 3A | ++ | ++ | Negl | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | ++ | 0 | 0 | 0 | + | - | + | + |
| Res. | WGOM | Alt. 3C | ++ | ++ | Negl | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | ++ | 0 | 0 | 0 | + | 0 | ++ | + |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderatly Negative ■ = Highly Negative

TABLE 17B. Impacts Of Other Spatial Management Alternatives Under Consideration. Impacts on Species and Fisheries Managed by Mid-Atlantic Fishery Management Council or Atlantic States Marine Fisheries Commission.

| Type | Sub-Region/ Region | Alt | Resources | | | | | | | | Fishery | | | | | | | |
|---------|-----------------------|------------------|-----------|----------|-------|---------|-----------|----------|--------|---------|---------|----------|-------|---------|-----------|----------|--------|---------|
| | | | Clam | Bluefish | M/S/B | Dogfish | Sf/Sc/Bsb | Tilefish | Shrimp | Lobster | Clam | Bluefish | M/S/B | Dogfish | Sf/Sc/Bsb | Tilefish | Shrimp | Lobster |
| Habitat | EGOM | Alt. 2 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | EGOM | Alt. 3 Opt. 1-2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | EGOM | Alt. 3 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | CGOM | Alt. 2 (No area) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | CGOM | Alt. 3 Opt. 1-2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | CGOM | Alt. 3 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | CGOM | Alt. 4 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 2 (No area) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 3 Opt. 1-2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | --- | 0 |
| Habitat | WGOM | Alt. 3 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 4 Opt. 1-2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | --- | 0 |
| Habitat | WGOM | Alt. 4 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 5 Opt. 1-2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | -- | 0 |
| Habitat | WGOM | Alt. 5 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | -- | 0 |
| Habitat | WGOM | Alt. 6 Opt. 1-2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 6 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | WGOM | Alt. 7B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | GB | Alt. 2 (No area) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 3 Opt. 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 3 Opt. 2 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 3 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 4 Opt. 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 4 Opt. 2 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 4 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 5 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | -- | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 6A Opt. 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | -- | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 6A Opt. 2 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 6A Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 6B Opt. 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | -- | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 6B Opt. 2 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 6B Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderatly Negative ■ = Highly Negative

TABLE 17B Continued.

| Type | Sub-Region/ Region | Alt | Resources | | | | | | | | Fishery | | | | | | | |
|---------|-----------------------|------------------|-----------|----------|-------|---------|-----------|----------|--------|---------|---------|----------|-------|---------|-----------|----------|--------|---------|
| | | | Clam | Bluefish | M/S/B | Dogfish | Sf/Sc/Bsb | Tilefish | Shrimp | Lobster | Clam | Bluefish | M/S/B | Dogfish | Sf/Sc/Bsb | Tilefish | Shrimp | Lobster |
| Habitat | GB | Alt. 7 Opt. 1-2 | 0 | 0 | 0 | 0 | + | 0 | 0 | - | -- | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Habitat | GB | Alt. 8 Opt. 1-2 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 2 (No area) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ++ | 0 | + | 0 | 0 | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 3 Opt. 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | -- | 0 | 0 | 0 | - | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 3 Opt. 2 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 3 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 4 Opt. 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | -- | 0 | 0 | 0 | - | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 4 Opt. 2 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 4 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 5 Opt. 1 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | -- | 0 | 0 | 0 | - | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 5 Opt. 2 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 5 Opt. 3-4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Habitat | GSC-SNE | Alt. 6 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | -- | 0 | 0 | 0 | - | 0 | 0 | 0 |
| Spawn. | GOM | Alt. 2A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spawn. | GOM | Alt. 2B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spawn. | GB-SNE | Alt. 2A | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | + | + | + | + | 0 | 0 | - |
| Spawn. | GB-SNE | Alt. 2C | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | + | + | + | + | 0 | 0 | - |
| Spawn. | GB-SNE | Alt. 3A | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | + | + | + | + | 0 | 0 | - |
| Spawn. | GB-SNE | Alt. 3B | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | + | + | + | + | 0 | 0 | - |
| Spawn. | GB-SNE | Alt. 3C | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | + | + | + | + | 0 | 0 | - |
| Res. | WGOM | Alt. 3A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 |
| Res. | WGOM | Alt. 3C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 |

■ = Highly Positive ■ = Moderately Positive ■ = Slightly Positive ■ = Neutral ■ = Slightly Negative ■ = Moderately Negative ■ = Highly Negative

Frequently Asked Questions

Q: Does this amendment address predator-prey dynamics or non-fishing impacts to habitat that may be impacting recovery of fish stocks?

A: No. The Council has no authority to regulate non-fishing activities.

Q: What hook sizes are included in the category of Gears Capable of Catching Groundfish? (Multispecies regulations say that longline gear must use circle hooks with a minimum size of 12 gauge.)

A: All hook gear is considered to be gear capable of catching groundfish.

Q: How long will the areas be in effect?

A: Habitat management and spawning management areas will be in effect indefinitely, although the Council may elect to modify or remove the areas in a subsequent framework adjustment or amendment to the appropriate plan or plans. The Framework and Monitoring Alternative 2 indicates that a complete re-evaluation of the network of spatial

management areas would occur approximately ten years from implementation of this Amendment. The research areas could be removed administratively after three years, if they are not being actively used, and the sunset provision (DHRA Alternative 5) is adopted, as is currently preferred.

Q: Which plans will include these measures?

A: The groundfish spawning areas will be added to the Northeast Multispecies Fishery Management Plan, however, the regulations will apply to all fisheries conducted in the spawning areas. The habitat and dedicated habitat research areas will be part of all New England fishery management plans, which includes the Northeast Multispecies, Monkfish, Northeast Skate Complex, Atlantic Sea Scallop, Atlantic Herring, Atlantic Deep-Sea Red Crab, and Atlantic Salmon FMPs.

Q: How will these areas be updated in the future? Plan by plan? Omnibus approach?

A: The spawning areas would be updated through the Northeast Multispecies Fishery Management Plan, which would likely include technical work by the Groundfish Plan Development Team and working through the Groundfish Committee and Groundfish Advisory Panels. The habitat management and research areas would be updated through an omnibus amendment or framework adjustment, as these areas would be part of multiple fishery management plans.

Q: How were the habitat management areas developed?

A: The Habitat Plan Development Team areas were originally based on the output of an analysis (Local Indicators of Spatial Association, or LISA Cluster Analysis) run on the SASI results to identify groups of areas that were more vulnerable to the adverse effects of fishing with bottom trawls and scallop dredges. The results of this analysis were highlighted ten minute squares. The PDT used these as “spotlights” to identify clusters of vulnerable habitat that would result in reasonably-sized management areas; that is, the idea was to focus on clusters of vulnerable habitat instead of trying to draw a box around every boulder in the Gulf of Maine. The Habitat PDT then removed these cluster results and focused on identifying potential management areas that encompassed the majority of the highly vulnerable substrate in the underlying Habitat. The Habitat Committee refined these areas over the course of three years, resulting in highly focused areas, intended to minimize impacts on highly vulnerable habitat with minimal impact to the fishing industry.

To develop the juvenile groundfish-oriented HMAs, the Closed Area Technical Team reviewed the weighted juvenile groundfish hotspot grids by season. The weighted grids combine hotspots weighted by four factors: Bmsy/B (stock vulnerability), whether or not the stock has known or possible sub-populations, whether the stock is more resident (as compared to more migratory),

and affinity for complex substrates. Stocks that do not have a strong affinity for coarse substrates were zeroed out of the weighted grids, such that the locations of the juvenile groundfish-derived HMAs were based on the distribution of the following stocks only: Georges Bank cod, Gulf of Maine cod, Georges Bank haddock, Gulf of Maine haddock, pollock, Acadian redfish, Atlantic halibut, ocean pout, and Atlantic wolffish. The hotspot weighting procedure is described fully in **Volume 1**.

The first step in identifying candidate management areas was to find contiguous areas with numerous hotspots in each of the seasonal weighted hotspot data layers. The result was a set of rough management area boundaries for each season. The seasonal boundaries were then compared to identify areas important to juvenile groundfish across multiple seasons. The seasonal boundaries were also overlaid on the habitat vulnerability layer from the SASI model. Both the weighted hotspot and SASI grids were generated at the same 100 km² resolution to facilitate comparison of the two datasets. The final candidate management areas were thus locations with a contiguous grouping of hotspots across one or more seasons, with relatively high vulnerability values. As a last step, the candidate management areas were limited to areas in Federal waters.

Q: Can the Council change these alternatives when they take final action?

A: Yes. In this amendment, this could include changes to the management area boundaries, or the fishing restriction measures within the areas. A minor adjustment would require updating the impacts analysis for the Final Environmental Impact Statement (FEIS), but a more significant adjustment (such as a newly identified or previously rejected management area) could require the Council to develop and distribute additional impact analyses, possibly with an additional opportunity for public comment, prior to finalizing the amendment and FEIS.

Q: Why are the year-round groundfish closures included in both the habitat protection and spawning protection alternatives?

A: The year-round groundfish closures (e.g. Western Gulf of Maine Closure Area, Closed Area I) provide both habitat protection and spawning protection benefits, at least to some extent, depending on the mix of fishery restrictions and exemptions in place for each area, and were evaluated as part of the no action alternative in each sub-region or region.

Q: Does the economic analysis consider the value-added or the economic impact as landed seafood makes its way through the economy?

A: No. While this issue is raised in the section that describes how the economic impact analyses were done, such an evaluation is beyond the scope of the analyses prepared for this amendment. In addition, because of the difficulty in calculating economic benefits of habitat protection, such an analysis would not provide a comprehensive picture of the economic impacts.

Q: Do the protected resource impacts sections take into account the new 2014 Atlantic Large Whale Take Reduction Plan measures?

A: Yes.

Q: Does this amendment propose restrictions on lobster traps?

A: No. Restrictions on lobster traps are not proposed in any of the habitat management, spawning management, or research areas because, in general, lobster traps are not expected to cause significant adverse effects on vulnerable habitat, similar to other fixed gears. In addition, lobster pots are not currently defined as gear capable of catching groundfish. Further, the Council may only regulate lobster pot fishing when the successful management of a Council resource requires it.

Q: Why are the habitat management alternatives organized using a sub-regional approach?

A: A sub-regional organization was used to facilitate discussion, analysis, and decision-making. Each sub-region has a unique mix of habitat types, stocks,

and fisheries. Grouping management areas into alternatives at a larger spatial scale (Gulf of Maine vs. Georges Bank/Southern New England, or the full jurisdiction of the New England Council) was thought to be less practical for discussing trade-offs and local considerations.

Q: Why are hydraulic clam dredges exempted from habitat management area restrictions?

A: Habitat Management Option 2 would enact a complete closure to all mobile bottom-tending gears, but allow an exemption for hydraulic clam dredges. The reason for the exemption is that hydraulic dredges can only be used in sands and fine gravels, which are less vulnerable to the adverse effects of fishing as compared to cobble- and boulder-dominated habitats, as long as the sands and fine gravels are located in high energy environments subject to physical disturbance from bottom currents and storm wave action. In places like the shallower portions of Georges Bank and Nantucket Shoals, cobble- and boulder-dominated habitats are patchily distributed among sand- and granule-pebble-dominated areas (according to the SASI habitat map and other substrate maps). The assumption is that hydraulic clam dredges, if exempt from habitat management area restrictions, would operate in the sand and fine gravel patches intermixed between areas dominated by cobble and boulder and, therefore, have a minimal adverse impact on benthic habitats in areas where they can safely be used and where surfclams are more abundant. While it might be possible to define the boundaries of habitat management areas so that they cover cobble-boulder areas and avoid sand and granule-pebble areas, this is difficult due to the patchiness of the substrate distribution. A compromise is to allow the use of gears that can only fish in the sand- and granule-pebble-dominated parts of the habitat management area. Although, hydraulic clam dredges are exempted from some year-round groundfish closure areas because they have limited bycatch of groundfish, they are not exempted from any current habitat closure areas.

Q: Will all measures go into effect immediately upon implementation of the amendment?

A: Yes. The exception is some measures that affect the scallop fishery. Because the scallop fishery rotational management program is so critical to optimization of yield, the Council agreed that areas with significant scallop biomass that are currently off-limits to the scallop fishery should not automatically reopen when this amendment takes effect. Rather, a separate scallop action should evaluate whether scallop access area boundaries need to be adjusted or if new access areas should be created, and then the specifications for the fishery would be developed in consideration of these changes.

Q: Which fishing gears are considered mobile bottom-tending gears? Which fishing gears are considered “gears capable of catching groundfish”?

A: See Table 1. Gears in italics are mobile bottom-tending gear but are not considered gear capable of catching groundfish.

TABLE 1. Mobile Bottom Tending Gear and Gears Capable of Catching Groundfish.

| Mobile bottom-tending gear and gears capable of catching groundfish | Gears capable of catching groundfish |
|---|--------------------------------------|
| Beam trawl | Beam trawl |
| Bottom longline | Bottom longline |
| Bottom pair trawl | Bottom pair trawl |
| Danish seine | Danish seine |
| Fish bottom otter trawl | Fish bottom otter trawl |
| Haddock separator trawl | Haddock separator trawl |
| Hand line/rod & reel | Hand line/rod & reel |
| Haul seine | Haul seine |
| Midwater pair trawl | Midwater pair trawl |
| Midwater trawl | Midwater trawl |
| Mussel dredge | Mussel dredge |
| <i>Ocean quahog/surfclam dredge</i> | |
| Other bottom otter trawl | Other bottom otter trawl |
| Other dredge | Other dredge |
| Purse seine | Purse seine |
| Ruhle trawl | Ruhle trawl |
| Scallop bottom otter trawl | Scallop bottom otter trawl |
| Scottish seine | Scottish seine |
| Sea scallop dredge | Sea scallop dredge |
| Sea scallop dredge with chain mat | Sea scallop dredge with chain mat |
| <i>Shrimp trawl</i> | |
| Sink gillnet | Sink gillnet |
| Twin bottom otter trawl | Twin bottom otter trawl |
| Urchin dredge | Urchin dredge |

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