Omnibus Essential Fish Habitat Amendment 2 Draft Environmental Impact Statement – Decision Document – Version 1

New England Fishery Management Council · February 25-26, 2014

Purpose: to guide the Council through the draft EIS and inform selection of preferred alternatives. At their February 2014 meeting, the Council is scheduled to approve the draft EIS for initial submission and public hearings.

Note: figures depicting the alternatives will be distributed separately and are also available in the DEIS.

Contents

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Document structure

The draft Environmental Impact Statement is organized into five volumes as follows:

Volume 1:

- **Section 1:** Executive summary (additional details will be added prior to initial submission)
- **Section 2:** Contents of volume
- **Section 3:** Need and purpose for action, goals and objectives, background and management history
- **Section 4:** Affected environment/description of valued ecosystem components

Volume 2:

- **Section 1:** Contents of volume
- **Section 2:** EFH and HAPC designation alternatives (additional alternatives considered but not selected in 2007 will be added prior to initial submission)
- **Section 3:** Environmental impacts of EFH and HAPC designation alternatives (additional analysis required; will be completed prior to initial submission)

Volume 3:

- **Section 1:** Contents of volume
- **Section 2:** Spatial management alternatives (descriptions, maps, and rationales)
- **Section 3:** Considered and rejected spatial management alternatives
- **Section 4:** Environmental impacts of spatial management alternatives (additional analysis required; will be completed prior to initial submission)
    - **4.**1: Impacts of habitat management alternatives
    - **4.**2: Impact of spawning management alternatives
    - **4.**3: Impacts of dedicated habitat research area alternatives
    - **4.**4: Impacts of framework and monitoring alternatives
    - **4.**5: Impacts of non-groundfish resources and additional discussion of impacts by fishery

Volume 4:

- **Section 1:** Contents of volume
- **Section2:** Cumulative effects (to be written prior to initial submission, will require updates for the final draft)
- **Section 3:** Compliance with MSA, including EFH provisions of MSA and associated EFH regulations (to be written for FEIS; some sections e.g. adverse effects determination will be drafted prior to initial submission)
- **Section 4:** Compliance with NEPA (will be completed for FEIS)
- **Section 5:** Compliance with other applicable law (to be written for FEIS)

Volume 5:

- **Appendices**; additional items to be added include scoping materials and comments

Goals (1-10) and objectives (A-N) of Omnibus Habitat Amendment 2

1. Redefine, refine or update the identification and description of all EFH for those species of finfish and mollusks managed by the Council, including the consideration of HAPCs;
2. Identify, review and update the major fishing activities (MSA and non-MSA) that may adversely affect the EFH of those species managed by the Council;
3. Identify, review and update the major non-fishing activities that may adversely affect the EFH of those species managed by the Council;
4. Identify and implement mechanisms to protect, conserve, and enhance the EFH of those species managed by the Council to the extent practicable;
5. Define metrics for achieving the requirements to minimize adverse impacts to the extent practicable;
6. Integrate and optimize measures to minimize the adverse impacts to EFH across all Council managed fishery management plans;
7. Update research and information needs;
8. Review and update prey species information;
9. Enhance groundfish fishery productivity;
10. Maximize societal net benefits from the groundfish stocks while addressing current management needs

A. Identify new data sources and assimilate into the process to meet goals (state, federal and other data sources);
B. Implement review of existing HAPCs and consider modified or additional HAPCs;
C. Review EFH designations and refine or redefine where appropriate as improved data and analysis become available;
D. Develop analytical tools for designation of EFH, minimization of adverse impacts, and monitoring the effectiveness of measures designed to protect habitat;
E. Modify fishing methods and create incentives to reduce the impacts on habitat associated with fishing;
F. Support restoration and rehabilitation of fish habitat which have already been degraded (by fishing and non-fishing activities);
G. Support creation and development of fish habitat where appropriate and when increased fishery resources would benefit society;
H. Develop a strategy for prioritizing habitat protection;
I. Develop criteria for establishing and implementing dedicated habitat research areas;
J. Design a system for monitoring and evaluating the benefits of EFH management actions including dedicated habitat research areas;
K. Improved groundfish spawning protection; including protection of localized spawning contingents or sub-populations of stocks;
L. Improved protection of critical groundfish habitats;
M. Improved refuge for critical life history stages;
N. Improved access to both the use and non-use benefits arising from closed area management across gear types, fisheries, and groups. These benefits may arise from areas designed to address the other three groundfish closed area objectives.

The Council also requested a mechanism for reviewing and updating spatial management areas.

Council discussion plan

Order of discussion topics

1. Gulf of Maine
    a. Habitat management area alternatives (western, central, eastern sub-regions)
    b. Groundfish spawning management area alternatives
    c. Dedicated Habitat Research Area alternatives
2. Georges Bank, Great South Channel/Southern New England
    a. Habitat management area alternatives (western, central, eastern sub-regions)
    b. Groundfish spawning management area alternatives
    c. Dedicated Habitat Research Area alternatives
3. Framework adjustments and monitoring alternatives

Selecting preferred alternatives

Habitat management

Select one alternative per sub-region. Choices include no action (current areas), no areas, and various additional combinations of areas (between 2 and 4 choices, depending on sub-region). The WGOM sub-region also includes a possible add-on measure to identify a 12-inch roller gear size limit as a habitat management measure (there are two choices for areas within which this might apply).

Identify a fishing restriction option for each of the areas (Options 1-4, below). Some areas are restricted to options 1/2 or options 3/4. These areas are noted in the alternatives descriptions in Volume 3, Section 2. The Ammen Rock area is also a special case.

1. No mobile bottom-tending gears
2. No mobile bottom-tending gears, with an exemption for hydraulic clam dredges
3. Ground cable length capped at 45 fathoms per side for bottom trawls and elevating disks on ground cables required; no restrictions on dredges or other gears
4. No ground cables permitted on trawls, bridles capped at 30 fathoms per side; no restrictions on dredges or other gears

Groundfish spawning

Select one alternative per region. Choices include no action (current areas and seasons) or modified list of areas and seasons. In the GOM, there is a new area proposed for the winter season (Massachusetts Bay).

Identify a fishing restriction option for each of the areas from options A or B, below.

A. Restrictions similar to those currently in effect
B. Restrictions similar to those currently in effect; additional restrictions on recreational groundfish fishing

Dedicated Habitat Research Areas

Select either: no action (no DHRAs designated) or one or more of Alternatives 2, 3, and 4 (each alternative is a distinct area). If Alternatives 2, 3, and/or 4 are selected as preferred, identify whether

alternative 5 (sunset provision) is the preferred implementation approach. Alternative 3 includes three different sub-options A, B, and C.

Framework adjustments and monitoring

Select either no action (Alternative 1) or updated approach (Alternative 2).

General issues to consider when identifying preferred alternatives
General habitat and ecosystem effects of fishing (or restrictions on fishing)
Habitat effects on critical life stages of groundfish (i.e. age 0/1)
Groundfish population effects
Economic impacts (both positive (new areas open) and negative (new areas closed to mobile bottom-tending gear)) that increase or decrease fishing costs on groundfish and other stocks
Long term economic impacts from improving resource productivity vs. short term fishing access opportunities or displacement of fishing
Potential for increases in fixed or recreational gears in Habitat Management Areas and Dedicated Habitat Research Areas where mobile bottom-tending gears are restricted
Direct impacts (e.g. gear conflict) on customary fishing locations: • Lobster gear in currently closed areas, e.g. Closed Area II • Recreational fishing in the reference area • Changes in exempted areas due to overlap or new opportunities
Social impacts on communities dependent on local areas that might be closed to mobile bottom-tending gear or re-opened to fishing
Impacts on Protected Resources due to shifts fishing locations or gears used

Approaches used in impacts analysis

Valued Ecosystem Component (VEC): Physical/biological environment

- Analysis is general across species, focus on seabed habitats

Seabed impacts analysis

- Data and information developed/reviewed:
  - Distribution of dominant substrate (data used in Swept Area Seabed Impact or SASI approach and other sources)
  - High/low energy characterization
  - Habitat impacts literature that informed SASI vulnerability assessment
  - Habitat vulnerability maps by gear type and habitat vulnerability by management area
  - Realized adverse effects maps by gear type
  - Literature describing fish associations with habitat, especially seabed habitats, and how habitat contributes to fish survival and growth
  - Published literature and results of a New England region pilot study related to gear modifications as they relate to habitat conservation
- Approach to analysis:
  - Compare SASI estimates of seabed vulnerability between areas and alternatives, accounting for heterogeneity in data support and other sources of information not included in the model
  - Evaluate historical realized adverse effects by gear type for areas currently fished to address the magnitude of reduction in adverse effects
  - Describe seabed types encompassed within various habitat management areas
  - Assess potential for redistribution of fishing effort and changes in area swept

Diversity considerations

- Calculated diversity indices for all species, all managed species, and all large-mesh groundfish to compare species diversity across areas and alternatives

Valued Ecosystem Component (VEC): Managed species

- Separate analyses were used for large mesh (and small mesh) groundfish, although the hotspot approach used may also inform impacts analysis for selected additional stocks.
- Scallop analyses are being coordinated by Scallop PDT
- Impacts on other managed species drafted by the PDT/CATT and reviewed by GARFO SFD staff

Large mesh groundfish

- Data and information developed/reviewed:
  - Hotspot analyses
    - Young juveniles – lengths corresponding to age 0/1
    - Large spawners – lengths corresponding to top 20% of 2002-2012 biomass
  - Survey biomass per tow
  - Fine-scale effort distribution on observed trips
  - Juvenile cod and yellowtail flounder distribution models
  - Literature on fish habitat use, especially spawning habitats

- Approach to analysis:
  - Compare number of hotspots for different species between areas, accounting for any data gaps identified in the hotspot analysis
  - For certain species, evaluate their distribution during the past 10 years relative to specific areas, for comparison with hotspot results
  - Assess potential for redistribution of fishing effort and how this might affect fish concentrated outside of the areas included in a particular alternative

Scallops

- Evaluate short-term and long-term potential scallop yield by management area
- Evaluate specific area closure scenarios using Scallop Area Management Simulator model
- Evaluate seasonal variation in meat weight to evaluate impacts of spawning closures

Other managed species

- Consider spatial distribution of stocks relative to management areas
- Evaluate how redistribution of different types of fishing effort might impact directed or incidental catch on the stock(s)
- Consider impacts in the context of overall stock vulnerability (or lack thereof)

Valued Ecosystem Component (VEC): Human communities and the fishery

Economic impacts

- Focus on potential displacement of fishing effort by area and alternative
  - VTR analysis where revenues are distributed using a confidence interval approach based on gear type and trip duration
  - VMS analysis using Records and Demarest approach to estimate fishing time
  - Analysis is at the gear and individual (=permit) level
- Estimates of the potential costs and benefits of fishing in any reopened areas based on observer data
- Recreational fishing VTR data examined as well

Community impacts

- Approach to analysis:
  - Determine affected communities based on potentially displaced effort identified in economic analysis
  - Qualitative discussion of impacts, focused on possible displacement and redistribution of fishing effort, considering:
    - Sustained participation, community vulnerability, and attitudes, beliefs, and values of fishermen and other stakeholders

Valued Ecosystem Component (VEC): Protected resources

- Qualitative evaluation of how potential displacement and redistribution of effort may affect protected resources including turtles, marine mammals, and Atlantic sturgeon, considering species distributions and fishing gears that have interactions with protected resources
- Relationship to other management approaches (e.g. pingers) discussed

Summary of alternatives and results of impacts analysis

This section summarizes the alternatives and highlights key conclusions of the impacts analysis identified to date.

Maps are provided as a separate handout to facilitate viewing alongside the decision document.

The impacts analysis tables use the following symbols. This is reproduced on the last page of this document and can be torn off to be viewed separately. Note that the summary 'scores' given for each alternative often combine positive and negative impacts into a single value, and the single scores are an oversimplification of often multi-faceted analyses. In particular, different short-term vs. long-term impacts are anticipated in many cases, especially in terms of economic and social impacts. Some brief notes are provided to help the reader understand the key issues behind the score. Details are provided in the Draft Environmental Impact Statement; relevant section and page numbers are listed by VEC.

Symbol	Meaning
+++	highly positive
++	positive
+	slightly positive
0	neutral
-	slightly negative
--	negative
---	highly negative
Negl	negligible
Unk	Unknown or uncertain

Gulf of Maine

Habitat Management alternatives

In the GOM, Habitat Management Alternatives are identified within three sub-regions, Western GOM, Central GOM, and Eastern GOM

Volume 3, Section 2.1.3: Western Gulf of Maine

Alternatives under consideration

1. No action: WGOM groundfish and habitat closures
2. No Habitat Management Areas
3. Large Bigelow Bight, Large Stellwagen
4. Large Bigelow Bight, Small Stellwagen, Jeffreys Ledge
5. Small Bigelow Bight, Small Stellwagen, Jeffreys Ledge
6. Large Stellwagen
7. Make roller gear area a habitat measure (7a), or apply in an alternative area (7b)

Fishing restriction options, alternatives 3, 4, 5, and 6

1. Closed to mobile bottom tending gears
2. Closed to mobile bottom tending gears, except hydraulic clam dredges
3. Maximum ground cable length of 45 fathoms
4. No ground cables

Draft Environmental Impact Statement references

- **Seabed habitat impacts are in section 4.1.1.3, page 164**
- **Groundfish impacts are in section 4.1.2.4, page 228**
- **Economic and social impacts are in section 4.1.3.4, page 303**
- **Protected resources impacts are in section 4.1.4.3, page 386**

WGOM habitat alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No action)	++	Includes vulnerable substrates, but less efficient	++	Encompasses juvenile groundfish hotspots fairly well	++	0	Positive due to conservation benefits, neutral social impacts as status quo is maintained	0	Rel to No Action
Alt. 2 (No area)	---	No protection of vulnerable seabeds.	--	Removes existing protections	-	-	Positive in ST, but negative over LT	-	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required
Alt. 3 Options 1 and 2	0	Large Bigelow Bight area has high SASI scores but trades off with now closed Jeffreys Ledge.	++ +	Better encompasses juvenile groundfish hotspots/habitats relative to No Action	++	--	Over LT, net positive due to conservation benefits	--	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required; Sturgeon - BB area could increase gillnet use inshore if closed to MBTG
Alt. 3 Options 3 and 4	--	Removes existing protections	--	Removes existing protections	--	--	ST positive, LT/net negative	-	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required
Alt. 4 Options 1 and 2	++	Adds Large Bigelow Bight with high vulnerability to existing EFH areas having high scores.	++	Better encompasses juvenile groundfish hotspots/habitats relative to No Action	++	-	ST negative, net positive over long term	--	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required; Sturgeon - BB area could increase gillnet use inshore if closed to MBTG
Alt. 4 Options 3 and 4	--	Removes existing protections	--	Removes existing protections	--	-	Net negative due to negative habitat and groundfish impacts of alternative	-	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required
Alt. 5 Options 1 and 2	+	Complex and vulnerable substrate types closer to the coast/state waters boundary, and on Old Scantum	+	Better encompasses juvenile groundfish hotspots/habitats relative to No Action; not as well as Alts 3 and 4	++	--	ST negative, net positive over long term	--	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required; Sturgeon - BB area could increase gillnet use inshore if closed to MBTG

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 5 Options 3 and 4	--	Removes existing protections	--	Removes existing protections	--	--	ST positive, LT/net negative	-	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required
Alt. 6 Options 1 and 2	-	Does not include any areas outside of the existing WGOM EFH	-	Still protects some juvenile groundfish habitats, but less effectively than No Action	--	+	ST positive, LT/net negative	-	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required
Alt. 6 Options 3 and 4	--	Removes existing protections	--	Removes existing protections	--	+	ST positive, LT/net negative	-	Mammals - would increase areas where gillnets can fish, but break up wall of gillnet fishing; pingers required
Alt. 7A	Negl	Duplicates existing rules.	0	Duplicates existing rules.	Negl	Negl	Assumes Alt 7 is an add-on vs. stand alone alternative	0	Similar to existing measure
Alt. 7B	+	Adds shrimp trawls to restriction and adds some additional area with high vulnerabiltiy	+	Adds shrimp trawls to restriction and adds some additional area with many juvenile hotspots	Negl	Negl	Assumes Alt 7 is an add-on vs. stand alone alternative	0	Similar to existing measure

Volume 3, Section 2.1.2: Central Gulf of Maine

Alternatives under consideration

1. No action: Cashes Groundfish and Habitat, Jeffreys Bank Habitat
2. No Habitat Management Areas
3. Modified Cashes, Modified Jeffreys Bank, Ammen Rock, Fippennies Ledge, Platts Bank
4. Modified Cashes, Modified Jeffreys Bank, Ammen Rock

Fishing restriction options, Alternative 3 and 4, except Ammen Rock Area

1. Closed to mobile bottom tending gears
2. Closed to mobile bottom tending gears, except hydraulic clam dredges
3. Maximum ground cable length of 45 fathoms
4. No ground cables

Draft Environmental Impact Statement references

- **Seabed habitat impacts are in section 4.1.1.2, page 158**
- **Groundfish impacts are in section 4.1.2.3, page 217**
- **Economic and social impacts are in section 4.1.3.3, page 291**
- **Protected resources impacts are in section 4.1.4.2, page 380**

CGOM habitat alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No action)	++	EFH areas reduce adverse effects	++	Encompasses juvenile groundfish hotspots fairly well	++	0	Costs of displacement, but net positive due to conservation benefits	0	Rel to No Action
Alt. 2 (No area)	---	No protection of vulnerable seabeds.	--	Removes existing protections	--	+	ST increases in access, but long term costs	-	Possible increased gillnet fishing on Cashes, but pinger requirements
Alt. 3 Options 1 and 2	+++	Encompass a large fraction of the highly structured, gravel habitats	-	Still protects some juvenile groundfish haibtats, but less effectively than No Action; possible improvement due to addition of Platts Bank areas but this is uncertain.	-	Negl	ST positive, LT/net negative	-	Possible increased gillnet fishing on Cashes, but pinger requirements
Alt. 3 Options 3 and 4	--	MBTG allowed in previously closed areas	--	Removes existing protections	--	Negl	Net negative due to negative habitat and groundfish impacts of alternative	-	Possible increased gillnet fishing on Cashes, but pinger requirements
Alt. 4 Options 1 and 2	+	Does not include Fippennies Ledge or Platts Bank	-	Still protects some juvenile groundfish habitats, but less effectively than No Action	-	Negl	ST positive, LT/net negative	-	Possible increased gillnet fishing on Cashes, but pinger requirements
Alt. 4 Options 3 and 4	--	MBTG allowed in previously closed areas	--	Removes existing protections	--	Negl	Net negative due to negative habitat and groundfish impacts of alternative	-	Possible increased gillnet fishing on Cashes, but pinger requirements

Volume 3, Section 2.1.1: Eastern Gulf of Maine

Alternatives under consideration

1. No action (there are currently no habitat management areas)
2. Large Eastern Maine and Machias
3. Small Eastern Maine, Machias, and Toothaker Ridge

Fishing restriction options, Alternatives 2 and 3

1. Closed to mobile bottom tending gears
2. Closed to mobile bottom tending gears, except hydraulic clam dredges
3. Maximum ground cable length of 45 fathoms
4. No ground cables

Draft Environmental Impact Statement references

- **Seabed habitat impacts are in section 4.1.1.1, page 153**
- **Groundfish impacts are in section 4.1.2.2, page 210**
- **Economic and social impacts are in section 4.1.3.2, page 280**
- **Protected resources impacts are in section 4.1.4.1, page 380**

EGOM habitat alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No action)	--		--	No improvement of lg mesh gf conservation	0	0	Neutral; perhaps loss of long term + benefits	0	Rel to No Action
Alt. 2 Options 1 and 2	+	Includes vulnerable substrates, but less efficient	++	Similar positive benefits to Alt 3, includes hotspots for various spp	+	-	Slight negative ST; LT positive but uncertain	Negl	Limited mobile gear fishing now, so major fixed gear increases unlikely
Alt. 2 Options 3 and 4	Negl	Uncertain effects.	Negl	No improvement of lg mesh gf conservation rel to No Action	-	-	Slight negative due to lack of conservation benefit and cost of gear conversion for small number of trawl vessels	Negl	Limited mobile gear fishing now, so major fixed gear increases unlikely
Alt. 3 Options 1 and 2	++	More efficient overlap with vulnerable substrates	++	Similar positive benefits to Alt 2, includes hotspots for various spp	+	-	Slight negative ST; LT positive but uncertain	Negl	Limited mobile gear fishing now, so major fixed gear increases unlikely
Alt. 3 Options 3 and 4	Negl	Uncertain effects.	Negl	No improvement of lg mesh gf conservation rel to No Action	-	-	Slight negative due to lack of conservation benefit and cost of gear conversion for small number of trawl vessels	Negl	Limited mobile gear fishing now, so major fixed gear increases unlikely

Spawning Management alternatives

Volume 3, Section 2.2.1: GOM
Alternatives under consideration
1. No action: Western Gulf of Maine and Cashes Ledge groundfish closures year round, sector and common pool rolling closures, GOM Cod Spawning Protection Area 2. Sector rolling closures, GOM Cod Spawning Protection Area, Massachusetts Bay Area
Fishing restriction options
1. Current restrictions 2. Massachusetts Bay same as Whaleback, rolling closure as current (Option A), or add recreational restrictions (Option B)
Draft Environmental Impact Statement references
• **Seabed habitat impacts are in section 4.2.1.1, page 393** • **Groundfish impacts are in section 4.2.2.1, page 399** • **Economic and social impacts are in section 4.2.3.2, page 417** • **Protected resources impacts are in section 4.2.4.1, page 430**

GOM spawning alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No Action)	-	Effort less efficient, slightly negative impacts, but positive impacts from Cashes Ledge and WGOM	++	Protects spawner hotspots and seasons fairly well	--	0	Positive benefits on groundfish, but negative impacts of inaction especially to scallop fishery	0	
Alt. 2A	+	Less negative relative to NA	--	Some benefits of changing scallop access times, but overall negative	++	+	Possible groundfish conservation issues, but large potential benefits of increasing fishery access, especially to scallops	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 2B	+	No relative difference on seabed impacts	--	Recreational measure will have little benefit; limited rec fishing in areas	++	+	Limited rec fishing near CAI and CAII suggests Alt 2B would not have very different impacts vs 2A	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 3A	+	Less negative relative to NA	--	Some benefits of changing scallop access times, but overall negative	++	+	Similar to Alt 2A	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 3B	+	No relative difference on seabed impacts	--	Recreational measure will have little benefit; limited rec fishing in areas	++	+	Similar to Alt 2B	-	Sl. – (mammals); Negl. (turtles & sturgeon)

Dedicated Habitat Research Area (DHRA) alternatives

Volume 3, Section 2.3.1: Alt 1

No DRHA designations

Volume 3, Section 2.3.2: Alt 2

Designate Eastern Maine DHRA and close to MBTG

Volume 3, Section 2.3.3: Alt 3

Designate Stellwagen DHRA and maintain current restrictions throughout, i.e. no MBTG, no longlines, gillnets; additionally no recreational groundfishing in reference sub-area. Option A: Southern Ref Area, Option B: Northern Ref Area, Option C: No Ref Area

Volume 3, Section 2.3.5: Alt 5

Defines sunset provision for DHRAs

Draft Environmental Impact Statement references

- **Seabed habitat impacts are in section 4.3.1, page 432**
- **Groundfish impacts are in section 4.3.2, page 437**
- **Economic and social impacts are in section 4.3.3, page 452**
- **Protected resources impacts are in section 4.3.4, page 463**

GOM habitat research area alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt.	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No Action)	-		-		0	0		0	
Alt. 2	+	LT more positive	++	Potential to improve management with information gained	+	+	ST slight -, LT +	Negl	Limited mobile gear fishing now, so major fixed gear increases unlikely
Alt. 3A	++	Area more intensively studied with good baseline	++	Potential to improve management with information gained	+	+	Costs accruing to a small number of recreational fishermen ST (--), diffuse ++ benefits in the form of improved groundfish mgmt LT	Negl	Would maintain No Action restrictions on fishing
Alt. 3B	++		++	Potential to improve management with information gained	+	+	Costs accruing to a small number of recreational fishermen ST (--), diffuse ++ benefits in the form of improved groundfish mgmt LT	Negl	Would maintain No Action restrictions on fishing
Alt. 3C	+		++	Potential to improve management with information gained	++	++	More net + impacts b/c no negative impacts to rec fishery	Negl	Would maintain No Action restrictions on fishing
Alt. 5	Negl	Depends on overlap with HMAs.	+		++	++	Helps decrease the uncertainty regarding the benefit/cost trade-off of Alternatives 2 – 4	0	not yet evaluated in DEIS, likely neutral or negligible based on impacts of other DHRA alts

Georges Bank, Great South Channel, and Southern New England

Habitat Management alternatives

Volume 3, Section 2.1.4: Georges Bank

Alternatives under consideration

1. No action: CAI and CAII groundfish and habitat closures
2. No Habitat Management Areas
3. Northern Edge
4. Northern Edge and Small Georges Shoal gear modification area
5. Georges Shoal Large gear modification area, Georges Shoal MBTG closure
6. Extended CAII habitat closure: (6A) larger area (6B) smaller area with an 8 nm wide area along the EEZ removed

Fishing restriction options for Northern Edge Area and Extended CAII Area

1. Closed to mobile bottom tending gears
2. Closed to mobile bottom tending gears, except hydraulic clam dredges
3. Maximum ground cable length of 45 fathoms
4. No ground cables

Draft Environmental Impact Statement references

- **Seabed habitat impacts are in section 4.1.1.4, page 174**
- **Groundfish impacts are in section 4.1.2.5, page 247**
- **Economic and social impacts are in section 4.1.3.5, page 322**
- **Protected resources impacts are in section 4.1.4.4, page 388**

GB habitat management alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No action)	+	Provides protection, but includes substrates with low vulnerability.	+++	Encompasses juvenile groundfish hotspots fairly well	---	0	Costs to scallop fishery	0	Rel to No Action
Alt. 2 (No area)	---	Removes existing protections	---	Removes existing protections	++	+	Benefits to scallop fishery; social costs borne by lobster and groundfish fisheries	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 3 Option 1	+	Lower magnitude of positive effects than No Action	--	Loss of groundfish conservation benefits relative to No Action; less negative than Alt 2	++	+	Benefits to scallop fishery - less than Alt 2	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 3 Option 2	+	Clam dredges do not operate here	--	Clam dredges do not operate here	++	+	Clam fishery neutral impacts due to PSP closure/clam distribution	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 3 Options 3 and 4	--	Changes in area swept and the catchability tradeoffs are not well understood.	--	Removes existing protections	+	+	Uncertain habitat benefits - costs of new gear	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 4 Option 1	+	Impacts similar to Alternative 3	--	Similar to Alt 3	++	+	Positive scallops, negative clam and groundfish	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 4 Option 2	+	Clam dredges do not operate here	--	Similar to Alt 3	++	+	Positive driven by scallops, negative groundfish	-	Sl. – (mammals); Negl. (turtles & sturgeon)

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 4 Options 3 and 4	--	Changes in area swept and the catchability tradeoffs are not well understood.	--	Similar to Alt 3	++	+	Positive driven by scallops, negative groundfish	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 5	--	Eliminates conservations measures in existing EFH area. Uncertain benefits from gear modification.	--	Loss of groundfish conservation benefits relative to No Action	++	-	Positive driven by scallops	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 6A Option 1	+++	Encompasses a larger area containing vulnerable seabed habitats	-	Slightly negative relative to no action	--		Negative driven by scallops	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 6A Option 2	+++	Clam dredges do not operate here	-	Clam dredges do not operate here	--		Negative driven by scallops; clam effort west of CAII extended area	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 6A Options 3 and 4	-	Negative relative to No Action	--	Loss of groundfish conservation benefits relative to No Action	--			-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 6B Option 1	-	Elimates protection of an area with vulnerable seabed that has been closed.	---	Area that would remain closed has very few hotspots	++		Positive driven by scallops	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 6B Option 2	-	Clam dredges do not operate here	---	Area that would remain closed has very few hotspots	++		Positive driven by scallops; clam effort west of CAII extended area	-	Sl. – (mammals); Negl. (turtles & sturgeon)
Alt. 6B Options 3 and 4	--	More negative relative to No Action	---	Loss of groundfish conservation benefits relative to No Action	+		Less positive due to uncertain conservation benefits over long term	-	Sl. – (mammals); Negl. (turtles & sturgeon)

Volume 3, Section 2.1.5: GSC-SNE

Alternatives under consideration

1. No action: NLCA and NL habitat closure
2. No Habitat Management Areas
3. Great South Channel and Cox Ledge
4. Great South Channel East and Cox Ledge
5. Nantucket Shoals and Cox Ledge
6. Nantucket Shoals West MBTG closure, GSC gear modification area, Cox Ledge

Fishing restriction options – except Alternatives 1 and 6

1. Closed to mobile bottom tending gears
2. Closed to mobile bottom tending gears, except hydraulic clam dredges
3. Maximum ground cable length of 45 fathoms
4. No ground cables

Draft Environmental Impact Statement references

- **Seabed habitat impacts are in section 4.1.1.5, page 182**
- **Groundfish impacts are in section 4.1.2.6, page 266**
- **Economic and social impacts are in section 4.1.3.6, page 344**
- **Protected resources impacts are in section 4.1.4.5, page 390**

GSC/SNE habitat management alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No action)	-	Displaces effort into more vulnerable habitat	0	No hotspots in existing areas, given habitat, limited conservation benefits	--	0		0	Rel to No Action
Alt. 2 (No area)	--	No specific protection afforded	-	Removes existing protections; but limited negative impact as these are not substantial	++	++	Positive for clam fishery; slight positive for other stocks/fisheries due to increased access	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 3 Option 1	++	Has the largest fraction by area of cobble- and boulder-dominated habitat	+	Some overlap between juvenile cod and GSC East	---	--	Negative due to substantial effort displacement - bottom trawl, scallop, and clam	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 3 Option 2	+	Clam dredges could reduce protection	+	Some overlap between juvenile cod and GSC East; less positive impact vs Option 1due to clam exemption	--	--	Clam exemption makes this option less negative than Option 1	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 3 Options 3 and 4	0	Neutral relative to No Action and negative relative to Options 1 and 2.	--	Removes existing protections; but limited negative impact as these are not substantial	--	--	Less displacement, but costs to convert trawl gear, and no long term habitat benefits expected	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 4 Option 1	+	Smaller area than Alternative 3 affords less vulnerable seabed protection.	Unk	No hotspots in areas, but little sampling so benefits highly uncertain	--	--	Negative - clams, bottom trawl mostly	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 4 Option 2	+	Clam dredges could reduce protection	Unk	No hotspots in areas, but little sampling so benefits highly uncertain	-	-	Neutral to negative - clam effort not affected, but as a result less long term habitat benefit expected	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 4 Options 3 and 4	0	Neutral relative to No Action and negative relative to Options 1 and 2.	--	Removes existing protections; but limited negative impact as these are not substantial	-	-	Less displacement, but costs to convert trawl gear, and no long term habitat benefits expected	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 5 Option 1	+	Lower percent coverage of cobble and boulder habitats than Alternative 3 and 4	Unk	No hotspots in areas, but little sampling so benefits highly uncertain	--	--	Less displacement of scallop and bottom trawl vs Alts 3 and 4, more displacement of clam dredges	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 5 Option 2	+	Clam dredges could reduce protection	Unk	No hotspots in areas, but little sampling so benefits highly uncertain	-	-		-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 5 Options 3 and 4	-	Less area with gear modifications	--	Removes existing protections; but limited negative impact as these are not substantial	-	-		-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)
Alt. 6	0	Extension is into sandy, lower vulnerability habitat types. Greatest overlap with clam fishery	Unk	No hotspots in areas, but little sampling so benefits highly uncertain	-	+	Less displacement of scallop and bottom trawl vs Alts 3, 4, and 5, more displacement of clam dredges	-	Sl. – (mammals) gillnet effort could redistribute but seasonal closures already in place; Negl. (turtles & sturgeon)

Spawning Management alternatives

Volume 3, Section 2.2.2: GB-SNE

Alternatives under consideration

1. No action: CAI, CAII, NLCA year round, May seasonal closure
2. CAI and CAII as spawning closures Feb, Mar, Apr
3. CAI North and CAII as spawning closures Feb, Mar, Apr

Fishing restriction options

1. Current restrictions
2. Current (Option A), or add recreational restrictions (Option B)

Draft Environmental Impact Statement references

- **Seabed habitat impacts are in section 4.2.1.2, page 395**
- **Groundfish impacts are in section 4.2.2.2, page 406**
- **Economic and social impacts are in section 4.2.3.3, page 428**
- **Protected resources impacts are in section 4.2.4.2, page 431**

GB/SNE spawning alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No Action)	-	Seasonal protection of diversity (prey), but may decrease gear efficiency by shifting effort into less than optimal times.	++	Protects spawner hotspots and seasons fairly well	++	0	No changes in regulations, but positive impacts on groundfish indicate overall positive impacts	0	
Alt. 2A	-	Slight negative impacts from shifting fishing to less optimal seasons.	0	Less protection on Cashes, but positive benefits of Mass Bay area	--	-	Displacement of effort in Mass Bay area, but increased fishing opportunities in WGOM and CL. However, LT negative resource impacts.	Negl	
Alt. 2B	-	No real difference in impacts on seabeds and prey.	+	Better protection than 2A	--	--	See above; also impacts to recreational fishing.	Negl	

Dedicated Habitat Research Area (DHRA) alternatives

Volume 3, Section 2.3.1: Alt 1

No DRHA designations

Volume 3, Section 2.3.4: Alt

Designate Georges Bank DHRA and close to MBTG

Volume 3, Section 2.3.5: Alt 5

Defines sunset provision for DHRAs

Draft Environmental Impact Statement references

- **Seabed habitat impacts are in section 4.3.1.4, page 436**
- **Groundfish impacts are in section 4.3.2.4, page 449**
- **Economic and social impacts are in section 4.3.3.4, page 462**
- **Protected resources impacts are in section 4.3.4.4, page 463**

GB habitat research area alternatives: summary of impacts by VEC. Impacts on other managed resources and additional discussion of impacts on their associated fisheries are described in section 4.5 of the DEIS.

Alt.	Physical and biological environment		Large mesh groundfish		Economic (left column) Social (right column)			Protected resources	
Alt. 1 (No Action)	-		-		0	0		0	
Alt. 4	+	LT more positive	+	Limited groundfish benefits	++	++	Positive benefits of knowledge gained, limited effects on fishing distribution expected		not yet evaluated in DEIS
Alt. 5	Negl	Depends on overlap with HMAs.	+		++	++	Helps decrease the uncertainty regarding the benefit/cost trade-off of Alternatives 2 – 4	0	not yet evaluated in DEIS, likely neutral or negligible based on impacts of other DHRA alts

Framework adjustment and monitoring alternatives

A regular framework adjustment process would ensure that reevaluation of spatial management performance and effects on groundfish productivity would be conducted in a holistic rather than piecemeal fashion.

It also establishes the expectation that habitat and groundfish spawning management via area-based fishery restriction will be periodically reviewed so that the restricted areas that are selected are those areas that provide the greatest potential for protecting essential fish habitat and helping stocks rebuild.

Current sources of data will likely not be sufficient to monitor the proposed closed areas due to their small sizes. Identification of monitoring and research needs specific to spatial management issues would promote and enhance collection of data and scientific analyses that would inform future decisions.

The Council may select either no action (Alternative 1) or updated approach (Alternative 2).

Volume 3, Section 2.4:

Alternatives under consideration

1. Current ad-hoc initiation of actions to adjust of spatial management measures, current monitoring
2. Planned framework adjustment process, request for additional monitoring:
   - Specify additional spatial management measures as frameworkable in various NEFMC FMPs,
   - Develop a regular, strategic process to review the effectiveness of spatial management measures, and
   - Define a series of research priorities related to the review and development of spatial management measures.

Important considerations, Draft Environmental Impact Statement references

- Ten year review is timeframe identified in the document
- Preliminary impacts analysis on page 464

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List of management alternatives and component areas

Habitat management alternatives:

Sub-region	Alt	Description	Identified by	Closed to	MTBG closed (nm^2)	Gear mod closed (nm^2)	Grndfish gear closed (nm^2)
WGOM	Alt. 1	WGOM EFH	Status quo	MBTG	662	0	883
WGOM	Alt. 2	No closed areas in sub-region	No closure alternative	No gear closure	0	0	0
WGOM	Alt. 3	Bigelow Bight Large & Stellwagen Large	Grfish hotspot analysis & SASI	MBTG	836	0	0
WGOM	Alt. 4	Bigelow Bight Large, Jeffreys Ledge & Stellwagen Small	Grfish hotspot analysis & SASI	MBTG	902	0	0
WGOM	Alt. 5	Bigelow Bight Small, Jeffreys Ledge & Stellwagen Small	Grfish hotspot analysis & SASI	MBTG	572	0	0
WGOM	Alt. 6	Stellwagen Large	SASI	MBTG	343	0	0
WGOM	Alt. 7A	Existing roller gear	Grfish hotspot analysis & SASI	12" roller gear restriction	0	3302	0
WGOM	Alt. 7B	Various HMA areas combined	Grfish hotspot analysis & SASI	12" roller gear restriction	0	1209	0
CGOM	Alt. 1	Cashes Ledge & Jeffries Bank EFH	Status quo	MBTG	275	0	400
CGOM	Alt. 2	No closed areas in sub-region	No closure alternative	No gear closure	0	0	0
CGOM	Alt. 3	Platts Bank, Fippennies Ledge, Jeffreys Bank and Cashes Ledge w Ammen rock	SASI	MBTG, no fishing Ammen rock	273 (4)	0	0
CGOM	Alt. 4	Jeffreys Bank, Cashes Ledge w Ammen rock	SASI	MBTG, no fishing Ammen rock	238 (4)	0	0
EGOM	Alt. 1	No closed areas in sub-region	No closure alternative	No gear closure	0	0	0
EGOM	Alt. 2	Machias & EGOM Large	Grfish hotspot analysis	MBTG	591	0	0
EGOM	Alt. 3	Machias, EGOM Small & Toothaker Ridge	Grfish hotspot analysis & SASI	MBTG	442	0	0
GB	Alt. 1	CAII, CAI, and NLS EFH and GF	Status quo	MBTG	922	0	3149
GB	Alt. 2	No closed areas in sub-region	No closure alternative	No gear closure	0	0	0
GB	Alt. 3	Northern Edge	Grfish hotspot analysis & SASI	MBTG	139	0	0

Sub-region	Alt	Description	Identified by	Closed to	MTBG closed (nm^2)	Gear mod closed (nm^2)	Grndfish gear closed (nm^2)
GB	Alt. 4	Northern Edge & Georges Shoal Small	SASI	MBTG	139	313	0
GB	Alt. 5	Georges Shoal MBTG and gear mod areas	Industry	MBTG & gear modification	270	1994	0
GB	Alt. 6A	CAII EFH expansion	Grfish hotspot analysis & SASI	MBTG	336	0	0
GB	Alt. 6B	CAII EFH expansion with buffer	Council	MBTG	234	0	0
GSC	Alt. 1	NL EFH and NL groundfish	Status quo	MBTG	987	0	1822
GSC	Alt. 2	No closed areas in sub-region	No closure alternative	No gear closure	0	0	0
GSC	Alt. 3	GSC extended and Cox Ledge	SASI	MBTG	1040	0	0
GSC	Alt. 4	GSC and Cox Ledge	SASI	MBTG	810	0	0
GSC	Alt. 5	Nantucket Shoals and Cox Ledge	SASI	MBTG	747	0	0
GSC	Alt. 6	GSC gear mod, Cox Ledge, and Nantucket Shoals MBTG	Industry, SASI	MBTG & gear modification	923	670	0

Spawning management alternatives:

Region	Alternative	Description	Identified by	Closed to	Area closed (nm^2)
GOM	Alt. 1	WGOM, CL & rolling closures	Status quo	Commercial (and in some case recreational) groundfish gear	5220
GOM	Alt. 2A and 2B	Seasonal closures; Whaleback and Mass Bay Areas	Grfish hotspot analysis; modification of no action areas	Commercial (and poss. recreational) groundfish gear	4820
GB	Alt. 1	CAI, CAII, and NLSA	Status quo	Commercial (and in some case recreational) groundfish gear	11345
GB	Alt. 2A and 2B	CAI and CAII, Feb-Apr	Council; areas were originally spawning closures	Commercial (and poss. recreational) groundfish gear	6298
GB	Alt. 3A and 3B	CAI N and CAII, Feb-Apr	Council; areas were originally spawning closures	Commercial (and poss. recreational) groundfish gear	4566

Habitat research alternatives:

Sub-region	Alternative	Description	Identified by	Closed to	MTBG closed (nm^2)	Groundfish gear closed (nm)
	Alt. 1 (No Action)	No DHRAs designated	Status quo	No additional gears	0	0
EGOM	Alt. 2	Eastern Maine	Habitat PDT	MBTG	141	0
WGOM	Alt. 3A and 3B	Stellwagen with Ref Area	Habitat PDT	MTBG, commercial groundfish gear & recreational gears	343	343 (56 to recreational)
WGOM	Alt. 3C	Stellwagen with no Ref Area	Habitat PDT	MTBG, commercial groundfish gear	343	343
GB	Alt. 4	CAII S	Habitat PDT	MBTG	170	0
GB	Alt. 5	Sunset provision	Habitat PDT	n/a	n/a	n/a

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Other considerations and issues

These issues will be identified in the public hearing document accompanied by any policy guidance provided by the Council at their February meeting. This is not a complete list of issues; if others are identified by the Council they could also be discussed in the public hearing document.

What happens upon implementation in terms of scallop fishery access?

The scallop fishery uses rotational management, and there are areas that might reopen under OA2 that would make sense as rotational access areas, not as open areas. However, OA2 does not include provisions to identify new or modified access area boundaries; a possible likely action in which to develop these boundaries would be the 2015 scallop specifications framework. If there is a window of time between implementation of OA2 and implementation of this framework, the Council may wish to state that reopening of certain areas to the scallop fishery would be delayed until the framework is in place. It would be helpful for the Council to indicate such a recommendation at this meeting or in the near term. There is some discussion of this issue at the end of the memo from the Scallop PDT (Document 7).

Status of Multispecies Special Access Programs

There are SAPs within both the CAI and CAII groundfish closed areas that would become somewhat moot if these areas are only closed seasonally. The Council may wish to reconsider or modify these programs in a trailing action if as a result of OA2 the closed areas no longer exist on a year round basis.

Status of exemption areas

Some fisheries operate within exemption areas specified in the Multispecies FMP, for example the small-mesh whiting fishery and the scallop general category fishery. If habitat and/or year round groundfish closures change, it may make sense to reconsider some of these exemption area boundaries, as they abut one another, and different exemption areas might be appropriate without the constraint of existing closures. Such modifications would be appropriate as a trailing action to OA2.

Regulation of lobster fishing

There has been discussion during development of this action as to whether the Council can or should regulate lobster fishing for the purpose of habitat management, groundfish spawning management, or research, in the context of both the seabed impacts of lobster trap gear and the potential for the gear to capture benthic species including groundfish. This issue has been raised specifically in the context of the Ammen Rock HMA, which is proposed as a habitat closure to all gear types except lobster traps, and the Stellwagen DHRA reference area, which would be closed to many but not all types of gears with the intent of limiting most groundfish removals from the area. GARFO has advised that lobster fishing could be restricted within NEFMC management plans if the Council can demonstrate such a restriction is needed to successfully manage a species in one of its FMPs. The Council may want to coordinate with the ASMFC before developing measures that may restrict the lobster fishery.

Restrictions in spawning areas

The no action and action alternative spawning areas described in this document have a variety of restrictions and exemptions identified, depending on the measures currently employed in the various areas. Because these measures vary currently, the action alternative measures vary by area as well. This

may or may not be the Council's intent but the issue should be clarified if possible before public hearings begin. Specifically, the current Gulf of Maine Cod Spawning Protection (Whaleback) Area and the new Massachusetts Bay are proposed as fairly restrictive areas where many types of fishing would be prohibited, while there are more exemptions allowed in the rolling closures and CAI and CAII as the alternatives are currently written. This may be appropriate given area size, season, groundfish bycatch rates, and potential for various gears to impact spawning behavior, but fewer exemptions would provide more complete spawning protection.

Bycatch monitoring in the herring fishery in year-round closures

Currently herring vessels have bycatch monitoring requirements when fishing in the year round groundfish closed areas. If these areas are removed or made seasonal, the Council should consider whether different monitoring areas are necessary for herring fishing in the Georges Bank region. There is a herring action to be completed in 2014 that will address other monitoring issues in the fishery.

Guide to impacts analysis tables

Symbol	Meaning
+++	highly positive
++	positive
+	slightly positive
0	neutral
-	slightly negative
--	negative
---	highly negative
Negl	negligible
Unk	Unknown or uncertain