

Brad McHale - NOAA Federal

From: Brad McHale - NOAA Federal
Sent: Wednesday, October 28, 2015 10:41 AM
To: Margo Schulze-Haugen - NOAA Federal
Subject: Fwd: Heezen and Nygren Canyon
Attachments: Briefing Document Canyons and Seamounts (1).docx

Here we go again....

I'm thinking I will need Jen, George, Joe, and Randy's assistance.

----- Forwarded message -----

From: **Heather Sagar - NOAA Federal** <heather.sagar@noaa.gov>
Date: Wed, Oct 28, 2015 at 8:58 AM
Subject: Heezen and Nygren Canyon
To: Lou Chiarella - NOAA Federal <lou.chiarella@noaa.gov>, Brad McHale - NOAA Federal <brad.mchale@noaa.gov>, Michael Pentony - NOAA Federal <michael.pentony@noaa.gov>
Cc: Daniel Morris - NOAA Federal <daniel.morris@noaa.gov>, John Bullard - NOAA Federal <john.bullard@noaa.gov>, Alan Risenhoover <alan.risenhoover@noaa.gov>

Hi Lou, Michael and Brad-

We have been requested to pull together a similar paper we drafted previously on Heezen and Nygren Canyons. I think you can use the briefing document (attached) as the template. This will likely need to be a quick turn around but I do not have a deadline yet. I wanted to let you know as soon as I could.

If you need to pull anyone other than the 6 people on this email into this, please give me a call to discuss.

Thanks (and sorry)-
Heather

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1. Proposal – NAME HERE

2. Background

- Area begins 105 nautical miles southeast of Cape Cod, MA, at the head of Oceanographer, Gilbert, and Lydonia Submarine Canyons;
- Area continues southeast for another 108 nm and includes four seamounts of the New England Seamount Chain
- Area terminates at the outer boundary of the EEZ.
- Encompasses approximately 3,755 square nautical miles (roughly the size of the State Connecticut)
- The purpose is to protect this mostly pristine and fragile deep sea ecosystem

3. Scientific Interest

The New England Seamount Chain is a line of over 30 extinct undersea volcanoes running from the southern side of Georges Bank to a point midway across the western Atlantic Ocean. The proposed area includes the only four seamounts in the Atlantic Ocean that are located within the boundary of the United States Exclusive Economic Zone (EEZ) and are the oldest seamounts in the New England Chain. The largest, Bear Seamount, is about 100 million years old. It rises 2,000 to 3,000 meters from the seafloor to within 1,100 meters of the sea surface. Three large submarine canyons that cut into the outer continental shelf are also located within the designated area. The canyons and seamounts along the U.S. Atlantic coast have been the subject of a great deal of scientific interest for many years. Recent NOAA-funded explorations of all three canyons and two of the U.S. seamounts have confirmed that they support highly diverse biological communities that include deep-sea corals and a wide array of fish and invertebrate species that rely on them. Because of their steep sides, seamounts and canyons also create currents and eddies that enhance productivity and provide feeding grounds for pelagic animals such as squid, tuna, and sharks, and for marine mammals and seabirds. Corals that inhabit submarine canyons and seamounts are extremely sensitive to disturbance, especially from bottom-tending fishing gear and other extractive activities, and grow very slowly with life-spans of hundreds or even thousands of years. Regional fishery management councils have taken significant action in recent years to protect deep-sea corals and canyon habitats from the adverse effects of fishing.

4. Environmental Impacts of Fishing and Non-Fishing Activities

- Bottom-tending fishing gear can impact deep sea corals (includes mobile and fixed gear)
- Corals could take hundreds to thousands of years to regrow
- Pelagic fishing gears do not impact benthic organisms or habitats
- Non-fishing impacts are associated with extractive activities such as mining, oil and gas exploration and drilling,
- Spills and leaks associated with drilling - contaminate seafloor, water column and organisms in those locations
- Mining activities can cause significant impact at the surface due to discharge of tailings
- Trans-Atlantic cables and pipelines can impact the seafloor by placing on top of important habitats

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- Vessel discharges (ballast water, sewage) can impact water column habitat
- Activities that require use of acoustic blasts through the water column, such as geological and seismic testing and certain navy operations may impact a variety of animals in the area

5. Relevance to Protected Species

- No critical habitats in or around this location
- Kemps ridley, green, leatherback, and loggerhead sea turtles can be found in the identified canyons in pelagic areas searching for food or migrating through the area.. These areas are used as part of their migratory patterns and/or spontaneous feeding.
- Several species of small and large cetaceans utilize these areas for migration and/or spontaneous feeding. Particularly important are the large whales- north Atlantic right whale, humpback, finback and sei whales.

6. Existing Management of Area

New England and Mid-Atlantic Fishery Management Councils currently have habitat protected areas in Oceanographer and Lydonia Canyons to protect deep sea corals and essential fish habitat.

- The Omnibus Essential Fish Habitat Amendment 2, which is under development, designates the canyons and seamounts as Habitat Areas of Particular Concern (NEFMC)
- Monkfish Amendment 2 prohibits fishing on a monkfish days-at-sea in Oceanographer and Lydonia Canyons (NEFMC/MAFMC)
- Mackerel, Squid, Butterfish Amendment 9 prohibits all bottom-tending mobile gear in Oceanographer and Lydonia Canyons (MAFMC)
- Tilefish Amendment 1 prohibits use of all bottom-tending mobile gear in Oceanographer and Lydonia Canyons (MAFMC)
- Currently no habitat management within Gilbert Canyon

7. Fisheries and their Economic Importance

There are several fisheries that take place around the landward edges of the canyons; however, few fisheries actually occur in the area under consideration. Shifting the landward boundary to shallower water (i.e., shallower than the established fishery boundaries) would more significantly impact a number of fisheries, including monkfish, squid, whiting, and groundfish. Some lobster fishing may occur within the boundaries of the proposed area, but it is difficult to say with certainty because of the available data. However, it does not appear that any one port or subset of the trawl, dredge, or lobster fisheries is overly dependent on this area and would likely be able to recover any lost revenues by fishing elsewhere. Atlantic deep-sea red crab and commercial and recreational pelagic fisheries for highly migratory species are the only fisheries that have a substantial portion of their landings from within the proposed area.

The red crab fishery is a small fishery, primarily homeported out of New Bedford, Massachusetts. After years of sending red crab to Canada for processing, the industry recently built their own processing plant in New Bedford, employing approximately 75 people annually, and processing 90 percent of the annual red crab landings. In addition, the red crab fishery

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became the first Marine Stewardship Council-certified sustainable fishery on the east coast of U.S. in 2009.

Top Managed Species Estimated Annual Values (2014 dollars) from Proposed Area (GARFO 2005-2014, averaged) (HMS 2006-2012, averaged)

Species	Canyon Area ^a	All Areas ^b	% Canyon Area
Red Crab	\$210,942	\$3,110,925	6.8%
Shortfin Mako	\$17,951	\$304,831	5.8%
Swordfish	\$410,212	\$18,607,430	2.0%
Bigeye Tuna	\$87,672	\$5,571,120	1.6%
Albacore Tuna	\$5,825	\$442,048	1.3%
Yellowfin Tuna	\$149,673	\$12,486,796	1%
Silver Hake (Whiting)	\$26,678	\$10,356,004	0.26%
Yellowtail Flounder	\$12,217	\$6,646,278	0.18%
Haddock	\$26,745	\$14,751,300	0.18%
Winter Flounder (Blackback)	\$7,149	\$10,470,757	0.07%
Longfin Squid	\$16,402	\$26,570,083	0.06%
Monkfish	\$17,156	\$28,646,702	0.06%
White Hake	\$3,083	\$5,282,302	0.06%
Sea Scallops	\$245,846 ^c	\$477,047,451	0.05%
Cod	\$9,130	\$24,633,243	0.04%
Summer Flounder (Fluke)	\$4,322	\$28,763,402	0.02%
Lobster	\$38,491 ^d	\$438,455,630	0.01%

^a Canyon area revenue estimated from GARFO Vessel Trip Reports, as of July 8, 2015

^b All areas revenue calculated from GARFO Dealer Data (CFDERS), as of July 14, 2015

^c Given the geography of the proposed area and the coarseness of the data, it is unlikely that the scallop fishing actually occurred inside the boundaries.

^d This is an underestimate of lobster fishing activity. Only 75 percent of federally permitted lobster vessels authorized to fish in this general area are required to submit VTRs.

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8. Relevant International Actions

- The Northwest Atlantic Fisheries Organization (NAFO) closed many of the Western Atlantic seamounts in international waters to bottom fishing activity in 2007 to protect vulnerable marine ecosystems and is likely to extend protection to include the remaining seamounts in the NAFO convention area at their annual meeting this fall. If that happens, the four U.S. seamounts would be the only four seamounts in the New England Seamount Chain that would not be protected.

9. Options for Management

A. Geographic Boundaries:

- Landward edge follows existing Council habitat management areas and 400 m to 500 m depth contours to incorporate Gilbert Canyon (**)
- Landward edge is straight line encompassing all three canyons in shallower water.

B. Vertical Boundaries:

- Area includes sea floor and entire water column (**)
- Area includes the seafloor and associated benthic fauna

C. Fishing Activities

a. Bottom Fishing (Commercial)

- Prohibit all Bottom Tending Gear with the exception of Red Crab pots (**)
- Prohibit all Bottom Tending Mobile Gear (trawls and dredges)
- Prohibit all Bottom Tending Gear (includes mobile and fixed gears)
- Prohibit all Bottom Tending Gear with exception of red crab and lobster pots
- No prohibition on bottom fishing activities

b. Mid-Water Trawl Fishing

- Prohibit mid-water trawl fishing (**)
- No prohibition on mid-water trawl fishing

c. Pelagic HMS Fishing

- Recreational Fishing
 - a. No prohibition on recreational pelagic HMS fishing (**)
 - b. Prohibit recreational pelagic HMS fishing
- Commercial Fishing (Longline and Handgear)
 - a. No prohibition on commercial pelagic HMS fishing (**)
 - b. Prohibit commercial pelagic HMS fishing

D. Non-Fishing Activities

- Prohibit all non-fishing activities which contact the seafloor or benthic fauna, except approved research (**)
- Prohibit activities that occur on the sea surface or in the water column
- No prohibitions

(**) Indicates preferred option

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10. Rationale for Preferred Options and Ramifications:

A. Geographic Boundaries

Landward edge follows existing Council habitat management areas and 400 m to 500 m depth contours to incorporate Gilbert Canyon

- Incorporates the boundaries established by the MAFMC and NEFMC for Oceanographer and Lydonia Canyon
- Capitalizes on the significant work and public process undertaken by both Councils.
- Method to establish the landward boundary of Gilbert Canyon is similar to that used by both Councils
- Landward boundary minimizes economic impact of additional management on fisheries
- Shallower boundary would have significant logistical and economic impacts to several important fisheries
- Using existing boundaries is simpler and more enforceable

Red Flags: Any designation within the jurisdiction of the New England or Mid Atlantic Fishery Management Councils, as well as the Secretary of Commerce as delegated to NMFS/HMS Management Division, that restricts fishing activities will be seen as usurping their authorities. These processes are rigorous and provide for significant public input which this process does not. However, following the Council lead and using the geographic boundary that incorporates existing habitat management areas may moderate adverse reactions. Some from the fishing industry will react harshly regardless of the area selected just out of principal with respect to broadly limiting fishing activities.

B. Vertical Boundaries:

Area includes sea floor and entire water column

- Allows for the most comprehensive protection of the natural resources of the area
- Can manage the entire landscape
- The water column is very productive due to unique oceanographic conditions created around canyons and seamounts
- Combination of seafloor and water column benefits more species including HMS, marine mammals and seabirds
- Area can be managed more efficiently and effectively
- Easier to enforce management measures associated with surface location

Red Flags: Any designation within the jurisdiction of the New England or Mid Atlantic Fishery Management Councils, as well as the Secretary of Commerce as delegated to NMFS/HMS Management Division, that restricts fishing activities will be seen as usurping their authorities. Designation of the entire area will elicit harsh criticism from both commercial and recreational fisherman that currently fish in and around this area, particularly if it leads to additional prohibitions on fishing gear. There may also be concerns raised by marine transportation industry regarding any uncertainties over vessel/shipping activities.

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C. Fishing Activities:

Prohibit all fishing gear, except directed red crab and commercial and recreational pelagic HMS fisheries

- Exempt commercial red crab fishery
 - The red crab fishery is limited in its impacts on habitat and corals in a number of ways:
 - Only 2 or 3 vessels are active in a given year, and each vessel is limited to 600 traps per year.
 - The fishery limited to males only and are fished in a narrow depth range of 600-650 m
 - Red crab pots are set primarily in flat, soft-bottom habitats where larger, more vulnerable deep-sea corals do not occur
 - Roughly 20 percent of the annual red crab landings are coming from the statistical area that covers the canyons, with 7 percent of the annual landings reported from within the area itself.
- Exempt recreational HMS fisheries
 - Gears used by recreational HMS fisheries are pelagic and do not interact with the benthic environments or the associate habitats
 - HMS travel long distances in short amounts of time, thus small area management techniques do not provide benefits to these species
- Exempt commercial pelagic HMS fisheries
 - Gears used by commercial pelagic HMS fisheries do not interact with the benthic environments or the associate habitats
 - HMS travel long distances in short amounts of time, thus small area management techniques do not provide benefits to these species
 - Commercial HMS vessels are highly monitored with mandatory Vessel Monitoring Systems (Location) and Electronic Monitoring Systems (Video)

Red Flags: The NEFMC, MAFMC, as well as HMS Advisors will most likely criticize any fishery management actions that arise out of this process, as both Councils and HMS have managed fisheries that operate in this vicinity and have already implemented habitat protection measures and regulations in two of the canyons. Additionally, the ASMFC would also be concerned because they have the primary responsibility for managing the lobster fishery.

The Atlantic Offshore Lobstermen's Association will likely have significant objections and may voice their objections through the political process. These objections would be especially vocal if an exemption is granted to the red crab fishery, but not the lobster fishery. However, there are substantial differences between these two pot fisheries, including: (1) Scale -- there are far more lobster vessels that could potentially fish in the area than red crab vessels (137 lobster vessels are authorized for the general area; only 5 red crab vessels) and the footprint of the red crab fishery is small and data are more available because of the reporting requirements; and (2) dependence on the area -- as described in section 7, a very small amount of lobster fishing is coming from the

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area (less than half of a percent), compared to the much larger proportion of red crab landings reported in and around the proposed area.

As proposed, mid-water trawls, which have been shown to occasionally fish on or near the seafloor, would be prohibited. However, there should not be a significant outcry because there is currently no mid-water trawl fishery in this location. There may be some concerns raised about the potential for future exploratory fisheries around the seamounts.

The Bluewater Fishermen's Association will also likely have significant objections and may voice their objections through the political process. These objections would be especially vocal if an exemption is granted to the recreational, but not commercial, HMS fishery, as both recreational and commercial HMS fisheries deploy gear types that do not interact with the benthic environment. The pelagic longline fishery also has extensive monitoring and reporting requirements they must currently follow to utilize this particular gear type. As currently proposed, the commercial HMS bottom longline fishery would also be prohibited. It is expected that they would also object particularly if the pelagic gear sector would be exempt.

The addition of Gilbert Canyon to the area that is closed to all bottom tending gear may also elicit negative reactions from bottom tending gear fisheries such as the squid, tilefish, and monkfish fisheries. However, most of this concern should be abated by the depth of the landward edge of the area being approximately 450 to 500 m. Some from the fishing industry may react harshly to gear prohibitions just out of principal with respect to broadly limiting fishing activities.

D. Non-fishing Activities

All non-fishing activities that would contact the seafloor or associated benthic fauna should be prohibited to insure the protection of the deep sea ecosystem

- Activities that dredge, dig, or scrape the sea floor could have significant permanent impacts to this ecosystem
- Activities include mineral mining, gas exploration and drilling and other extractive activities.
- Surface activities associated with seafloor activities, such as discharge of mining tailings into surface waters would also be controlled through prohibition of seafloor activities
- Siesmic/geological testing and certain navy activities that use acoustic blast may need to be regulated
- Regulation of non-fishing activities may require collaboration with other agencies such as DOI/BOEM
- Marine transportation industries may be supportive of actions that do not regulate vessels and shipping operations

Red Flags: There should be minimal concern about the prohibition of non-fishing activities which contact the seafloor. There are currently no such actions within this area. BOEM has jurisdiction over the leasing of the seafloor on the outer continental shelf for energy development

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and mining. BOEM has shown some interest in the canyon areas but has not expressed a specific need with respect to oil and gas exploration and development of other energy projects, or mining. May need to collaborate with DOI to enact regulations over non-fishing impacts.

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