March 28, 2017

Ms. Leann Bosarge, Chair
Gulf of Mexico Fishery Management Council
2205 North Lois Avenue
Suite 1100
Tampa, Florida 33607

RE: Comments on Coral Amendment 7 Scoping Document

Dear Ms. Bosarge,

On behalf of The Pew Charitable Trusts (Pew), please accept these comments on the Coral Amendment 7 Scoping Document. We appreciate the progress the Gulf of Mexico Fishery Management Council ("Council") has made on identifying important coral habitat in need of protection. Exploration of deep-sea corals on the Gulf of Mexico's once-unreachable seafloor is relatively new. These fragile communities host starfish, lobsters, crabs, sharks, and many fish species, including groupers and snappers. Deepwater corals in the Gulf and elsewhere may have a range of potential benefits, including biomedical uses, and scientists think they have uncovered only a fraction of those.

Yet deep-sea corals face many threats and once damaged may take centuries or longer to recover. They are susceptible to warming waters and ocean acidification, and can be harmed by oil spills and industrial equipment deploying underwater pipelines and cables. Fishing lines and weights, anchors, traps, and trawling may also stir sediment or break corals. At the Council's request, an expert working group of deep-sea coral scientists examined data on species richness, coral cover, presence of long-lived species, presence of unusual species assemblages, and current or potential fishing pressure. Based on this information, they recommended 47 individual deep-sea coral areas for protections as Habitat Areas of Particular Concern (HAPC). However, Coral Amendment 7 identifies only 15 sites for protection with fishing regulations and another eight for boundary designations without regulations.

We urge the Council to include all 47 sites in the actions and alternatives of the forthcoming Options Paper for Amendment 7, with fishing regulations similar to those for HAPCs already designated by the Council. The regulations prohibit bottom-contact fishing gear, including trawls, bottom longlines, traps/pots, dredges, and anchors, but allow trolling, bandit, and rod and real gear, since these activities are less likely to damage corals. For heavily

fished sites, this could include a tiered approach, as suggested by the Council in recommendations addressing the scale of impacts caused by different types of fishing gear to the Flower Garden Banks National Marine Sanctuary.[1]

Other recommendations for Coral Amendment 7 include:

- Organize the amendment to group sites by location and by depth. The Council's corals expert working group divided the Gulf into three depth zones (50-200m, 200-1000 m, >1000m or 164-656 ft., 656-3,280 ft., > 3,280 ft.), and by geographical regions (Florida, Northeast, Northwest, and South Texas). We recommend including a separate action to address the very deep coral sites (*e.g.*, > 1000m or 3,280 ft.) predominantly in the northeastern and northwestern regions, where little, if any, fishing occurs. This approach both corresponds with the distinct physical and biological characteristics of the various coral communities, and may make it easier for stakeholders to assess and comment on potential impacts.

- Work with the state of Florida to reinstate deep-water octocorals in the Coral Fishery Management Plan to protect them in federal waters. Currently, octocorals are primarily harvested by the aquarium trade in nearshore waters, and monitored by the State of Florida.

- Ensure that any of the sites identified by the Council's corals expert work group that do not ultimately get included in the Flower Garden Banks National Marine Sanctuary (FGBNMS) expansion are included in this amendment.

Deep-Sea Corals in the Gulf of Mexico

Researchers and fishermen have known about the presence of deep-sea corals in the Gulf of Mexico for decades, particularly off the coasts of Texas and Louisiana, where exploration for oil and gas resources has been most extensive. Moreover, scientific research in the past decade or so has provided new insights into the complexity, diversity, and fragility of corals in depths from about 150 feet to beyond several thousand feet. Specifically, between 2007 and 2014, over 50 research cruises in the Gulf targeted coral and sponge communities, and surveyed habitat damage from the Deepwater Horizon oil spill.[2]

Important coral types found in the Gulf of Mexico include stony corals (*Lophelia*, *Madrepora*, *Madracis*), black corals (*Antipathes*, *Leiopathes)*, and octocorals or soft corals (*Callagorgia*), sometimes called gorgonians. Black and stony corals have hard skeletons while octocorals have an internal hard skeleton but soft or fleshy material on the outside. Some gorgonians are true soft corals, such as sea fans and whips, and do not have hard skeletons. All of these structure-

forming corals provide habitat and are ecologically important. One type of stony coral in particular, *Lophelia pertusa,* is found throughout the world and is one of the more prominent habitat-forming corals in the Gulf of Mexico, typically residing in depths of 300-800 meters (~1000 to ~2600 feet). Scientific reports indicate *Lophelia* reefs have as high biodiversity as some shallow-water coral reefs.[3]

Coral communities living in waters shallower than about 300 feet (where sunlight is lower but still penetrates to the bottom in an area known as the mesophotic zone), can be much different from corals that live in dark, colder waters often associated with the continental slope. In these zones, shallow-water coral are sometimes found along with deep-sea coral species.

In the ocean depths, corals often grow very slowly, about 4 millimeters to 25 millimeters per year. Individual coral can sometimes be hundreds to thousands of years old. Mounds of corals, which may include dead and live corals, can date to tens of thousands to millions of years old.[4] An individual black coral from Hawaii was aged to over 4,000 years old.[5] Scientists documented black corals over 2,000 years old in the Gulf of Mexico.[6]

Deep-sea corals provide complex and diverse habitat for a variety of marine life, including economically important fish and shrimp. Coral ecosystems provide nursery grounds, protection from predators and contribute to reproduction and feeding for a number of species, including those targeted by commercial fisheries. While research on species associations with these corals is still young, important relationships have been documented in the United States and throughout the world. For instance, *Oculina* reefs off the east coast of Florida and gorgonian communities off Alaska have been identified as essential fish habitat (EFH) for federally managed species.[7] Fishermen observations and scientific surveys are also finding greater abundance of various fish species around deep-coral habitat locally and worldwide. Examples include:

- Redfish around *Lophelia* reefs in the Atlantic Ocean[8]
- Ling and tusk species in the northeast Atlantic Ocean,[9,10]
- Relationships with reef fish around *Oculina* reefs off east Florida,[11,12]
- Orange roughy aggregations off Australia,[13]
- Overall greater species abundance in numerous locations, such as Norway.[14,15,16]

Specific associations of fish and crab species with deep-sea corals are reported in the Gulf of Mexico, and the science indicates coral ecosystems may be preferred habitat for some or all life stages.[17] For example, economically important reef fish including scamp, snowy grouper, warsaw grouper, and speckled hind frequent coral habitat. While not currently targeted by the commercial fishery in the Gulf, golden crab are often found with *Lophelia* mounds off east Florida where a small fishery exists. Red crab aggregate in colonies down to 1000 meters or 3,280 feet.[18] Blackbelly rosefish, which supports a small commercial fishery, with the potential

for increased targeting, live in coral habitat. Catshark egg casings have been observed, sometimes by the thousands throughout an area, attached to gorgonian at Mississippi Canyon 751 in the northern Gulf.[19]

Scientists think they have discovered only a fraction of the potential value of deep-sea corals. For example, some octocorals possess properties that might be useful in treating cancer.[20] The skeletons of black corals contain growth rings similar to trees that provide clues to changes in ocean temperature and water chemistry over time.[21] Bamboo corals may have a use in bone grafting.[22] And several species of deep-sea sponges that share coral habitats contain compounds with anti-inflammatory, anti-viral, and even anti-tumor properties.[23]

Threats to Deep-Sea Corals

Corals are extremely vulnerable to human activities such as anchoring (by fishing and non-fishing vessels), fishing with bottom-contact gear, and oil and gas exploration and extraction. Additionally, corals are susceptible to adverse effects from ocean acidification caused by increasing carbon dioxide absorption and elevating seawater temperatures.[24]

Fishing Gear Impact on Corals

Fishing gear that disturbs the ocean floor, including bottom-trawl gear, traps, pots, anchors, and bottom longlines can all damage corals. Current regulations prohibit the use of fish traps in federal waters of the Gulf; however, shrimp trawls and bottom longlines are heavily used. The golden crab fishery off Florida's west coast has used traps and pots, but indications suggest that the fishery is not currently active in this region.

Deep-sea coral communities in the Gulf harbor economically important fish species such as deepwater groupers, tilefish and other species targeted by commercial fishermen and recreational anglers. Commercial fishermen fish longline gear in some of these coral areas, particularly in the northeastern Gulf and around Pulley Ridge off southwest Florida. Also, fishermen using vertical "bandit" gear fish on the shallower banks, particularly in the northeastern Gulf around the Pinnacles region off Alabama. Commercial trawlers target royal red shrimp that live near deep-sea corals in the northern Gulf (*e.g.*, Viosca Knolls), but also target inshore species such as brown and white shrimp, particularly along the shallower banks of the western Gulf. However, much of the fishing and trawling in the Gulf occurs away from these identified coral areas.

In areas closer to shore, charter for-hire and private recreational anglers fish reef banks with conventional hook-and-line gear. Existing HAPC regulations do not prohibit bandit or rod and reel gear, as those mostly do not contact the bottom. Similarly, shallower coral banks may be

accessible to SCUBA diving, and current regulations allow that activity at HAPCs. However, regulations do prohibit anchoring in HAPCs.

Because the use of trawls is more commonplace worldwide, a large body of scientific data exists on the impacts from this gear.[25] Bottom trawls can cause significant damage to corals directly, in addition to smothering them when they stir up sediment.[26] The most significant trawl damage occurs at the initial pass through coral areas, so preventing that initial damage is critically important for long-term protection.[27] In conversations with members of the industry, shrimpers noted that they avoid areas with corals so as not to damage or lose their expensive gear. Designating coral sites for protection could help them steer clear. Damage from bottom longlines can occur when hooks and lines contact the corals directly. This is particularly the case during gear retrieval, when large swaths may suffer damage.[28, 29] Additionally, longlines may get entangled around coral when hooked fish struggle and try to swim into coral areas.[30]

When disturbed, these slow-growing, long-lived corals can take dozens or hundreds of years to recover, if recovery occurs at all. A recent study off Scotland showed no signs of recovery in coral damaged by bottom trawling eight years after the establishment of a marine protected area.[31] That is consistent with similar studies across the world and in the Southeast. Recovery of corals in the *Oculina* Banks off the east coast of Florida has been very slow[32], as has recovery of offshore reefs near Australia and New Zealand. [33,34] Studies indicate that maintaining high biodiversity of habitat through protection from physical damage helps provide resilience to these areas so they can remain highly functional ecologically.[35] This argues strongly for including fishing regulations for proposed deepwater HAPCs where little to no fishing is occurring at present in an effort to avoid damage to fragile corals, rather than waiting for fishing effort to move into these areas, when it may be too late.

Scientists have documented damage to corals from fishing throughout the world, including other U.S. regions. Trawling had decimated *Oculina* (stony coral) off the east coast of Florida since the 1970s[36] while areas in Alaska have documented damage caused by trawling and longlining.[37] In the Alaska study, trawling damaged about 14% of corals overall off the Aleutian Islands, where 49% of intensively fished areas were damaged. In areas off the Aleutians where longliners frequently fish, approximately 15% of the coral coverage was damaged. In a review of remotely operated vessel (ROV) video surveys off Italy in the Tyrrhenian and Ligurian Seas, one study found evidence of lost fishing gear in up to 36% of the video frames observed.[38] Other studies report whole and broken coral coming up in trawls and on longlines as bycatch.[39, 40, 41, 42, 43, 44, 45, 46]

Although scientists have documented impacts to coral in the Gulf of Mexico, the damage thus far to proposed coral sites from trawling, bottom longlining and other types of fishing gear is not as significant when compared with other regions in the U.S. and around the world. Largely, these

impacts are observations of lost gear such as lines, cables, and nets, or destruction caused by heavy anchors, likely from large non-fishing ships.[47] Specifically, damage from fishing gear was observed at many of the banks in the proposed expansion of the Flower Gardens Banks National Marine Sanctuary,[48, 49] and derelict gear such as trawl nets, lines, and rope was found as well.[50] Additionally, a study in the northeastern Gulf monitoring for damage caused by the 2010 Deepwater Horizon spill found fishing debris in coral areas.[51]

Oil and Gas Activities and Deep-Sea Corals

Oil and gas industry activities can potentially harm coral communities. Damage from oil and gas activities has been documented within East Flower Garden Bank[52] of the FGBNMS and in several banks in the northern Gulf.[53] The biggest concern relates to the catastrophic releases of oil or gas into the seawater and onto the seafloor, as happened with the Deepwater Horizon oil spill in 2010 off Louisiana. Several years after that catastrophe, 38% to 50% of observed large gorgonians were injured, most likely from oil contamination on sites near the blowout.[54] Additionally, physical impacts can occur from drilling and placement of heavy structures (*e.g.*, cables, pipelines, platforms, anchors) on the seafloor and potentially on or near corals. Moreover, the process of removing decommissioned oil and gas platforms can harm corals in addition to killing fish that use these structures as habitat.[55] The release of fluids and muds in the drilling process also poses a risk of contaminating the seafloor and stirring sediment.

Protecting coral habitat has taken on new urgency and focus after the 2010 Deepwater Horizon oil spill. A report from an expert group commissioned by Pew in response to the spill recommended establishing, "*deep-sea biological preserves to protect organisms such as coral that provide habitat structure and install observing systems to monitor the mysterious and intriguing deep-sea system.*"[56] The oil spill damaged deep-sea coral habitat and communities near the well, and some of those affected habitats are included in the Council's original list of coral sites in need of protection.[57,58,59] In addition, the oil spill provides a funding opportunity to study the deep-sea environment and coral communities. Almost $300 million is available in settlement funds to *study, protect, and restore benthic habitat*,[60] including areas under HAPC consideration.

The Gulf Council has a limited role in protecting habitat from oil and gas activities. The Council, in conjunction with the National Oceanographic and Atmospheric Administration (NOAA), may consult with BOEM in order to ensure industrial activities do not affect protected resources and habitat. Consultation does not guarantee full protection from energy development activities as BOEM regulations apply whether within a council-designated HAPC or not. However, BOEM regulations stipulate permitted oil and gas activities through their "Notice to Lessees" intended to protect biologically sensitive shallow-water communities[61] and deep-water benthic communities.[62] **While regulations do not prevent oil and gas operations within HAPCs or**

the Flower Garden Banks, the agency requires buffers from industrial activities around areas designated as "no activity zones" (NAZ), including coral habitat.

Protecting Deep-Sea Corals

Coral Amendment 7 seeks to establish protections for deep-sea coral as HAPC under the Essential Fish Habitat (EFH) provision of the Magnuson-Stevens Fisheries Conservation and Management Act (MSA).[63] The MSA requires regional councils to identify and describe EFH, consider actions to conserve and enhance such habitat, and to minimize, to the extent practicable, the adverse effects on such habitat caused by fishing.[64] HAPCs are a specific category of EFH that are particularly vulnerable to damage caused by fishing operations. For areas identified as HAPCs, fishery management plans must identify actions to encourage the conservation and enhancement of EFH, including recommended options to avoid, minimize, or compensate for adverse effects.[65] Specifically, one recommended option for managing adverse effects from fishing includes time and area closures, such as HAPCs that limit or prohibit fishing or specific equipment.[66] We believe that protecting coral habitat while still allowing fishing near, but not among, corals is compatible for all 47 coral areas identified by the Council's coral experts.[67] This will provide protection from potentially damaging activities, and is an important step toward ecosystem-based fisheries management.

History of Coral Protections in the Gulf of Mexico

In 2005, the Council adopted HAPC status for 17 areas, largely in the northwestern Gulf, through its Generic Amendment 3 (GA 3) to protect deep-sea coral habitat.[68] The Council implemented regulations to prohibit bottom-contact fishing gear in six of these areas. Also in GA 3, the Council adopted 10 HAPC boundaries that do not have specific regulations, and thus remain open to bottom- contact fishing gear. In adopting these areas as HAPCs, each met one or more of the following criteria:

- *Importance of ecological function provided by the habitat;*
- *Extent to which the area or habitat is sensitive to human induced degradation;*
- *Whether and to what extent development activities are stressing the habitat; and*
- *Rarity of the habitat type.*[69]

In 2014, the Council designated a Corals Expert Working Group to identify additional coral areas for potential protection, as recent research cruises had identified important, but unprotected coral hotspots around the Gulf. The Council's coral scientists, including the Council's Deep Sea Coral Expert Working Group and the Coral SSC, reviewed all available data and originally recommended 47 coral areas for protection by examining scientific data on species richness, coral cover, presence of long-lived species, presence of unusual species assemblages, and current

or potential fishing pressure. All of these sites meet at least one, if not all four, of the criteria the Council used to determine whether to protect corals in GA3.

The coral experts further recommended that all 10 of the existing HAPCs with no fishing regulations get full protection, including regulations. Nine of these areas are in the northwestern Gulf while the other, a section of Pulley Ridge, is off southwest Florida (Appendix 2, Figures 1-5). By far, the Pulley Ridge HAPC is the largest existing area, and the proposed expansion of this site would make it the largest new area. About 4.4% (133 square miles) of the Pulley Ridge HAPC (total area = 3,049 sq. mi) has fishing regulations to protect coral habitat while another 257 sq. mi. (8.4% of Pulley Ridge HAPC) is recommended for HAPC expansion (Appendix 2, Figure 2).

The Council then instructed the Coral SSC to prioritize the 10 sites in greatest need of protection, without providing clear guidance or criteria for selecting these sites. The Coral SSC, in conjunction with the Coral and Shrimp Advisory Panels, identified 15 sites for Coral Amendment 7, primarily after considering species richness and geographic location. One concern is that using mainly species richness to prioritize sites may underestimate the ecological value of some coral communities. This approach essentially counts the number of species in an area, but does not directly consider the ecological function of those species, their relative abundance, distribution, or the relative size of the area surveyed by scientists. Those other factors are important to consider as well because they provide a greater level of detail and help standardize the information. Without this standardization, it is difficult to compare and identify the most important individual coral sites.

Of the 47 original sites, we recognize that some areas may be more ecologically important or more vulnerable to fishing impacts. The Coral SSC may have prioritized sites with a higher count of species types simply because more research has been conducted or a higher proportion of the habitat in that site was surveyed. Less studied sites may have significant coral habitat and / or be more vulnerable to fishing, but the Coral SSC may not have prioritized them because of fewer research cruises in that spot. For example, the Coral SSC did not select Okeanos Ridge as a high priority area, but it contains some of the most diverse and numerous corals documented with large colonies of *Lophelia* and black corals (Appendix 4, Figure 6).

Recommendations for Regulations

We strongly urge that actions and alternatives in Coral Amendment 7 include all 47 sites (Appendix 2, Figure 1), **identified by the Council's coral scientists.** The U.S. National Environmental Policy Act (NEPA) requires the council to "*objectively evaluate all reasonable alternatives*" that meet the stated purpose and need of an action.[70] NEPA regulations further stipulate that the council, "*must objectively evaluate all reasonable alternatives, and for*

alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."[71] We recommend that the Council include the broadest range of important sites in the draft environmental impact statement, and develop criteria to prioritize sites for various levels of protections based on their ecological importance and the amount and type of fishing activities occurring in or near each site.

Tiered Approach

While some bottom-gear fishing (*i.e.*,. trawling, longlining) occurs near or within most of the 47 identified coral areas, only a few areas seem to have relatively high fishing pressure (Appendix 3, Tables 5; Appendix 2, Figure 1).

The Council could customize fishing regulations according to bottom-contact gear types and their known or potential impacts to coral habitat. One suggested approach is to identify separate boundaries within which specific activities, such as bottom trawling and anchoring, are not allowed. For instance, the council could require a larger buffer around a coral area to prohibit bottom trawling and its potential impacts to corals both from direct damage and sediment resuspension. In determining an adequate buffer for various fishing activities, the Council could also consider sediment type and information on resuspension.[72,73,74] However, that science is somewhat limited, particularly in addressing adequate buffers to prevent coral suffocation. Thus, we recommend the Council take a conservative approach in order to pro-actively prevent potential damage.

Without Fishing Regulations, Corals Have No True Protections

HAPC status without fishing regulations offers no additional protections from potentially damaging practices, including fishing and oil and gas activities. The primary benefit of HAPCs without fishing regulations is to steer additional research to these areas. In fact, adopting HAPCs without regulations could induce additional fishing pressure by identifying the coral areas as fish habitat. Without fishing regulations, drawing boxes around deep-coral sites only makes them more vulnerable to future fishing, especially as technology and gear improves.

Overlap with the Flower Garden Banks National Marine Sanctuary Proposed Expansion

The Flower Garden Banks National Marine Sanctuary is proposing an expansion that includes most of the current HAPCs with no regulations in the northern Gulf, (all but Jakulla Bank and 29 Fathom) but with somewhat different boundaries (Appendix 2, Figure 3). It remains unclear, however, whether any of these areas will ultimately be included, or if the sanctuary expansion will move forward. The Coral SSC recommended that the Council designate these sites as HAPCs if they are not part of the sanctuary expansion. **We recommend that these sites be**

included as a specific action or alternative(s) in the Options Paper for Amendment **7,** with the understanding that the Council could move the action to considered, but rejected later or not select it as preferred, at the appropriate time.

NOAA's Focus on Coral Protections

The MSA, as amended in 2007, includes a provision directing the Secretary of Commerce to identify and conduct research and monitoring activities on deep-sea corals in consultation with federal fishery management councils and other federal agencies.[75] As part of its five-year Research Plan for 2005-2009, NOAA identified the need for an agency-wide research plan for deep-sea corals. This, in part, has induced new research on deep-sea environments and the impact of human activities, in turn spurring interest and support for protecting deep-sea coral habitat across the U.S. In 2010, NOAA published a Deep-Sea Coral Strategic Plan, of which the primary goal is to *improve the understanding, conservation, and management of deep-sea coral and sponge ecosystems*.[76] NOAA's most recent Report to Congress required by the MSA[77] summarizes recent deep-sea coral research across the country, but also indicates that scientific understanding of coral distribution and biology, and their roles in ecosystems and fisheries, is still in its infancy.[78]

Using recent research and guidance from NOAA's strategic plan, six of the eight U.S. fishery management councils have approved or are pursuing protections of deep-sea coral habitats.[79] For example, the Mid-Atlantic Fishery Management Council approved the "Frank R. Lautenberg Deep-Sea Coral Protection Area", in 2015, which prohibits most bottom fishing in 38,000 square miles of federal waters off the Atlantic coast.[80] Additionally, the South Atlantic Fishery Management Council nearly doubled the size of its *Oculina* HAPC in 2014 to 632 square miles.[81] Regulations allow rock-shrimp vessels, which are required to have VMS units, to transit through the HAPC with nets out of the water and gear properly stowed. In comparison, the total area for all 47 areas identified in the Gulf of Mexico is about 1,200 square miles combined.[82] One site, Pulley Ridge expansion area, accounts for about 22% of that area (257 square miles). The average size of all 47 areas is 25 square miles, or 20 square miles excluding Pulley Ridge. Appendix 5 lists additional examples of coral protections enacted in the U.S. and around the globe.

Conclusion

Deep-sea corals form unique and important habitat for a diversity of marine life including economically important fish species, but they are extremely vulnerable to human-related disturbances due to their fragility and slow growth. The proposed HAPC designations with regulations to prevent bottom contact from select fishing gear and activities offers an opportunity to protect these corals and is an important step toward ecosystem-based fisheries management.

We recommend additional protections for corals to limit the use of potentially damaging fishing gear by considering HAPCs with fishing regulations for all 47 important coral sites originally selected by coral scientists. It is possible to protect all of those sites while allowing certain types of fishing to continue. At this early stage of the amendment development, all options should remain on the table so specific issues can be worked out between stakeholders and the Council.

We look forward to working with the Council and stakeholders to develop and approve an amendment that protects important coral habitat and preserves fishing.

Sincerely,

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Officer, U.S. Oceans, Southeast
The Pew Charitable Trusts

Holly Binns
Director, U.S. Oceans, Southeast
The Pew Charitable Trusts

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APPENDIX 1: List of all Potential HAPCs by Recommended Priority and Status

Table 1. Coral areas prioritized for HAPC status by the Coral SSC that would have fishing regulations.

Site Name	Size (sq. mi.)	Depth (m)	Gulf Region
John Reed Site (North)	18.0	300-900	Florida
Long Mound	18.0	300-700	Florida
Many Mounds	17.3	200-700	Florida
Pulley Ridge	257.2	50-200	Florida
Alabama Alps Reef	3.6	50-200	Northeast
L&W Pinnacles and Scamp Reef	18.0	100-300	Northeast
Mississippi Canyon 118	14.6	800-1500	Northeast
Rough Tongue Reef	18.0	50-200	Northeast
Viosca Knoll 826	13.7	500-900	Northeast
Viosca Knoll 862/906	24.9	300-700	Northeast
AT 047	9.0	800-1500	Northwest
AT 357	9.0	1000-1500	Northwest
Green Canyon 852	5.1	1500-2000	Northwest
Southern Bank	1.0	50-100	South Texas
Unnamed Bank (Harte Bank)	14.4	50-150	South Texas

Table 2. Coral areas recommended for HAPC status by the Coral SSC but without fishing regulations

Site Name	Size (sq. mi.)	Depth (m)	Gulf Region
John Reed Site (South)	9.0	400-1500	Florida
Garden Banks 299	8.7	400-600	Northwest
Garden Banks 535	9.0	500-600	Northwest
Green Canyon 140 and 272	108.0	300-1000	Northwest
Green Canyon 234	18.0	400-900	Northwest
Green Canyon 354	9.0	500-1000	Northwest
Mississippi Canyon 751	9.0	400-600	Northwest
Mississippi Canyon 885	9.0	600-700	Northwest

Table 3. Existing HAPCs without regulations (*included in Alternative 3 for the proposed expansion of the Flower Garden Banks National Marine Sanctuary)

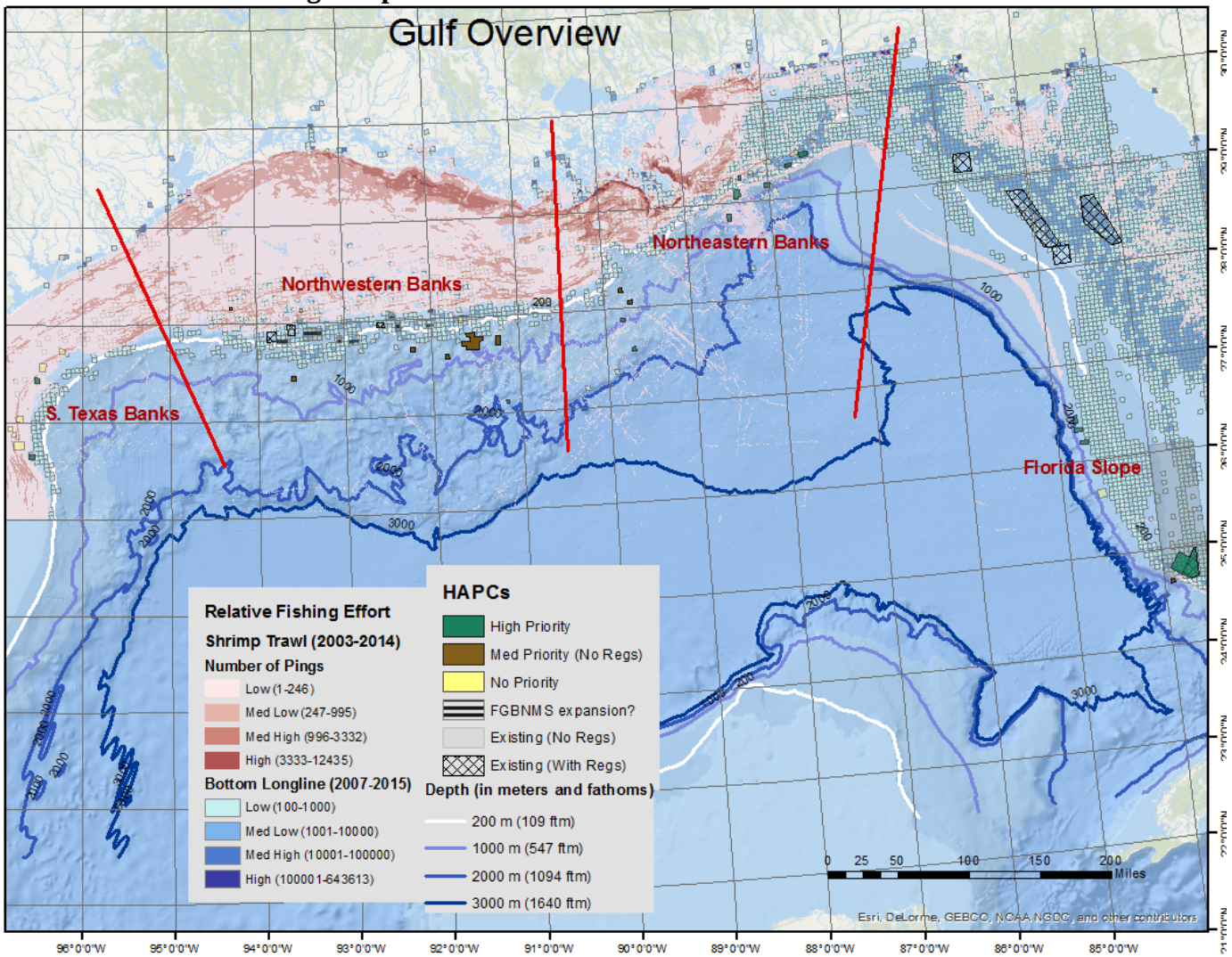
Site Name	Size (sq mi)	Depth (m)	Gulf Region
Pulley Ridge	2922.0	50-100	Florida
29 Fathom Bank	5.7	50-100	Northwest
Alderdice Bank*	8.0	50-100	Northwest
Bouma Bank*	14.6	50-100	Northwest
Geyer Bank*	17.4	100-200	Northwest
Jakkula Bank	14.1	100-300	Northwest
MacNeil Bank	10.7	50-100	Northwest
Parker Bank*	23.9	100-150	Northwest
Rankin Bright Bank*	107.4	1000-200	Northwest
Rezak Sidner Bank*	26.5	100-200	Northwest
Sonnier Bank*	5.6	50-100	Northwest

Table 4. Coral area identified by the Coral Expert Working Group but not prioritized for HAPC status the Coral SSC (*included in at least Alternative 3 for the proposed expansion of the Flower Garden Banks National Marine Sanctuary).

Site Name	Size (sq mi)	Depth (m)	Gulf Region
Okeanos Ridge	36.0	300-900	Florida
Far Tortuga	4.9	50-100	Northeast
Mountain Top Bank 3	5.2	100-200	Northeast
Patch Reef Field and Solitary Mound	14.2	50-100	Northeast
Pinnacle 1 Near West / West Pinnacle 2	7.8	50-150	Northeast
Shark Reef, Triple Top Reef, Double Top Reef	16.7	50-100	Northeast
Elvers Bank*	46.5	100-300	Northwest
Horseshoe Banks*	66.0	100-300	Northwest
Baker Bank	14.9	50-100	South Texas
Big Adam Rock	9.0	50-100	South Texas
Blackfish Ridge	9.9	50-100	South Texas
Dream Bank	21.3	50-100	South Texas
Hospital, North Hospital and Aransas Banks	27.7	50-100	South Texas

APPENDIX 2: Maps of the Gulf of Mexico by Region Illustrating Existing and Potential HAPC Location, and Relative Fishing Effort[1] in the Shrimp Trawl and Bottom Longline Fisheries

Figure 1. Overview of existing and potential new Habitat Areas of Particular Concern in the Gulf of Mexico



[1] Relative fishing effort from shrimp electronic logbook data (2003–2014) and from VMS data (2007-2015) on bottom tending gear (predominantly bottom longline). Aggregated fishing effort data obtained from the National Marine Fisheries Service through Gulf Council staff.

Figure 2. Depiction of existing and potential new HAPCs off West Florida

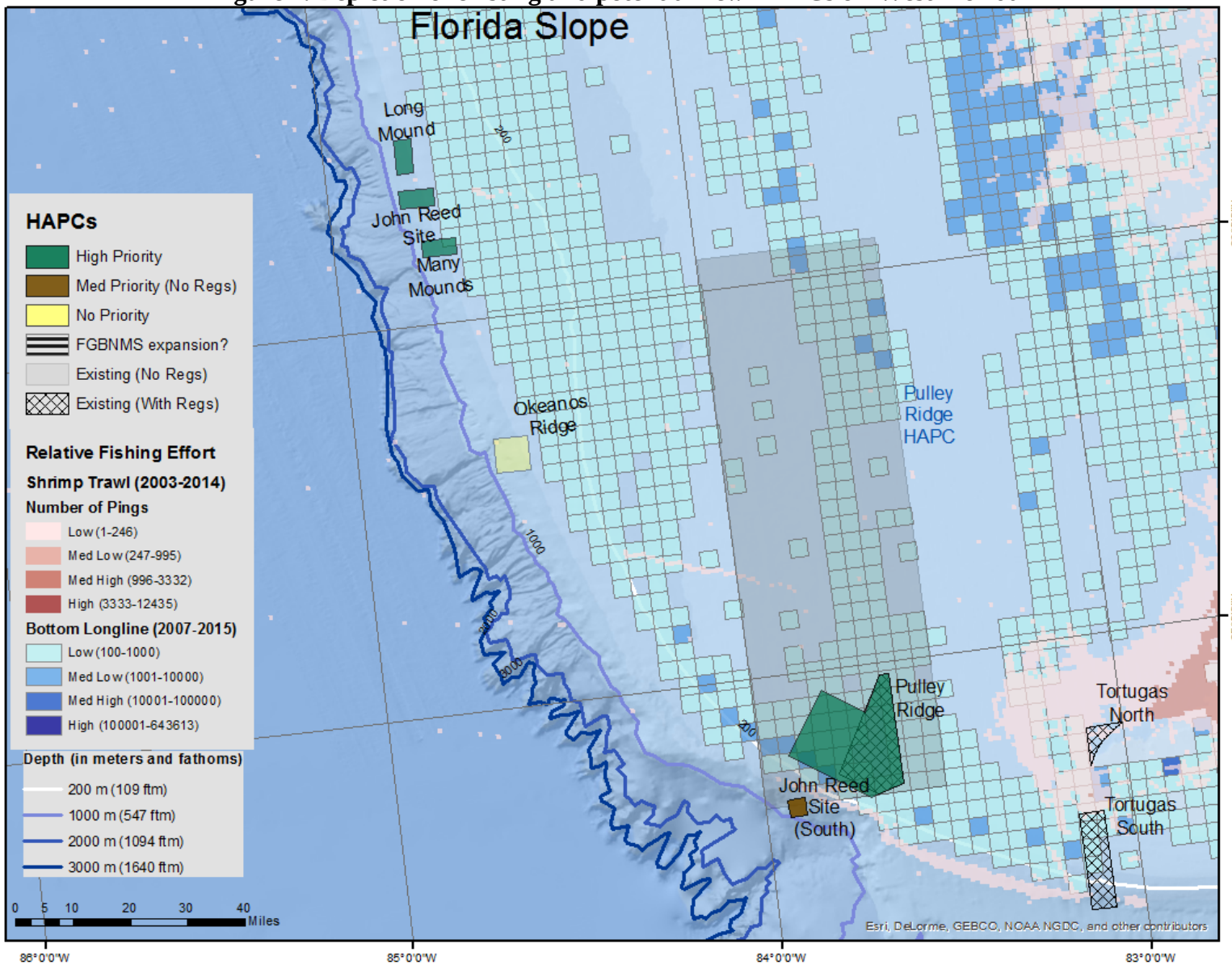


Figure 3. Depiction of the existing and potential new HAPCs in the Northeastern Gulf of Mexico

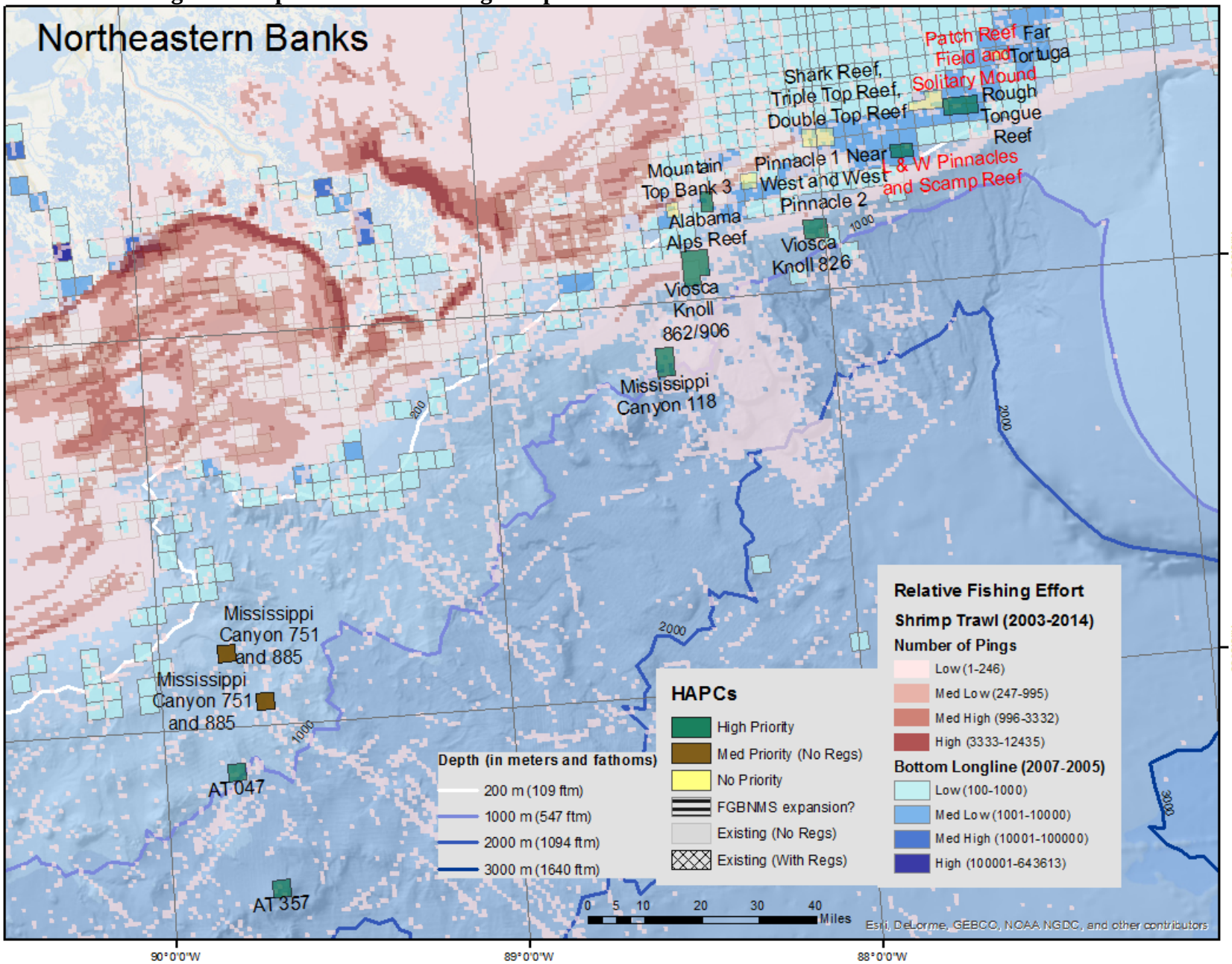


Figure 4. Depiction of the existing and potential new HAPCs in the Northwestern Gulf of Mexico

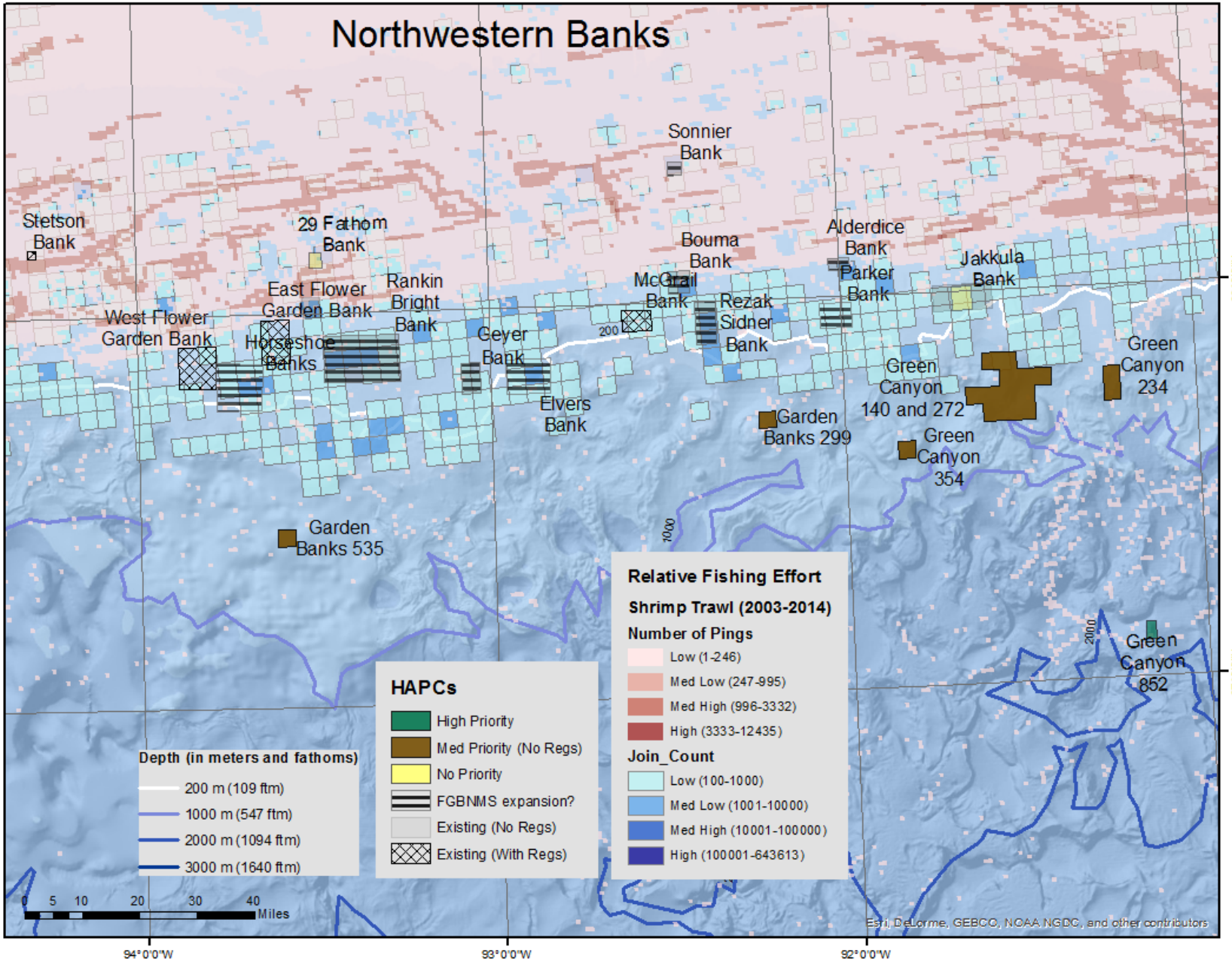
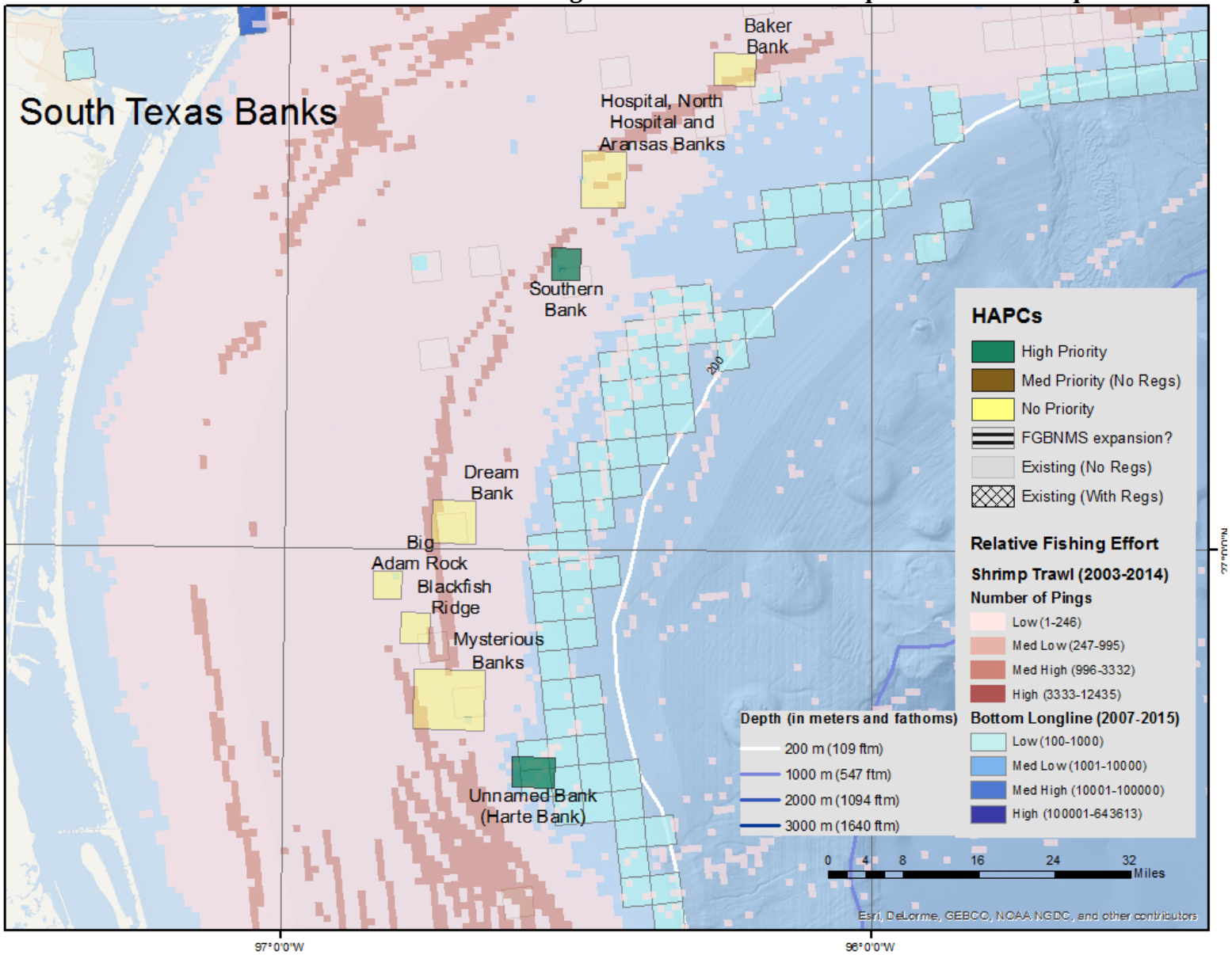


Figure 5. Depiction of the existing and potential new HAPCs off South Texas in the Gulf of Mexico. Boundaries for Southern Bank do not reflect recent modifications trimming down the site from 10.2 square miles to 1.0 square mile



APPENDIX 3: List of Potential HAPCs by Region with Relative fishing Effort per Maps in Appendix 2

Table 5. Relative fishing effort from trawls and bottom longline reef fish by region. Sites with * signify "high priority" areas and ** denotes "medium priority" areas, as determined by the Coral SSC.

Florida Banks

Site Name	Size (sq. mi.)	Depth (m)	Description	Relative Fishing Effort: Shrimp Trawl	Relative Fishing Effort: Reef Fish Longline
Pulley Ridge*	257.2	50-200	shelf edge	none	med high
John Reed Site (North)*	18.0	300-900	slope	none	low
Long Mound*	18.0	300-700	slope	none	low
Many Mounds*	17.3	200-700	slope	none	low
John Reed Site (South)**	9.0	400-1500	slope	none	low
Okeanos Ridge	36.0	300-900	slope	none	low

Northeastern Banks

Site Name	Size (sq. mi.)	Depth (m)	Description	Relative Fishing Effort: Shrimp Trawl	Relative Fishing Effort: Reef Fish Longline
Alabama Alps Reef*	3.6	50-200	shelf edge	low	med low
AT 047*	9.0	800-1500	slope	low	none
AT 357*	9.0	1000-1500	bathyal	low	none
Far Tortuga	4.9	50-100	shelf edge	low	med
L & W Pinnacles and Scamp Reef*	18.0	100-300	shelf edge	low	med low
Mountain Top Bank 3	5.2	100-200	shelf edge	med low	med low
Patch Reef Field and Solitary Mound	14.2	50-100	shelf edge	low	med low
Pinnacle 1 Near West / West Pinnacle 2	7.8	50-150	shelf edge	low	med low
Rough Tongue Reef*	18.0	50-200	shelf edge	low	med low
Shark, Triple Top, Double Top Reefs	16.7	50-100	shelf edge	low	med low
Mississippi Canyon 118*	14.6	800-1500	slope	low	none
Mississippi Canyon 751**	9.0	400-600	slope	low	none
Mississippi Canyon 885**	9.0	600-700	slope	low	none
Viosca Knoll 826*	13.7	500-900	slope	low	low
Viosca Knoll 862/906*	24.9	300-700	slope	med low	low

Northwestern Banks

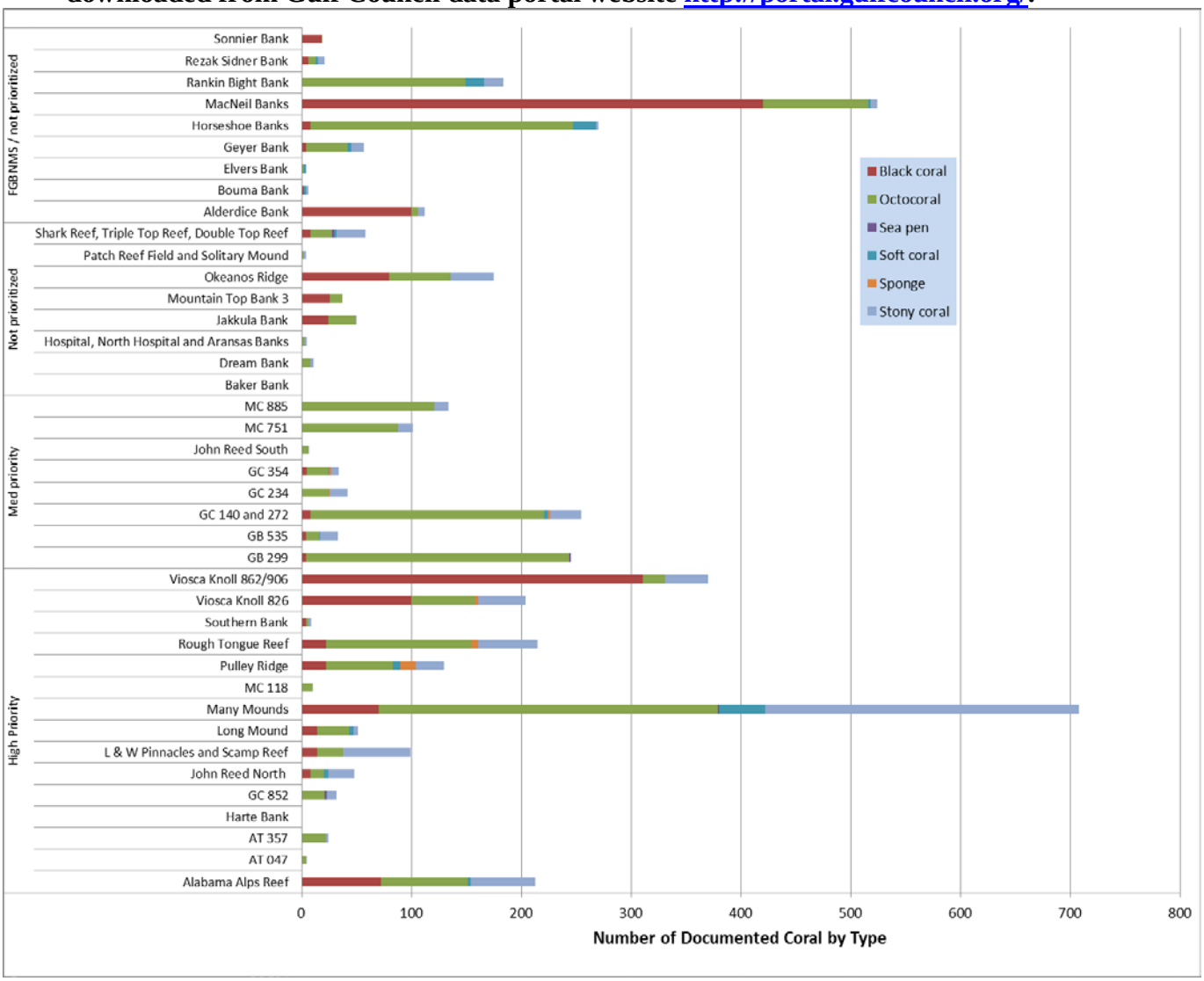
Site Name	Size (sq. mi.)	Depth (m)	Description	Relative Fishing Effort: Shrimp Trawl	Relative Fishing Effort: Reef Fish Longline
29 Fathom Bank	5.7	50-100	shelf edge	low	med low
Alderdice Bank+	8.0	50-100	shelf edge	low	med low
Bouma Bank+	14.6	50-100	shelf edge	low	med low
Elvers Bank+	46.5	100-300	shelf edge	low	med low
Geyer Bank+	17.4	100-200	shelf edge	low	low
Garden Banks 299**	8.7	400-600	slope	low	none
Garden Banks 535**	9.0	500-600	slope	none	none
Green Canyon 140 and 272**	108.0	300-1000	slope	none	none
Green Canyon 234**	18.0	400-900	slope	none	none
Green Canyon 354**	9.0	500-1000	slope	none	none
Green Canyon 852*	5.1	1500-2000	bathyal	low	none
Horseshoe Banks+	66.0	100-300	shelf edge	low	med low
Jakkula Bank	14.1	100-300	shelf edge	none	low
MacNeil Bank	10.7	50-100	shelf edge	low	med low
Parker Bank+	23.9	100-150	shelf edge	none	low
Rankin Bright Bank+	107.4	100-200	shelf edge	low	med low
Rezak Sidner Bank+	26.5	100-200	shelf edge	none	med low
Sonnier Bank+	5.6	50-100	shelf edge	low	med low

South Texas Banks

Site Name	Size (sq. mi.)	Depth (m)	Description	Relative Fishing Effort: Shrimp Trawl	Relative Fishing Effort: Reef Fish Longline
Baker Bank	14.9	50-100	shelf edge	med low	none
Big Adam Rock	9.0	50-100	shelf edge	low	none
Blackfish Ridge	9.9	50-100	shelf edge	low	low
Dream Bank	21.3	50-100	shelf edge	low	low
Hospital, North Hospital & Aransas Banks	27.7	50-100	shelf edge	med low	none
Mysterious Banks	47.5	50-100	shelf edge	low	low
Southern Bank*	1.0	50-100	shelf edge	low	low
Unnamed Bank (Harte Bank)*	14.4	50-150	shelf edge	low	low

APPENDIX 4:Illustration of the Number and Types of Deep-Sea Corals Observed in Each of the Potential HAPCs Originally Recommended by the Coral SSC

Figure 6. Number of observed corals by type in each of the potential HAPCs. Data downloaded from Gulf Council data portal website http://portal.gulfcouncil.org/.



APPENDIX 5: Examples of Conservation Areas Established to Protect Deep-Sea Coral in the U.S. and Elsewhere

- During 2014 and 2015, six of the eight U.S. regional fishery management councils took steps to protect deep-sea corals in their regions.[2]
- The Frank R. Lautenberg Deep-Sea Coral Protection Area, approved by the Mid-Atlantic Fishery Management Council in 2015, prohibits most bottom fishing in 38,000 square miles (sq. mi.) of federal waters off the Atlantic coast.[3]
- President Obama designated almost 5,000 square miles as the Northeast Canyons and Seamounts National Monument southeast of Cape Cod in 2016.[4]
- The South Atlantic Fishery Management Council nearly doubled the size of its *Oculina* HAPC in 2014 to 632 sq. mi.[5] The regulations allow rock-shrimp vessels, which are required to have VMS units, to transit through the HAPC with nets out of the water and gear properly stowed.
- In Alaska, 70,000 sq. mi. are closed to bottom trawling in the eastern Gulf of Alaska, while another 367,000 sq. mi. are closed to trawling along the Aleutian Islands.[6]
- Canada prohibits bottom trawling in a 164 sq. mi. area in the Northeast Channel while allowing bottom longlining in only 10% of that area.[7]
- New Zealand prohibits bottom trawling around 19 seamounts in over 16,000 sq. mi.[8]
- Special Areas of Conservation were designated in Ireland, Sweden, and the United Kingdom.[9]
- The European Commission closed 500 sq. mi. off the northwest coast of Scotland to bottom trawling (Darwin Mounds).[10]
- In 1999, Tasmanian Seamounts Marine Reserve was designated off Australia and prohibits all fishing except for surface longlining.[11]
- Partial closures off Norway protect at least five reef systems from bottom fishing.[12]

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[2] NOAA 2016.Deep Sea Coral Research and Technology Program. 2016 Report to Congress.
[3] https://www.greateratlantic.fisheries.noaa.gov/stories/2016/december/13_deep-sea-coral-protection_area.html
[4] http://www.noaa.gov/news/first-marine-national-monument-created-in-atlantic
[5] https://www.federalregister.gov/documents/2015/07/17/2015-17617/fisheries-of-the-caribbean-gulf-of-mexico-and-south-atlantic-coral-coral-reefs-and-livehard-bottom
[6] Lumsden et al 2007
[7] Freiwald A, Fosså JH, Grehan A, Koslow T, Roberts JM. 2004. Cold-water Coral Reefs. UNEP-WCMC, Cambridge, UK.
[8] Ibid, pg 52.
[9] In Folley et al 2010
[10] Ibid, pg 35
[11] Ibid, pg 51-52
[12] Fosså JH, Lindberg B, Christensen O, Lundalv T, Svellingen I, Mortensen PB, Alvsvag J. 2005. Mapping of *Lophelia* reefs in Norway: experiences and survey methods. In: Freiwald, A, and Roberts JM (eds), 2005, *Cold water corals and ecosystems.* Springer verlag Berlin Heidleberg, 359-91.

OFFSHORE OPERATORS COMMITTEE

March 27, 2017

Submitted via www.gulfcouncil.org

RE: Proposed Deep Sea Coral Amendment 7
Comments from the Offshore Operators Committee

To whom it may concern,

The Offshore Operators Committee (OOC) appreciates the opportunity to provide comments on the proposed Deep Sea Coral Amendment 7 to the Gulf of Mexico Fisheries Management Council (GOMFMC). The OOC is an offshore oil and natural gas trade association that serves as a technical advocate for companies operating in the Gulf of Mexico (GoM). Founded in 1948, the OOC has evolved into the principal technical representative regarding regulation of offshore oil and natural gas exploration, development, and producing operations. The OOC's member companies are responsible for approximately 90% of the oil and natural gas production from the GoM. The comments below are provided on the Draft Scoping Document and Scoping Guide for the proposed Deep Sea Coral Amendment 7 and are offered without prejudice to any of our members who may offer differing or opposing views:

1. The Draft Scoping Document does not Offer an Adequate Number of Options for Consideration

The three options listed in the scoping document all lead to the conclusion that action is necessary through the creation of new habitat areas of particular concern (HAPC), redefining existing HAPC, or reincorporating deep octocorals into the fishery management unit (FMU). An adequate analysis should include additional options, including an option of taking no action, or the use of the GOMFMC's discretionary authority to create "deep-sea coral zones" under §303(b)(2)(B) of the Magnuson-Stevens Act (MSA).

The MSA §303(b)(2)(B) gives Fishery Management Councils discretionary authority to protect deep-sea corals from fishing. Under §303(b)(2)(B), Councils may designate "deep-sea coral zones," including protecting deep-sea corals from physical damage from fishing gear and establishing measures to limit damage to fishing gear from interactions with deep-sea corals. A "deep-sea coral zone" designation would offer additional protection, and should be considered in the Draft Scoping Document and any future proposed actions.

A sound decision or recommendation cannot be made if there has not been an evaluation of sufficient options. It appears that the use of an HAPC designation has already been selected as the final outcome. The OOC recommends that the GOMFMC expand the number of options considered under this proposal including evaluation of a "No Action" alternative and the use of "deep-sea coral zones" as a protective designation.

2. Impacts on Other GoM Regulatory Programs

The Draft Scoping Document raises questions of how the proposed options will integrate with designations managed by other federal agencies. For example, the National Marine Fisheries Service (NMFS) is currently considering alternatives for expanding the Flower Gardens Banks National Marine Sanctuary. In addition, the Bureau of Ocean Energy Management (BOEM) has requirements for the avoidance and protection of

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biologically sensitive features (water depths < 300m) and deepwater corals (water depths > 300m) that are used when leasing tracts for oil and natural gas exploration, development, and transportation activities.

The GOMFMC should consider how proposed Amendment 7 integrates and/or overlaps with the proposals and existing regulations of other federal agencies. Failure to do so will create unnecessary confusion with additional, and potentially conflicting, regulatory requirements that are not well understood, nor easily implemented. The Draft Scoping Document does not outline how the proposed options for creating HAPC's are different from, overlap with, or are made redundant by, the other federal programs in the GoM. The OOC strongly recommends that the Scoping Document clearly describes how Amendment 7 interacts with other GoM offshore federal and state regulatory requirements/guidance.

As discussed earlier, Fishery Management Councils may designate "deep-sea coral zones" under the MSA. Use of a "deep-sea coral zone" designation would provide protection, and would mitigate potential conflicts and confusion with other regulations and activities in the GoM.

3. Economic Analysis is Missing from the Draft Scoping Document

The GoM is an environmentally important resource, but it is also a significant economic resource to the nation. Therefore, it is critically important that proposals, such as Amendment 7, also address economic cost/benefits. The Draft Scoping Document, in its current form, does not address economic resources and the potential impact that proposed Amendment 7 may have on those resources. It is also important not to limit economic analysis to only the fishing industry. A robust and thorough analysis must include economic cost/benefit impacts to all industries that rely on access to the GoM. The OOC recommends that any future evaluation include not only environmental impacts, but economic impacts as well.

The OOC is a strong advocate for balancing all concerns related to the GoM. We believe that environmental protection, safety at sea, and economic development can coexist and thrive. The GoM is proof that effective management of a national environmental resource and a significant economic and energy engine can be achieved. To maintain an effective balance of all interested parties, including the public, all potential interests must be considered in proposals such as Amendment 7.

Thank you for this opportunity to provide constructive comments. If you have any questions, or would like to discuss these comments in more detail, please contact me at greg@offshoreoperators.com.

Sincerely

Greg Southworth
Associate Director
Offshore Operators Committee

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March 23, 2017

Via email to the Gulf of Mexico Fishery Management Council: gulfcouncil@gulfcouncil.org

Leanne Bosarge, Chair
Gulf of Mexico Fishery Management Council
2203 N. Lois Avenue, Suite 1100
Tampa, FL 33607

RE: Scoping Document for Coral Amendment 7 - Recommended Coral Areas Identified as Priority Habitats for Management Consideration in the Gulf of Mexico

Dear Chairwoman Bosarge:

Oceana, the largest international ocean conservation organization solely focused on protecting the world's oceans, appreciates the opportunity to submit comments on the Scoping Document Coral Amendment 7 - Recommended Coral Areas Identified as Priority Habitats for Management Consideration in the Gulf of Mexico ("Scoping Document").[1]

Although deep sea coral inhabit cold, dark, deep water, they are equally as important and complex as their shallow-water counterparts. Deep sea corals offer protection from currents and predators, act as nurseries for juvenile fish, and provide feeding, breeding and spawning areas for numerous fish and shellfish species. Some deep sea corals may also be sources of compounds for the development of new drugs and medical treatments. As with shallow water coral, deep sea coral is also vulnerable to environmental disturbances such as climate change, ocean acidification and pollution as well as physical impacts, including mineral extraction, cable trenching and fishing activities.[2]

Oceana applauds the Gulf Council for their interest in protecting deep sea coral and allowing the public and other stakeholders to be involved in this important process. Scoping is a critically important part of the environmental review process under the National Environmental Policy Act ("NEPA"). To comply with NEPA requirements for scoping as well as requirements for conservation and management of deep sea corals under the Magnuson-Stevens Fishery Management and Conservation Act ("Magnuson-Stevens Act," "MSA" or "the Act"), the Gulf of

[1] Gulf of Mexico Fishery Management Council, Scoping Document Coral Amendment 7: Recommended Coral Areas Identified as Priority Habitats for Management Consideration in the Gulf of Mexico (2017), http://gulfcouncil.org/docs/amendments/Coral%207%20scoping%2002062017.pdf [hereinafter Scoping Document].
[2] André Freiwald et. al, *Cold-water Coral Reefs: Out of Sight – No Longer Out of Mind* 37 (United Nations Environmental Program – World Conservation Monitoring Program 2004).

Mexico Fishery Management Council ("Gulf Council") must significantly amend and improve Amendment 7 following the conclusion of scoping. Oceana urges the Gulf Council to amend the Amendment 7 to incorporate the following recommendations:

- Amendment 7 should include a mechanism to protect deep sea coral under the Magnuson-Stevens Act Section 303(b)(2) discretionary provision in the event protection as Essential Fish Habitat ("EFH") is ineffective or inappropriate for deep sea coral areas.

- Amendment 7 should include an alternative that manages deep sea corals using the discretionary deep sea coral authority of the Magnuson-Stevens Act and the management approach described in NOAA's 2010 Strategic Plan.

- Amendment 7 should include a pathway for areas to be considered and managed if and when new science becomes available.

Although the action described in the Scoping Document is a positive step to protecting deep sea coral in this region, Oceana recommends that the Gulf Council include more clarification and additional management authorities to protect deep sea coral in the Gulf of Mexico.

I. PROCEDURAL BACKGROUND

The National Marine Fisheries Service ("Fisheries Service") and the Gulf Council began managing coral in the Gulf of Mexico jointly with the South Atlantic Fisheries Management Council in 1982. Since then, over 100 species of coral have been added to the Coral Fisheries Management Plan ("FMP"), which is now managed separately by each Council. In 2013, a group of coral and fisheries scientists were brought together by the Gulf Council to discuss how coral may be affected by fishing activities. One of the recommendations from this workshop was to reevaluate coral areas in the Gulf of Mexico that might warrant special protection.[3] Methods to protect coral and coral habitat from activities other than direct harvest include Section 303(b)(2)(B) of the Magnuson Stevens Act or designating particular sites within existing coral Essential Fish Habitat ("EFH") as Habitat Areas of Particular Concern ("HAPC").

In 2014, the Gulf Council convened a group of scientists who identified 47 areas, including HAPCs that are in need of protection. After reviewing the list, the Gulf Council consulted with user groups who would be affected by potential fishing regulation changes by convening their Shrimp, Reef Fish, Coral, and Spiny Lobster Advisory Panels.

In August 2016, the Gulf Council's Scientific Advisors on Coral ("Coral SSC"), the Coral and Shrimp Advisory Panel and a group of longline fishermen further narrowed down the initial 47 areas to 15 priority areas plus seven additional deep water areas that do not require fishing regulations.[4]

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[3] Gulf of Mexico Fishery Management Council, *Final Report Summary – Workshop on Interrelationship between Coral Reefs and Fisheries* 30 (2013), http://portal.gulfcouncil.org/Coral_Workshop_Final_Summary_Report.pdf.
[4] Gulf of Mexico Fishery Management Council, *Scoping Guide Coral Amendment 7* 1–2 (2017), https://gulfcouncil.org/docs/Public%20Hearing%20Guides/Coral%20Amendment%207%20Scoping%20Guide_02-10-2017.pdf.

II. LEGAL BACKGROUND

A. National Environmental Policy Act (NEPA)

NEPA requires federal agencies to evaluate the environmental impacts of major federal actions significantly affecting the health of the human environment.[5] Federal agencies evaluate these significant impacts through an Environmental Impact Statement ("EIS"). Federal agencies must consider alternatives to their proposed actions as well as the environmental impacts of the proposed action and its alternatives.[6] The Council on Environmental Quality considers the analysis of alternatives to be the "heart" of the EIS.[7] An EIS must "rigorously explore[]" "all reasonable alternatives" and the decision maker must consider all such alternatives.[8] Where there are potentially a large number of alternatives, the EIS must analyze and compare "a reasonable number of examples, covering the full spectrum of alternatives."[9]

Scoping is "[a]n early and open process for determining the scope of issues to be addressed and identifying the significant issues related to a proposed action."[10] The purpose of the scoping process is to determine the scope or range of impacts of the proposed action on the human environment. The scoping process determines some of the issues associated with the action and may be used to develop action alternatives as well.[11]

B. Magnuson-Stevens Act

In 1996, the Sustainable Fisheries Act was signed into law, amending the Magnuson-Stevens Act and mandating numerous science, management and conservation elements of FMPs with the fundamental goals of preventing overfishing, rebuilding overfished stocks, protecting EFH, minimizing bycatch, enhancing research and improving monitoring.[12] The 1996 amendments require the eight Regional Fishery Management Councils ("Councils") to describe and identify EFH for all fisheries and to minimize, to the extent practicable, the adverse effects of fishing on EFH.[13] In addition, the Magnuson-Stevens Act requires that federal agencies consult with the Fisheries Service on actions that may adversely affect EFH.[14]

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[5] 42 U.S.C. § 4332(2)(c).
[6] 42 U.S.C. § 4332(c)(i)–(iii).
[7] 40 C.F.R. §1502.14 (stating that "[t]his section[, entitled, Alternatives including the proposed action,] is the heart of the environmental impact statement").
[8] 46 Fed. Reg. 18026, 18026 (Mar. 23, 1981), as amended by 51 Fed. Reg. 15618 (Apr. 25, 1986), Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, https://ceq.doe.gov/nepa/regs/40/1-10.HTM#1 (clarifying in the answer to Question 1a what is meant by "range of alternatives" in Section 1505.1(3) of NEPA).
[9] *Id.* at 18027-28 (clarifying in the answer to Question 1b how many alternatives have to be discussed).
[10] NOAA Administrative Series 216-6 § 4.01w; 40 C.F.R. § 1501.7.
[11] NOAA, The National Oceanic and Atmospheric Administration National Environmental Policy Act Handbook Version 2.3 32 (May 2009), http://www.nepa.noaa.gov/NEPA_HANDBOOK.pdf.
[12] NOAA, Implementing the Sustainable Fisheries Act: http://www.nmfs.noaa.gov/sfa/SFA-Report-FINAL7_1.pdf
[13] NOAA, Implementing the Sustainable Fisheries Act: http://www.nmfs.noaa.gov/sfa/SFA-Report-FINAL7_1.pdf
[14] NOAA, Implementing the Sustainable Fisheries Act: http://www.nmfs.noaa.gov/sfa/SFA-Report-FINAL7_1.pdf

1. Essential Fish Habitat

The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."[15] Section 303 of the Act sets forth requirements for FMPs, including the requirement to "define and identify essential fish habitat for the fishery based on guidelines established by the [Fisheries Service] under section 305(b)(1)(A), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat."[16] EFH must be identified and described in FMPs according to the guidelines set forth under 50 C.F.R. § 600.815. The guidelines include the requirement that "Amendments to the FMP or its implementing regulations must ensure that the FMP continues to minimize to the extent practicable adverse effects on EFH caused by fishing."[17] Under these mandatory requirements, deep sea corals that function as EFH must be conserved and protected by the Councils in their FMPs.

2. Habitat Areas of Particular Concern

In 2002, the Fisheries Service provided additional guidance to the Councils on the EFH conservation requirements of the Magnuson-Stevens Act. This guidance included a new tool for managers, HAPC, and provided the following guidance to the Councils: "EFH that is especially important ecologically or particularly vulnerable to degradation as 'habitat areas of particular concern' (HAPC) to help provide additional focus for conservation efforts."[18]

The 2002 guidance further established criteria for HAPC designation:

> FMPs should identify specific types or areas of habitat within EFH as habitat areas of particular concern based on one or more of the following considerations:
>
> (i) The importance of the ecological function provided by the habitat.
> (ii) The extent to which the habitat is sensitive to human-induced environmental degradation.
> (iii) Whether, and to what extent, development activities are, or will be, stressing the habitat type.
> (iv) The rarity of the habitat type.[19]

But regardless of these factors, HAPCs function as a subset of EFH, which is specific to species managed by a FMP.

[15] 16 U.S.C. § 1802(10).
[16] 16 U.S.C. § 1853(a)(7).
[17] 50 C.F.R. § 600.815(a)(2)(ii).
[18] Magnuson-Stevens Act Provisions; Essential Fish Habitat (EFH), 67 Fed. Reg. 2,343, 2,344 (Jan. 17, 2002) (to be codified 50 C.F.R. pt. 600).
[19] 67 Fed. Reg. 2,378–2,379.

3. Discretionary Coral Provisions

Because managing deep sea corals as EFH presented some Councils with problems, Congress amended the Magnuson-Stevens Act in 2007 to give the Fisheries Service and Councils explicit authority to conserve and protect deep sea corals, even where deep sea corals have not be designated as EFH. Section 303(b)(2) of the Act provides that any FMP prepared by a Council or the Fisheries Service may:

> (B) designate such zones in areas where deep sea corals are identified under section 408, to protect deep sea corals from physical damage from fishing gear or to prevent loss or damage to such fishing gear from interactions with deep sea corals, after considering long-term sustainable uses of fishery resources in such areas; and
>
> (C) with respect to any closure of an area under this Act that prohibits all fishing, ensure that such closure—
>
> (i) is based on the best scientific information available;
> (ii) includes criteria to assess the conservation benefit of the closed area;
> (iii) establishes a timetable for review of the closed area's performance that is consistent with the purposes of the closed area; and
> (iv) is based on an assessment of the benefits and impacts of the closure, including its size, in relation to other management measures (either alone or in combination with such measures), including the benefits and impacts of limiting access to: users of the area, overall fishing activity, fishery science, and fishery and marine conservation.[20]

Put simply, the reauthorized Magnuson-Stevens Act now authorizes the Councils to conserve deep sea corals wherever they occur regardless of whether those areas are EFH for a managed species. This authority was first used by the Mid-Atlantic Fishery Management Council in 2015 to create the Frank Lautenberg Deep Sea Coral Protection Area.[21]

4. Deep Sea Coral Research and Technology Program

In 2007, Congress also added the Deep Sea Coral Research and Technology Program ("the Program") at Section 408 of the Magnuson-Stevens Act to establish a program to identify existing research, map coral locations and monitor activity in known deep sea coral areas.[22] In addition to biennial reporting to Congress,[23] under the Program, the Fisheries Service collaborates on research about deep sea corals with other federal agencies, international partners,

[20] 16 U.S.C. § 1853(b)(2).
[21] NOAA Greater Atlantic Region: https://www.greateratlantic.fisheries.noaa.gov/stories/2016/december/13_deep-sea-coral-protection_area.html
[22] 16 U.S.C. § 1884(a).
[23] 16 U.S.C. § 1884(b).

and non-governmental and academic scientists.[24] This Program is a useful resource for the Councils and has been especially useful for the New England and Mid-Atlantic Fishery Management Councils as they consider management of deep sea corals in their regions.

5. NOAA's 2010 Strategic Plan

In 2010, NOAA published its Strategic Plan for Deep-Sea Coral and Sponge Ecosystems: Research, Management, and International Cooperation ("2010 Strategic Plan") to provide guidance to the Councils in identifying and conserving deep sea corals.[25] This important document cites four Magnuson-Stevens Act authorities[26] to protect deep sea corals that should be explored by the Councils in developing management actions to conserve deep-sea corals:

- Designate zones to protect deep sea corals from physical damage from fishing gear (MSA § 303(b)(2)) – Discretionary. The 2010 Strategic Plan provides clear and universal guidance to fisheries managers in the agency methodology to conserve both adequately surveyed areas and inadequately surveyed areas. NOAA uses a precautionary approach (discussed below in Figure 1) to manage bottom-tending gear ("BTG"), especially mobile BTG and other adverse impacts of fishing on deep-sea coral and sponge ecosystems.

- Minimize bycatch to the extent practicable (National Standard 9; MSA § 301(a)(9)) – Mandatory. Deep sea corals are considered fish by the Magnuson-Stevens Act and are therefore subject to the requirement to minimize bycatch. Some Councils have historically used this important provision of the MSA to support deep-sea coral management measures.

- Identify and describe EFH and minimize, to the extent practicable, adverse effects caused by fishing (MSA § 305(b)) – Mandatory. Where appropriate and designated under the FMPs of a region, Councils can and should minimize the adverse effects of fishing gear on deep sea coral and also conserve deep sea corals from adverse effects of non-fishing activities on these EFH areas.

- Include management measures in FMPs to conserve target and non-target species and habitats (MSA § 303(b)(12)) – Discretionary. This recognizes the role of fishing in the broader marine ecosystem and provides the Councils with the authority to manage fishing in this context.

Each of these authorities and requirements of the Act are important for the Council to consider when developing Amendment 7 to conserve corals across the Gulf of Mexico region.

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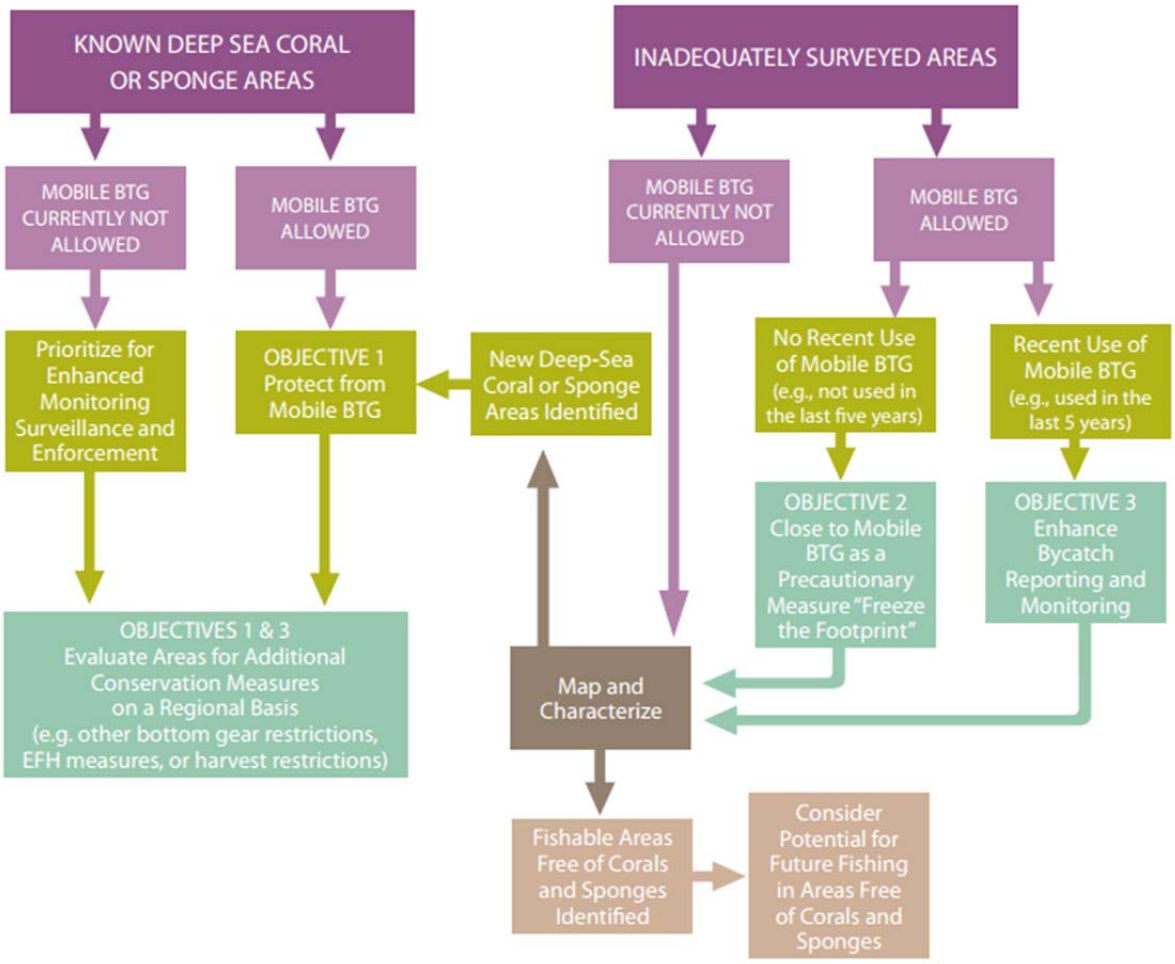
[24] National Oceanic and Atmospheric Administration, *NOAA Strategic Plan for Deep-Sea Coral and Sponge Ecosystems: Research, Management, and International Cooperation* 1 (2010), http://www.coris.noaa.gov/activities/deepsea_coral/dsc_strategicplan.pdf.
[25] *Id.*
[26] *Id.* at 9.

Figure 1: NOAA's Precautionary Approach to Manage Bottom-tending Gear ("BTG")[27]



[27] *Id.* at 31.

III. DISCUSSION AND RECOMMENDATIONS FOR AMENDMENT 7

Oceana has commented previously that the Scoping Guide and Scoping Document for Amendment 7 are lacking information on both the background for the proposed action as well as the process to consider alternatives. In spite of these deficiencies, the Gulf Council should take the opportunity provided through the scoping process to expand the scope of Amendment 7, and develop a full range of alternatives that utilize the legal authorities available to protect deep sea corals under the Magnuson-Stevens Act and agency guidance. Collectively, the alternatives adopted in Amendment 7 should achieve meaningful, effective conservation outcomes for deep-sea corals in the Gulf of Mexico. Specifically, Amendment 7 should incorporate the following recommendations in the range of reasonable alternatives developed and considered in this important action:

A. Amendment 7 Should Include A Mechanism To Protect Deep Sea Coral Under The Magnuson-Stevens Act Section 303(B)(2) Discretionary Provision In The Event Protection As Essential Fish Habitat ("EFH") Is Ineffective Or Inappropriate For Deep Sea Coral Areas.

Option 1 of the Scoping Document states:

> Under the definition of coral EFH, wherever coral exists is considered coral EFH. Where corals exist in sufficient numbers or diversity would qualify an area as a HAPC as long as it meets one of the HAPC requirements: ecologically important, habitat that is sensitive to human induced degradation, located in an environmentally stressed area, or considered rare. All corals are sensitive to human-induced habitat degradation by fishing and non-fishing activities.[28]

Although the EFH pathway provides the Gulf Council with the ability to conserve corals with respect to both fishing and non-fishing activities, the Gulf Council should proceed cautiously with this approach because it contains a number of pitfalls that could ultimately limit the Gulf Council's ability to effectively manage these areas.

First, this option is limited to the number of species that are managed under the Gulf Council's coral FMP.[29] This list contains a limited selection of the stony and black coral species, but is not a comprehensive list of all deep sea coral species potentially present in the region. This narrow range of species fails to capture the diversity of deep sea corals known to be found in the Gulf of Mexico.

According to *Cold-Water Corals - The Biology and Geology of Deep-Sea Coral Habitats*, there are five cold water coral taxa that contribute significantly to cold-water coral habitats by providing reef frameworks or other structural habitat including *Scleractinia* (stony coral), *Antipatharia* (black coral), *Zoanthidae* (zooanthids), *Octocorallia* (soft coral) and *Stylasteridae*

[28] Scoping Document, at 9.
[29] *Species Listed in the Fishery Management Plans of the Gulf of Mexico Fishery Management Council* 3–7 (2015), http://gulfcouncil.org/Beta/GMFMCWeb/downloads/species%20managed.pdf.

(fire coral).[30] Within the stony coral taxa are four important framework building families including *Pocilloporidae*, *Oculinidae*, *Caryophylliidae* and *Dendrophylliidae*.[31] There are also seven families of potential habitat-forming black coral including *Antipathidae*, *Aphanipathidae*, *Cladopathidae*, *Stylopathidae*, *Myriopathidae*, *Schizopathidae* and *Leiopathidae*.[32]

Furthermore, the FMP should be expanded to include all species of fire corals potentially present in the area as well as amended to add zooanthids and soft coral. Given the relative recency of deep sea coral exploration, it is probable that new species will be discovered in the Gulf of Mexico. The FMP for deep sea coral should be a dynamic list that can be easily revised.

The EFH pathway provides the Gulf Council with very little flexibility to manage the wide swath of deep waters in the Gulf of Mexico that is beyond the range of the listed species. If the Gulf Council proceeds with an EFH-based approach, Oceana urges the Gulf Council to take clear action in Amendment 7 to include the full range of known coral and sponge species readily available on NOAA Deep Sea Coral Research and Technology Program Data Portal[33] as managed coral species under this FMP and clearly discuss the use of deep sea coral as EFH by all species managed by the Gulf Council.

Further, the species language in this option is highly subjective and open to misinterpretation. Specifically, the term "*sufficient numbers or diversity*" should be clearly defined, enumerated and measurable to inform the Amendment 7 process and future management actions that address coral conservation and management.[34]

B. Amendment 7 Should Include An Alternative That Manages Deep Sea Corals Using The Discretionary Deep Sea Coral Authority Of The Magnuson-Stevens Act And The Management Approach Described In NOAA's 2010 Strategic Plan.

Conservation of deep sea corals using the EFH pathway has frustrated fisheries managers around the country, a fact that led to the inclusion of deep sea coral management authority in the most recent reauthorization of the Magnuson-Stevens Act. NOAA followed this with clear and useful guidance for fisheries managers to tackle this complex issue that historically has been outside of the scope of fisheries management. This strategy was used successfully by the Mid-Atlantic Fishery Management Council in 2015 to create the Frank Lautenberg Deep-Sea Coral Protection Area, which balanced the fishery uses of deepwater areas with conservation of deep sea corals.[35]

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[30] J. Murray Roberts et. al, *Cold Water Corals: the Biology and Geology of Deep-Sea Coral Habitats* 24–25 (2009), https://www.researchgate.net/file.PostFileLoader.html?id=545f520ccf57d7c4238b4678&assetKey=AS%3A272166191337490%401441900885775.
[31] *Id.* at 27.
[32] *Id.* at 36.
[33] *NOAA Deep-Sea Coral Data*, https://deepseacoraldata.noaa.gov/website/AGSViewers/DeepSeaCorals/mapSites.htm (last visited Mar. 21, 2017).
[34] Scoping Document, at 9.
[35] NOAA Greater Atlantic Region: https://www.greateratlantic.fisheries.noaa.gov/stories/2016/december/13_deep-sea-coral-protection_area.html

The Gulf Council should follow the example of the Mid-Atlantic Fishery Management Council and include in the a range of reasonable alternatives in Amendment 7 an alternative that follows NOAA's 2010 Strategic Plan in consultation with the staff of the NOAA Deep Sea Coral Research and Technology Program. This alternative should follow the 2010 Strategic Plan and include management alternatives for the following areas.

1. Known Deep Sea Coral Areas

Areas of known or suspected deep sea coral occurrence where BTG is allowed should be closed from future fishing activity to conserve fragile corals. These documented areas are worthy of protection and this alternative will provide a proven means to afford that protection. Further, areas that are currently closed to BTG should be prioritized for enhanced monitoring, surveillance and enforcement. In addition, those areas with recent BTG activity should be strictly monitored for bycatch.

Oceana encourages the Gulf Council to support and analyze this alternative with an additional consideration of known deep sea coral areas beyond the 2014/16 HAPC process and include a broader range of stakeholders with expertise in deep sea corals in the Gulf of Mexico. This should include experts in at-sea exploration as well as those with expertise in predictive modeling of deep sea coral, a process that has been shown to be effective at predicting coral presence based on a range of factors including substrate, current, and bottom contour.[36]

Following the completion of this analysis, the Gulf Council should consider gear-specific management of the areas identified in this process as deep sea coral management areas to minimize the effect of fishing gears on these areas.

2. Inadequately Surveyed Areas

The vast majority of the Gulf of Mexico and the U.S. EEZ is inadequately surveyed for the presence of deep sea corals. In such cases, NOAA's 2010 Strategic Plan encourages fishery managers to use the precautionary approach and to close these areas to future fishing activity by "freezing the footprint" until they have been adequately surveyed.

Oceana encourages the Gulf Council to accept and develop this alternative using a depth-based approach to determine the extent of recent fishing, delineate the unfished areas of the Gulf of Mexico and close all waters deeper than the current footprint of the fishery. This process should be based on a careful analysis of recent fishing activity in cooperation with the fishing industry and other stakeholders. If done correctly, this approach should not have an effect on current fisheries and will simply limit the expansion of fisheries into deeper waters until those areas have been surveyed and determined to be free of deep sea coral communities.

[36] NOAA National Centers for Coastal Ocean Science, *Deep Coral Predictive Habitat Modeling in the U.S. Atlantic and Gulf of Mexico: Focusing on Uncharted Deep-Sea Corals*, NCCOS Projects Explorer, https://coastalscience.noaa.gov/projects/detail?key=35 (last visited Mar. 21, 2017).

C. Amendment 7 Should Include A Pathway For Areas To Be Considered And Managed If And When New Science Becomes Available.

Deep sea coral research and management is a rapidly evolving field with new discoveries, tools, and approaches being developed every year. Many areas in the Gulf of Mexico have yet to be mapped and it is important that Amendment 7 is dynamic and updated to include newly discovered areas and to remove areas previously thought to have deep sea coral, yet later confirmed to be absent.

The Gulf Council should include alternatives in Amendment 7 that allow this new information to be considered and included in future management actions. Specifically, Amendment 7 should include an expedited management pathway for newly described and discovered deep sea coral areas to be conserved in the regions' FMPs. Similarly, a mechanism should be developed to remove areas if coral are confirmed not to be present where fishery management measures are not needed.

IV. CONCLUSION

Coral Amendment 7 is a step in the right direction for protecting and managing deep sea coral in this region. Amendment 7 offers the Gulf Council the opportunity to take clear action to conserve important parts of the Gulf of Mexico marine ecosystem. Unfortunately, the action presented in the scoping document fails to take full advantage of this opportunity and does not adequately address the issues that are unique to deep sea coral conservation. Oceana urges the Gulf Council to align Amendment 7 more closely to the comprehensive strategy outlined in NOAA's 2010 Strategic Plan instead of the EFH/HAPC pathway suggested in the Scoping Document.

Oceana urges the Gulf Council incorporate the following recommendations in Amendment 7:

- Amendment 7 should include a mechanism to protect deep sea coral under the Magnuson-Stevens Act Section 303(b)(2) discretionary provision in the event protection as Essential Fish Habitat ("EFH") is ineffective or inappropriate for deep sea coral areas.

- Amendment 7 should include an alternative that manages deep sea corals using the discretionary deep sea coral authority of the Magnuson-Stevens Act and the management approach described in NOAA's 2010 Strategic Plan.

- Amendment 7 should include a pathway for areas to be considered and managed if and when new science becomes available.

Oceana looks forward to working with and providing additional input to the Gulf Council as Coral Amendment 7 moves forward. Oceana appreciates the chance to provide written comment on this very important issue.

Sincerely,

Alison Johnson
Southeast Campaign Manager
Oceana, Inc.

Oceana is the largest international advocacy organization focused solely on ocean conservation. We run science-based campaigns and seek to win policy victories that can restore ocean biodiversity and ensure that the oceans are abundant and can feed hundreds of millions of people. Oceana victories have already helped to create policies that could increase fish populations in its countries by as much as 40 percent and that have protected more than 1 million square miles of ocean. We have campaign offices in the countries that control close to 40 percent of the world's wild fish catch, including in North, South and Central America, Asia, and Europe. To learn more, please visit www.oceana.org.

On 2/28/17, 4:44 PM, "Ang Kor" <angkorday2@yahoo.com> wrote:

To Gulf of Mexico Fishery Management Council,

In recent years, scientists have discovered corals scattered in dense patches throughout the Gulf, spanning the edge of the continental shelf, primarily at depths of 165 to 660 feet and also more than 9,000 feet below the surface.

These sensitive corals, some of which grow slowly for thousands of years, thrive in the cold, dark depths.

Yet deep-sea corals face many threats and once damaged may take centuries or longer to recover. They are susceptible to warming waters and ocean acidification, and can be harmed by oil spills, underwater pipelines, and communications cables that are dragged along the seafloor and kick up sediment, which can suffocate marine life. Similarly, boat anchors, crab traps, and some methods of deep-water fishing, such as trawling (dragging large nets along the seafloor), may also stir sediment or break corals. Fishing lines and weights deployed on the sea bottom can harm corals, too.

Current policies safeguard only some of these fragile coral hot spots by prohibiting anchoring or the use of certain types of deep-fishing gear in these areas. It's important to protect more of these ancient jewels.

Please implement tough, long-lasting protections for corals, sea animals, and the entire ecosystem. What we do will return to us in the future.

Respectfully,
Marc Aleep
angkorday2@yahoo.com
Tallahassee Florida