Recommended coral areas identified as priority habitats for management consideration in the Gulf of Mexico

Scoping Document
Coral Amendment 7

February 2017

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Background

The Gulf of Mexico Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) began managing the corals in the Gulf of Mexico (Gulf) in 1982. At that time, the Council was managing corals jointly with the South Atlantic Council. In Joint Amendment 2, the management of corals was separated (GMFMC and SAFMC 1994). There are over 100 species of coral included in the fishery management plan (FMP). Only stony and black corals are included in the fishery management unit; octocorals were removed from the fishery management unit in Generic Amendment (GMFMC 2011) and the State of Florida now manages them.

In 2013, the Council hosted a workshop that brought together various scientists associated with both fisheries and corals to discuss how corals may be affected by fisheries. From this workshop, a book was released titled "*Interrelationships Between Coral Reefs and Fisheries*." One of the recommendations from this workshop was to reevaluate coral areas in the Gulf that might warrant special protections. Methods of protecting corals and coral habitats from activities unrelated to direct harvest include designating deep-water coral areas via 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). Deep-water coral areas are designated to protect those corals from physical damage from fishing gear or to prevent loss or damage to fishing gear from interactions with corals. HAPCs are a subset of EFH that are determined to be significantly ecologically important, sensitive to human induced degradation, located in an environmentally stressed area, or rare. An EFH designation triggers the requirement that the Council include in its FMPs measures to minimize, to the extent practicable, adverse effects on these habitats caused by fishing, and a consultation process on activities that would adversely affect the habitat. HAPC designation does not confer any additional specific protections but can be used to focus attention on those areas when the Council considers the measures to minimize adverse impacts from fishing and when NMFS conducts the required consultations.

In 2014, the Council convened a group of scientists to discuss which areas in the Gulf warrant specific coral protection. The group identified 47 areas including existing HAPCs in need of protection (Appendix A). The Coral Scientific and Statistical Committee (SSC) and Coral Advisory Panel (AP) reviewed these areas at their May 2015 meeting along with members of the shrimping community. Some of these areas were identified as needing further refinement of the boundaries based on available fishing information. These reports were presented to the Council at its June 2015 meeting in Key West, Florida. The Council asked staff to present these areas to affected user groups. To date, the Shrimp AP, Reef Fish AP, Spiny Lobster AP, and Law Enforcement Technical Committee have all been presented with the proposed areas and have been requested to provide input.

At the Council's June 2016 meeting in Clearwater Beach, Florida, the Council directed staff to convene the Coral SSC and Coral AP with the Shrimp AP; staff also invited royal red shrimp fishermen and bottom longline fishermen to the meeting to provide input. The meeting was held in Tampa, Florida on August 3-4, 2016. The group narrowed the focus to 15 priority areas (Table 1; Fig. 1-4) that were recommended to have fishing regulations. The group also suggested eight additional deep-water areas (Table 1; Fig. 3) that warranted consideration;

however, it did not feel these areas were in need of fishing restrictions. Several of the areas identified as priority areas were also recommended to have boundary revisions based on the topography of the bottom features known to have corals and the historical fishing that has been documented in the area. Staff has convened a working group to discuss Pulley Ridge and has consulted with biologists and fishermen for Viosca Knoll 862/906. To date, there have not been any agreed upon modifications to these boundaries and work is still ongoing.

Table 1. The areas identified as priority for habitat area of particular concern (HAPC) consideration in the Gulf of Mexico. All areas with nautical charts are in appendix 2.

Site	Area (square miles)	Depth (ft)
Florida Banks		
Long Mound	18.0	985-2300
Many Mounds	17.3	650-2300
North John Reed Site	18.0	985-3000
Pulley Ridge	257.2	160-660
Northeastern Banks		
Alabama Alps Reef	3.6	160-660
L& W Pinnacles and Scamp Reef	18.0	325-985
Mississippi Canyon 118	14.6	2620-4925
Rough Tongue Reef	18.0	160-660
Viosca Knoll 826	13.7	1640-2955
Viosca Knoll 862/906	24.9	980-2300
Northwest Banks		
AT 047	9.0	3280-4925
AT 357	9.0	2620-4925
Green Canyon 852	5.1	4920-6565
South Texas Banks		
Southern Bank	1.0	160-330
Unnamed Bank (Harte Bank)	14.4	160-330
Areas that were recommended to be HAPCs with no fishing regulations		
South John Reed Site	9.0	1310-4925
Garden Banks 299	8.7	1310-1970
Garden Banks 535	9.0	1640-1970
Green Canyon 140 and 272	108.0	980-3285
Green Canyon 234	18.0	1310-2955
Green Canyon 354	9.0	1640-3285
Mississippi Canyon 751	9.0	1310-1970
Mississippi Canyon 885	9.0	1970-2300

The Council is requesting public input through scoping workshops to help the Council identify potential impacts to various user groups and historical fishing practices in these areas. All

recommended areas have documented coral presence. All priority areas were identified through known abundance of coral, extensive coral fields and/or species richness or diversity indices that differed from areas in a similar geographic location. Much of the published information the Council is using to help inform decisions about these areas is available on the Council's data portal (http://portal.gulfcouncil.org).

Purpose and Need

The purpose of this amendment is to consider establishing protection of corals in the Gulf of Mexico. The need for this action is to conserve the Gulf of Mexico coral resources and essential fish habitat (EFH), and to maintain suitable marine fishery habitat quality and quantity to support sustainable fisheries.

Description of Coral

Deep-water corals can live for hundreds to thousands of years and occur in light limited environments (i.e. depths greater than 150 feet). Stony corals can exist as either solitary cups or as colonial species that can build reefs (sometimes over 300 feet tall). Black corals and octocorals may be shaped like bushes or fans and provide habitat and structure in environments that may be lacking three dimensional habitats. Many species of deep-water coral grow slowly, and can take decades to centuries to recover. Growth rates are different for each species and are dependent on environmental conditions that the coral exists in. Deep-water corals provide complex habitat for many species of grouper, snapper, shrimp and crabs. For example, *Lophelia pertusa* is a known habitat for many deep-water fishes and invertebrates.

Unlike shallow water corals, deep-water corals do not require sunlight. They live in cold waters and derive nutrients from organisms in the water. Corals appear on hard substrates (such as salt domes, cold seeps, basalt, etc) that have oceanic conditions (e.g. temperature, nutrients, and current flow) suitable for survival. Many times, canyon walls, steep escarpments, seamounts, and other areas with vertical relief are the prime areas where corals occur. Compared to the species that exist on these hard substrates with some sort of slope, there are fewer species that are more prevalent in soft substrates. Thus, where there is hard substrate with vertical relief, there are likely deep-water corals. The Gulf is predominantly soft sediment; naturally existing hard substrate, and subsequently coral coverage, is rare. Deep-water corals distributions are also depth dependent, meaning that the corals that are prevalent in one depth range are different than the predominant corals existing in a different depth range. To account for species differences in depth, different depth ranges should be considered for different coral species.

Mesophotic corals exist in low light to no light conditions, generally in depths between 100 and 500 feet. These corals exist at the depth limits or below scuba diver depths, but are in water depths too shallow to warrant industrial ROV type operations. However, there have been many research expeditions in recent years in the Gulf to investigate the presence of mesophotic corals. Mesophotic coral ecosystems can have both shallow water corals (usually at their depth limits) and some deep-water coral species (usually at the upper range of their depth limits). Several of the HAPCs that have been proposed encompass these unique ecosystems.

Description of Recommended Areas

The 15 recommended areas fall into three distinct regions of the Gulf: eastern, central and western (Table1).

Eastern Gulf (Figure 1): The West Florida Shelf has the deepest known hermatypic (reef-building coral with zooxanthellae (symbiotic algae)) coral in U.S. waters. There are distinct habitat differences between northern and southern Pulley Ridge. Specifically, areas in the northern section of the Pulley Ridge HAPC were characterized as sand, pavement (carbonate substrate created by microbes), or low relief outcrops, with the pavement and low relief outcrops containing several species of sessile and encrusting invertebrates and algae (GMFMC 2010). However, recent work by Reed et al. (2014) has provided new information that warrants re-examination of the existing boundaries of the Pulley Ridge HAPC and perhaps warrants the inclusion of a new area to the south of the Pulley Ridge HAPC. Corals have been found outside the existing boundaries of the Pulley Ridge HAPC that has regulations, but within the overarching Pulley Ridge HAPC. Many of these corals are plate corals that are zooxanthellate (containing symbiotic algae) and thus require light. In deeper areas, black corals and other types of stony corals have been observed. Pulley Ridge has the most species that have been observed for any of the proposed HAPCs. Moving north up the west Florida Shelf, is primarily hard bottom that consists of relic shorelines with low to moderate relief (2-8 m) limestone ledges (Smith 1976; Hine et al. 2008). Up to 14 coral species have been identified in the Long Mound, North Reed, and Many Mounds areas.

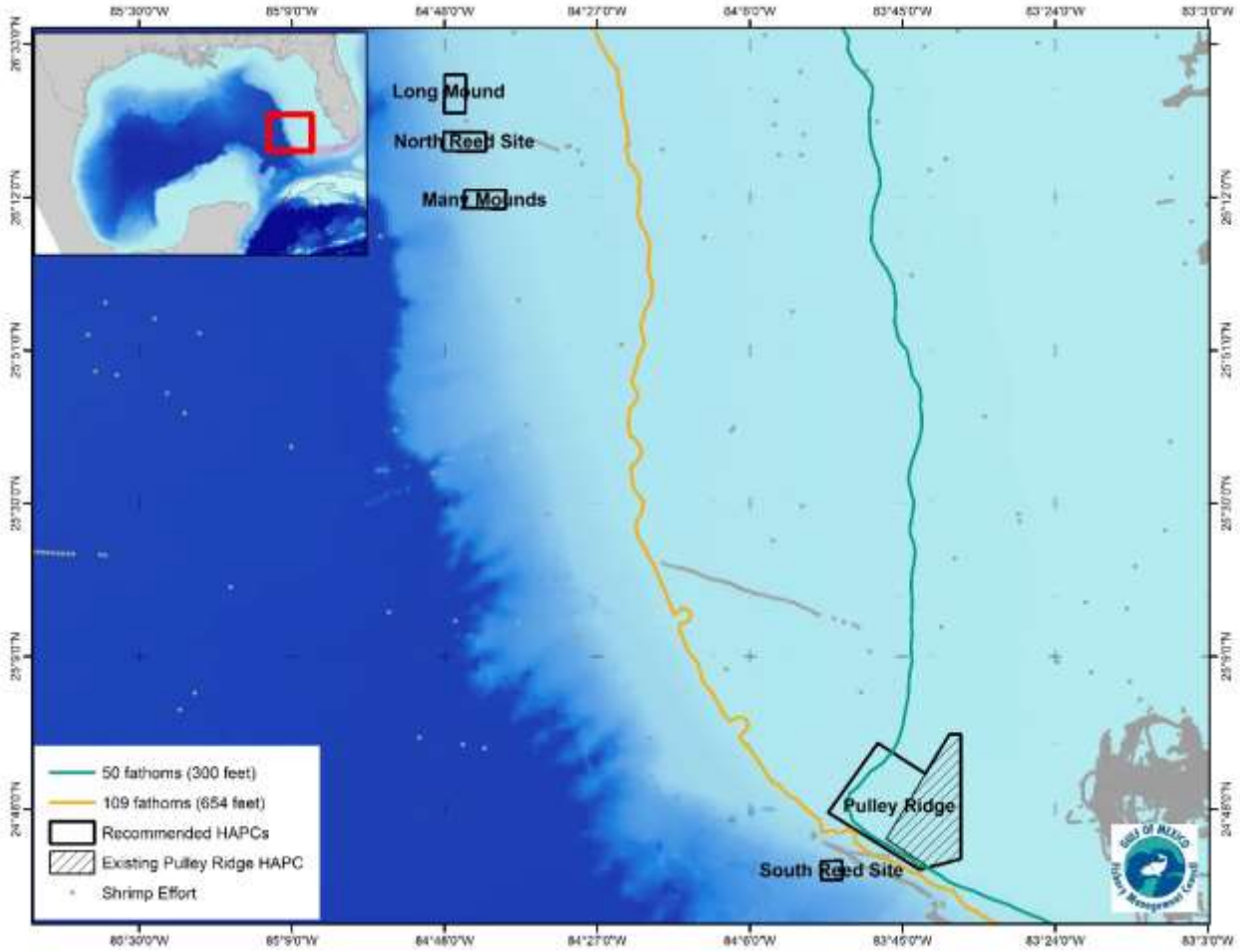

Figure 1. Sites that were identified as priority areas on the West Florida slope. These sites include Pulley Ridge, Long Mound, North Reed Site, and Many Mounds. The South Reed site has been identified as a mid-priority area recommended as a HAPC without fishing regulations.

Central Gulf (Figures 2 and 3): Off the coast of Louisiana, Mississippi, and Alabama, a series of features of low to high relief (2 m to more than 20 m) have either clusters of features, or linear ridges (Rezak et al. 1989; Schroeder et al. 1989). The northwestern Gulf is very broad and predominantly comprised of soft sand and clay. One of the areas, Viosca Knoll 862/906 is one of the best-studied deep reefs in the Gulf. Areas proposed in this region range from mesophotic corals to deep-water corals and the number of species in some proposed areas exceeds 20 (including octocorals).

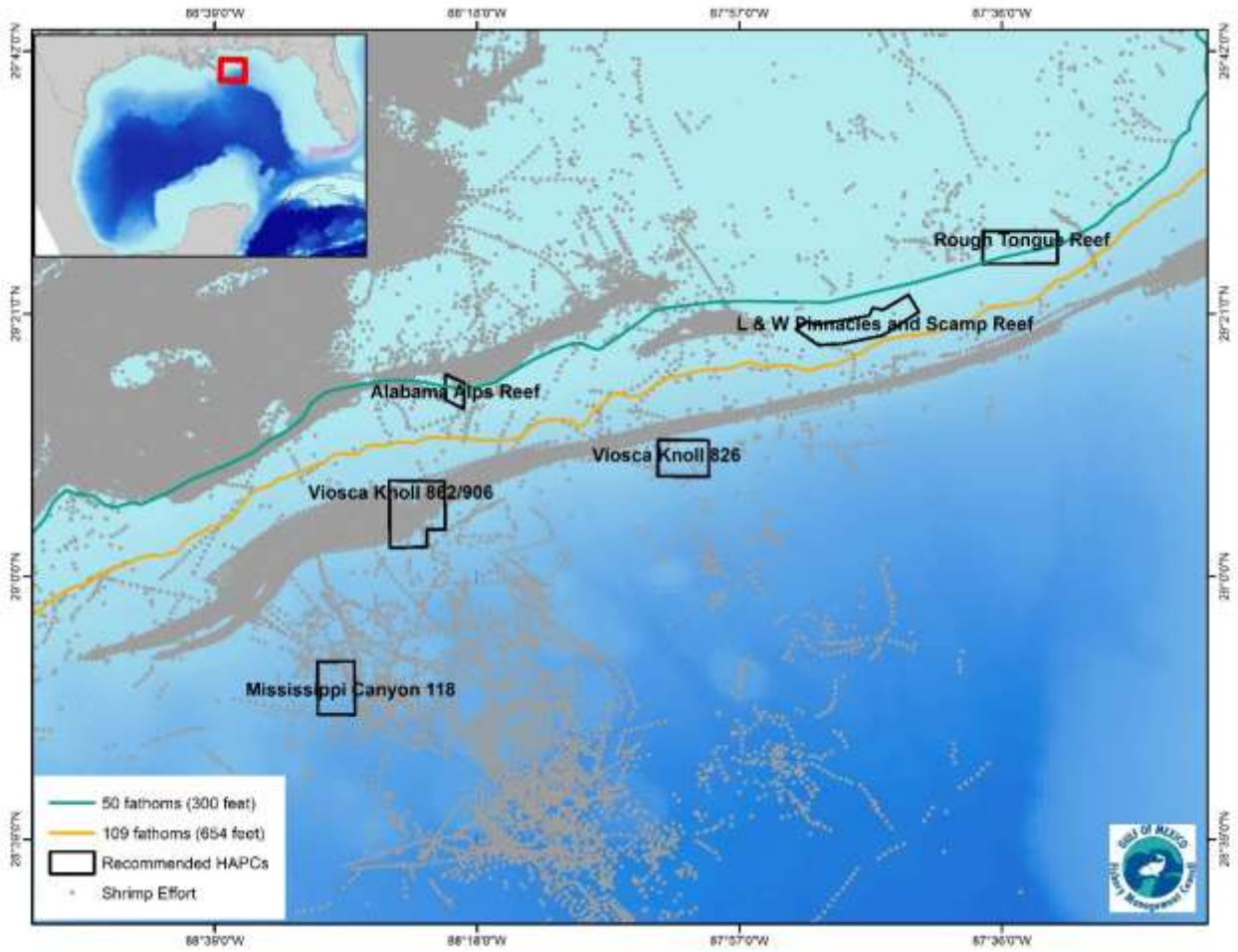

Figure 2. Priority areas for HAPC consideration in the northeastern Gulf of Mexico. These sites include Viosca Knoll 862/906, Viosca Knoll 826, Alabama Alps Reef, L&W Pinnacles and Scamp Reef, Rough Tongue Reef and Mississippi Canyon 118.

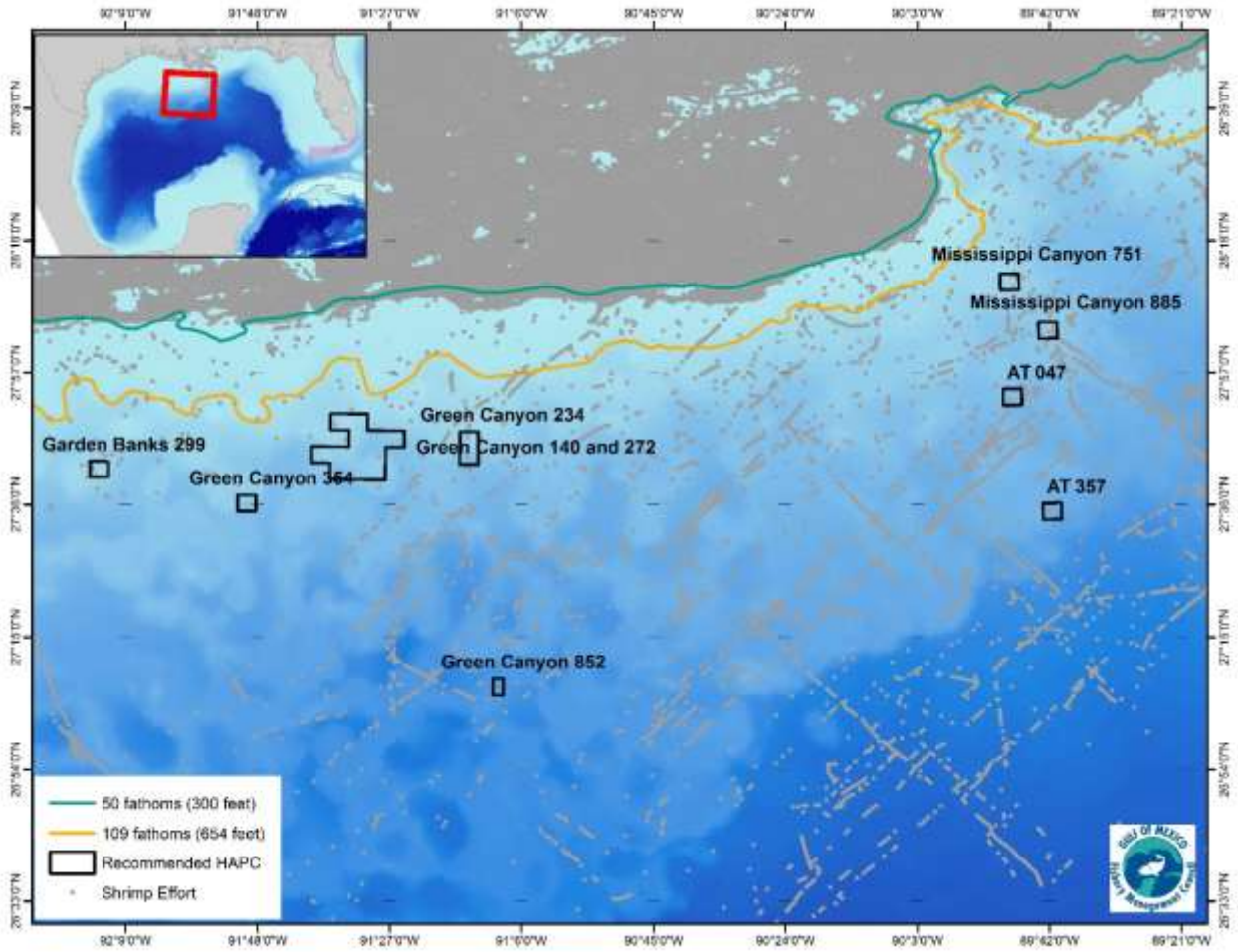

Figure 3. Deepwater coral areas in the northern Gulf of Mexico that have been recommended for both priority HAPCs with fishing regulations and HAPCs without fishing regulations. Areas recommended to have regulations are AT357, AT047, Green Canyon (GC) 852. Deepwater coral areas recommended to be HAPCs without regulations are Garden Bank (GB) 299, GC 354, GC 140 and 272, GC 243, Mississippi Canyon 751, and Mississippi Canyon 885. GB 535 is farther to the west and not pictured on this map.

Western Gulf (Figures 4 and 5): Salt domes dominate the hard substrate north of Matagorda Bay, Texas (e.g. the Flower Garden Banks National Marine Sanctuary), and drowned barrier reefs provide the hard substrate south of Matagorda Bay for south Texas Banks (Southern Bank and Harte Bank) (Rezak et al. 1990; Roberts 2011). Many species of black, stony and sea fans (octocorals) are present in this region. Some areas have deep-water species, but most of the corals that are present on the south Texas banks would be characterized as mesophotic. These areas have between five and six different species of black corals, two to four species of stony corals and a handful of octocorals that have been observed.

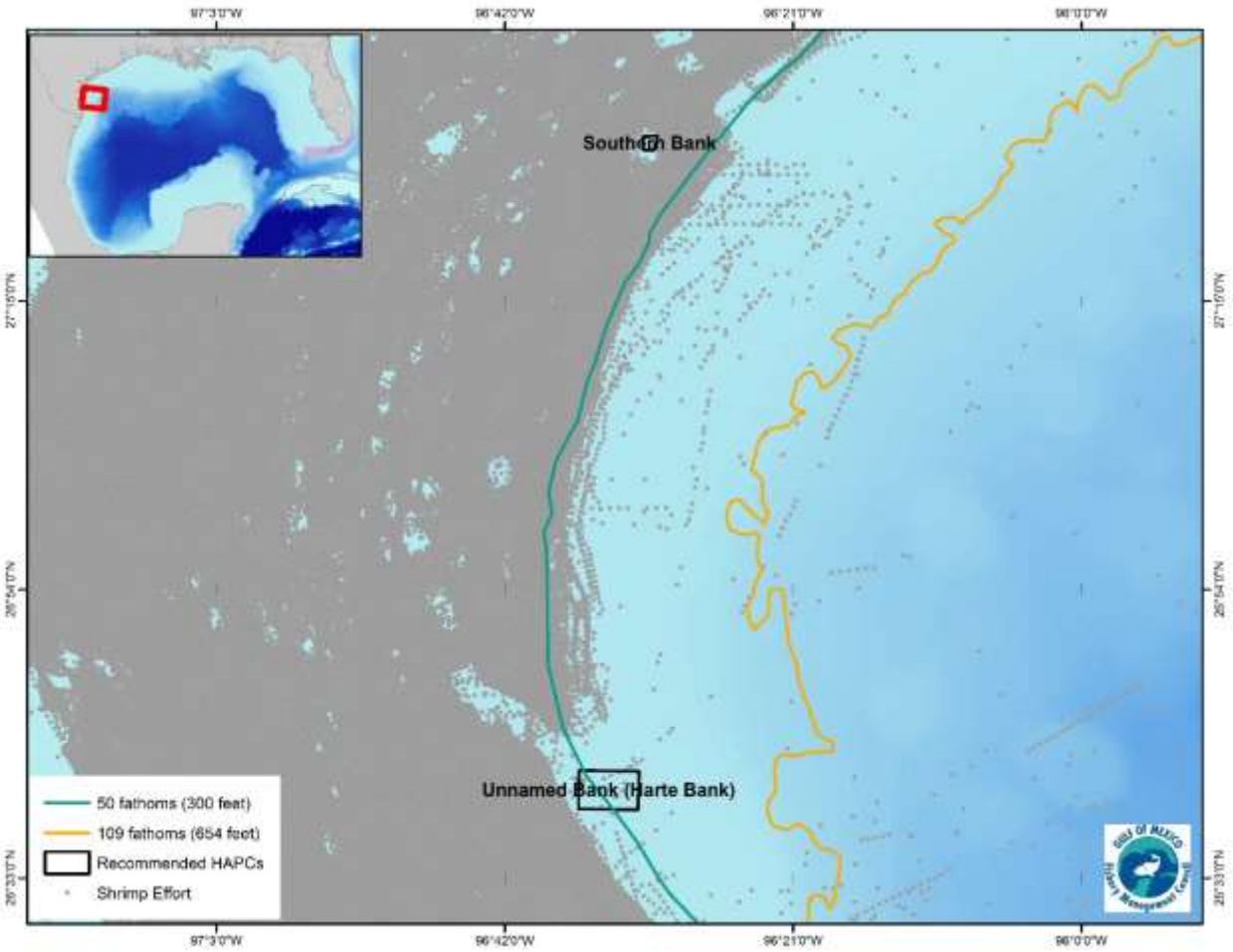

Figure 4. South Texas sites, Southern Bank and Unnamed Bank (Harte Bank), that have been identified as priority for HAPC designation.

Discussion:

The Council could consider three different mechanisms outlined below for management of recommended coral areas.

Option 1: Designate new HAPCs for corals based on recent information

Under the definition of coral EFH, wherever coral exists is considered coral EFH. Where corals exist in sufficient numbers or diversity would be considered for establishment 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. Deep-water coral ages can range from decades to thousands of years old; thus, these species are unlikely to fully recover from destruction or degradation. New information on coral habitats will be used to consider designating new HAPCs.

Option 2: Redefine existing HAPCs using new information

Several areas that are currently HAPCs have been identified as needing revised boundaries to better encompass the feature that is known to have corals and to minimize the footprint to allow

for more activities, such as fishing, inside the current boundary while still protecting coral (Table 2).

Option 3: Reincorporate deep octocorals back into the fishery management unit (FMU)
In the Generic ACL/AM amendment (GMFMC 2011), octocorals were removed from the coral and coral reefs fishery management plan. This was an effort primarily to reduce redundancy in management as the State of Florida was already monitoring the quota for harvestable octocorals for the aquarium trade. However, there are many deep-water octocorals that are not harvested in the aquarium trade and are in need of protection. Additionally, information about deep-water octocorals has significantly increased as has our understanding of where they are located and what ecological services they provide. The Council's Special Coral SSC and Coral AP have advised the Council to add deep-water octocorals (those primarily in waters deeper than 50 m) back into the FMU so that these can be considered when designating HAPCs; allowable octocorals will remain managed by Florida. The Council will need to identify which species to add to the FMU and provide rationale for doing so.

Current Regulations
Currently, no take of black or stony coral is allowed in the exclusive economic zone (EEZ) in the Gulf; coral may only be taken when authorized as a scientific research activity, exempted fishing permit activity or exempted educational activity. Florida is currently managing octocorals, and individuals with the appropriate permits may harvest octocorals in the Gulf EEZ adjacent to Florida. Individuals landing octocorals from Florida state and federal waters must abide by Florida's regulations and are as follows: the quota of octocorals for all persons who harvest allowable octocorals is 70,000 colonies and harvest of attached substrate within 1" of base is permitted; harvest of Venus Sea Fan (*Gorgonia flabellum*) and Common (Purple) Sea Fan (*Gorgonia ventalina*) and harvest of non-erect or encrusting octocorals is prohibited; for recreational anglers a recreational fishing license is required and no more than 6 octocoral colonies per person per day; for commercial harvest, possession of a valid salt water products license, a valid restricted species endorsement, a valid marine life tiered endorsement; all applicable state of Florida gear restrictions apply.

Current Closed Areas and Fishing Regulations
West and East Flower Garden Banks HAPC prohibits fishing with bottom longline, bottom trawl, buoy gear, dredge, pot or trap and bottom anchoring by fishing vessels year round.

Florida Middle Grounds HAPC prohibits fishing with bottom longline, bottom trawl, dredge, pot or trap fishing vessels year round.

The Tortugas Marine Reserve prohibits fishing for any species and anchoring by fishing vessels year round.

Pulley Ridge HAPC prohibits fishing with bottom longline, bottom trawl, buoy gear, pot or trap and bottom anchoring by fishing vessels year round.

Stetson Bank HAPC prohibits fishing with bottom longline, bottom trawl, buoy gear, pot or trap and bottom anchoring by fishing vessels year round.

McGrail Bank HAPC prohibits fishing with bottom longline, bottom trawl, buoy gear, pot or trap and bottom anchoring by fishing vessels year round.

Table 2. Existing National Marine Sanctuaries, Reserves and HAPCs. Some of these areas are being considered for incorporation into the Flower Garden Banks National Marine Sanctuary (FGBNMS) are noted in the column "proposed sanctuary expansion" where either all or part of the area is being considered for incorporation into the FGBNMS by the FGBNMS. Regulations for each area are outlined under the section of the document "Current Regulations." The Current Area is the existing area of the Sanctuary or HAPC. *Part of Pulley Ridge currently has regulations, though there is a larger rectangle that does not have regulations.

Site	Area (square miles)	Current Status	Proposed Sanctuary Expansion	Regulations
Stetson Bank	2.3	Sanctuary/HAPC	Yes	Yes
West Flower Garden, East Flower Garden	85.5	Sanctuary/HAPC	Yes	Yes
McGrail Bank	18.7	HAPC	Yes	Yes
Madison-Swanson	152.6	Reserve/HAPC		Yes
Florida Middle Grounds	449.3	HAPC		Yes
Pulley Ridge	133.3/3049*	HAPC		Yes (partial)
Steamboat Lumps	141.3	Reserve		Yes
The Edges	516.5	Reserve		Yes
Tortugas (north and south)	88.3	Reserve/HAPC		Yes
Alderdice Bank	6.6	HAPC	Yes	No
Bouma Bank	14.6	HAPC	Yes	No
29 Fathom Bank	14.6	HAPC		No
Geyer Bank	17.4	HAPC	Yes	No
Jakkula Bank	46.4	HAPC		No
MacNeil Bank	10.7	HAPC	Yes	No
Rankin-Bright Banks	107.4	HAPC	Yes	No
Rezak-Sidner Banks	26.5	HAPC	Yes	No
Sonnier Bank	11.9	HAPC	Yes	No

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Smith GB. 1976. Ecology and distribution of eastern Gulf of Mexico reef fishes. Florida Department of Natural Resources. St. Petersburg, FL: Florida Marine Research Publications. p. 84

Appendix 1. List of areas identified for HAPC consideration by the Coral Working Group 2014.

Site	Area (square miles)	Depth (ft)	HAPC Status
Florida Banks			
Long Mound	18.0	985-2300	
Many Mounds	17.3	650-2300	
North John Reed Site	18.0	985-3000	
Okeanos Ridge	36.0	985-2300	
Pulley Ridge	257.2	160-660	HAPC
South John Reed Site	9.0	1310-4925	
Northeastern Banks			
Alabama Alps Reef	7.1	160-660	
Far Tortuga	4.8	160-660	
L& W Pinnacles and Scamp Reef	8.9	325-985	
Mississippi Canyon 118	14.6	2620-4925	
Mountain Top Bank 3	5.2	325-660	
Patch Reef Field and Solitary Mound	14.3	160-330	
Pinnacle 1 NW and W pinnacle 2	7.8	160-495	
Rough Tongue Reef	18.0	160-660	
Shark Reef, Triple Top Reef, Double Top Reef	16.7	160-330	
Viosca Knoll 826	13.7	1640-2955	
Viosca Knoll 862/906	24.9	980-2300	
Northwest Banks			
29 Fathom	5.7	160-330	HAPC
Alderdice Bank	8.0	160-330	HAPC
AT 047	9.0	3280-4925	
AT 357	9.0	2620-4925	
Bouma Bank	14.6	160-330	HAPC
Elvers Bank	46.5	325-985	
Garden Banks 299	8.7	1310-1970	
Garden Banks 535	9.0	1640-1970	
Geyer Bank	17.4	325-660	HAPC
Green Canyon 140 and 272	108.0	980-3285	
Green Canyon 234	18.0	1310-2955	
Green Canyon 354	9.0	1640-3285	
Green Canyon 852	5.1	4920-6565	
Horseshoe Banks	66.0	325-985	
Jakkula Bank	14.1	325-985	HAPC
MacNeil Banks	10.7	160-495	HAPC
Mississippi Canyon 751	9	1310-1970	
Mississippi Canyon 885	9	1970-2300	
Parker Bank	23.9	325-495	

Site	Area (square miles)	Depth (ft)	HAPC Status
Northwest Banks-Continued			
Rankin Bright Bank	107.4	325-660	HAPC
Rezak Sidner Bank	26.5	325-660	HAPC
Sonnier Bank	5.6	160-330	HAPC
South Texas Banks			
Big Adam Bank	9.0	160-330	
Blackfish Ridge	9.9	160-330	
Dream Bank	21.3	160-330	
Hospital, North Hospital, and Aransas Bank	27.7	160-330	
Mysterious Bank	47.5	160-330	
Southern Bank	10.2	160-330	
Unnamed Bank (Harte Bank)	14.4	160-330	

Appendix 2. Areas with nautical charts.

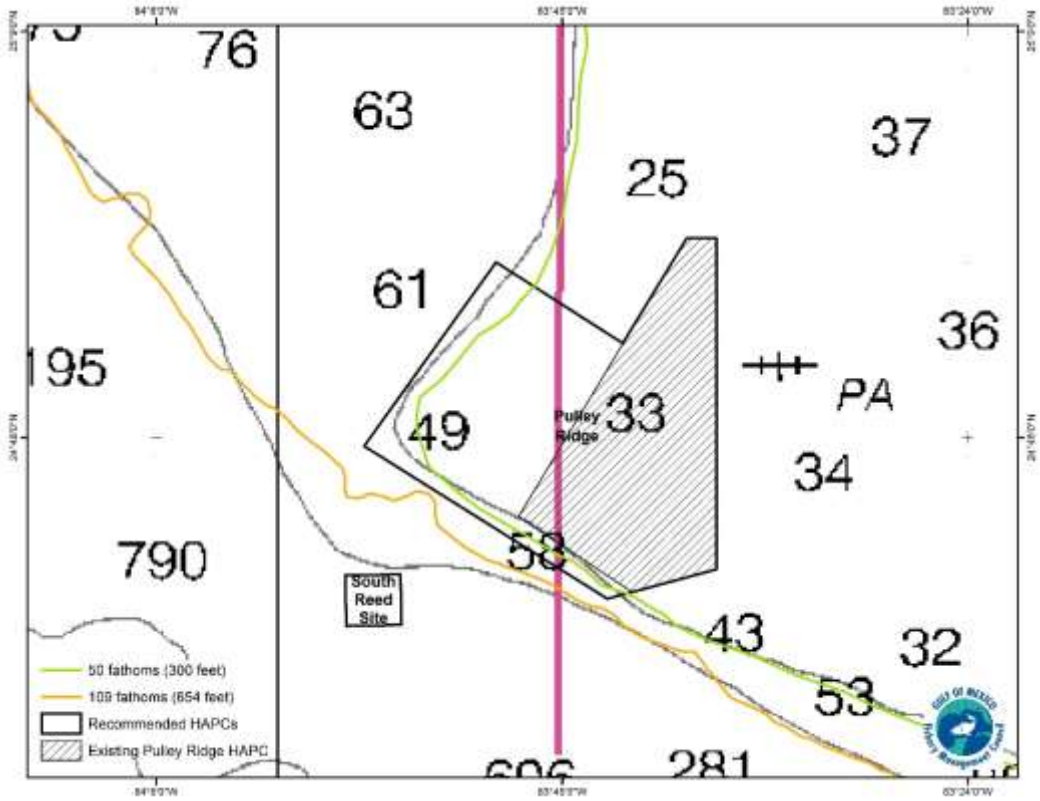

Figure A. Pulley Ridge overlaid on a nautical chart.

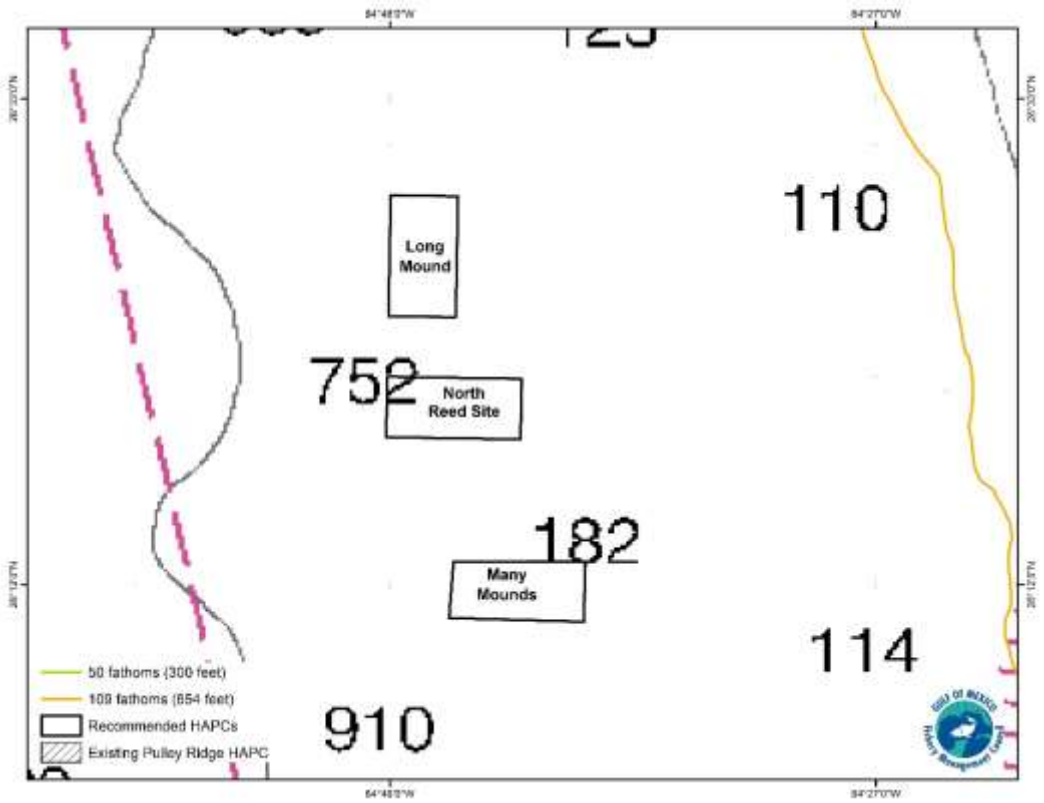

Figure B. Many Mounds, the North Reed Site, and Long Mounds overlaid on a nautical chart.

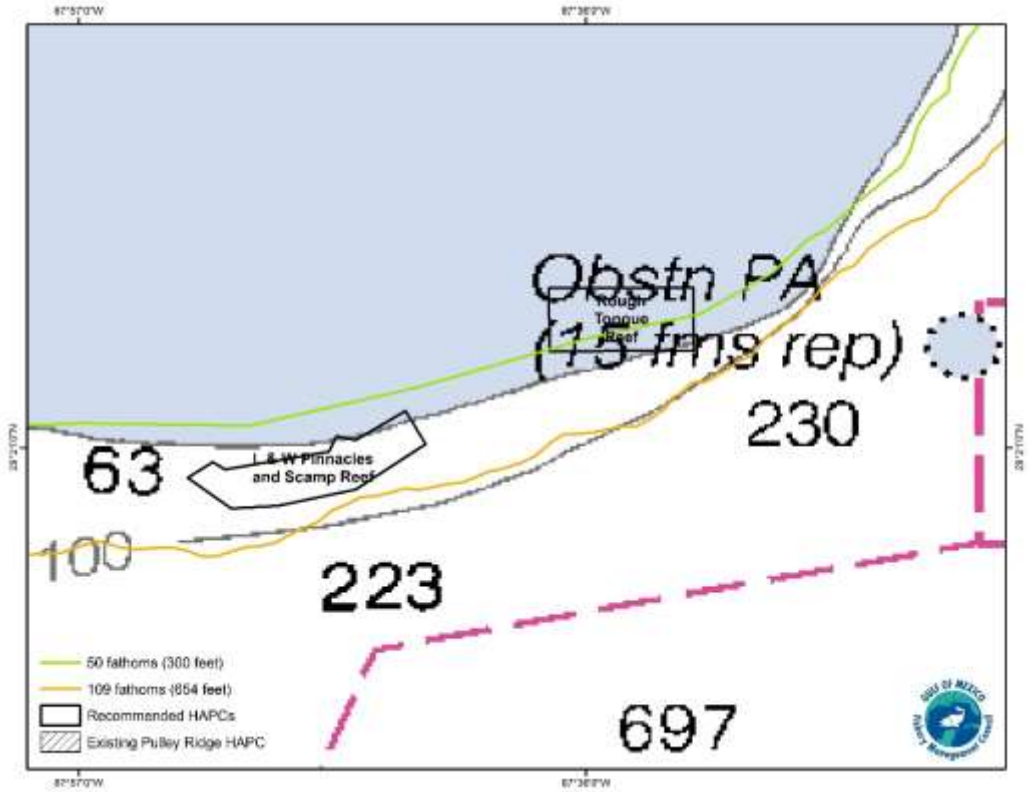

Figure C. Rough Tongue Reef and L&W Pinnacles and Scamp Reef overlaid on a nautical chart.

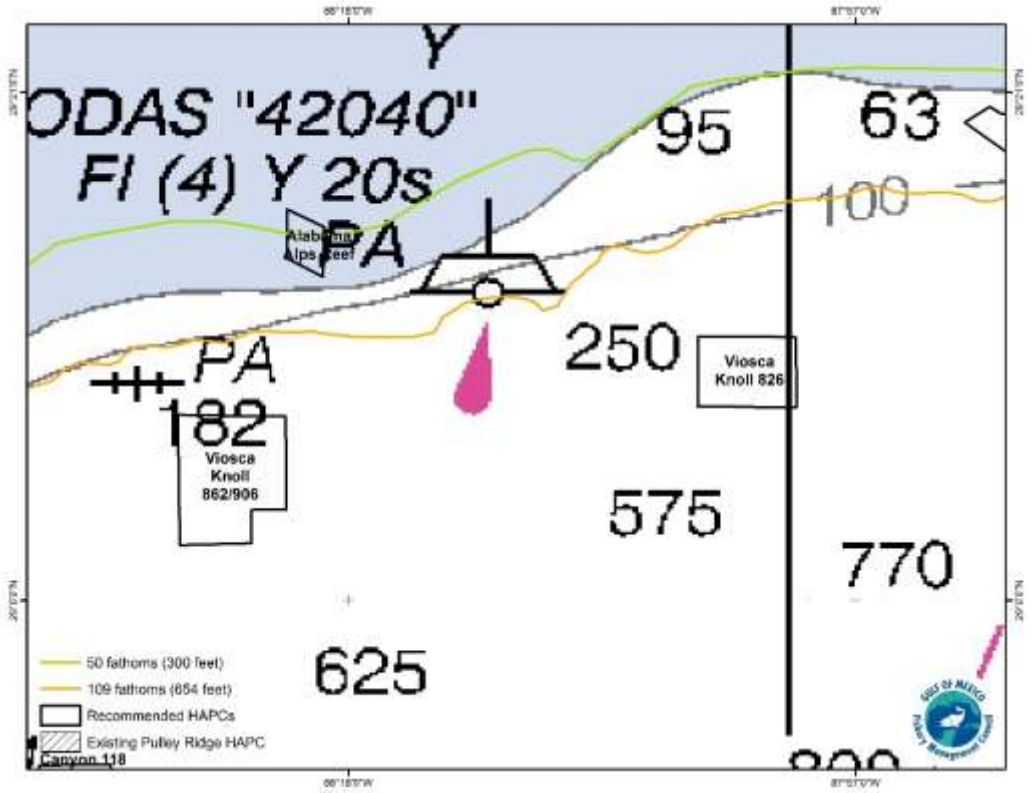

Figure D. Alabama Alps Reef, Viosca Knoll 826, and Viosca Knoll 862/906 overlaid on a nautical chart.

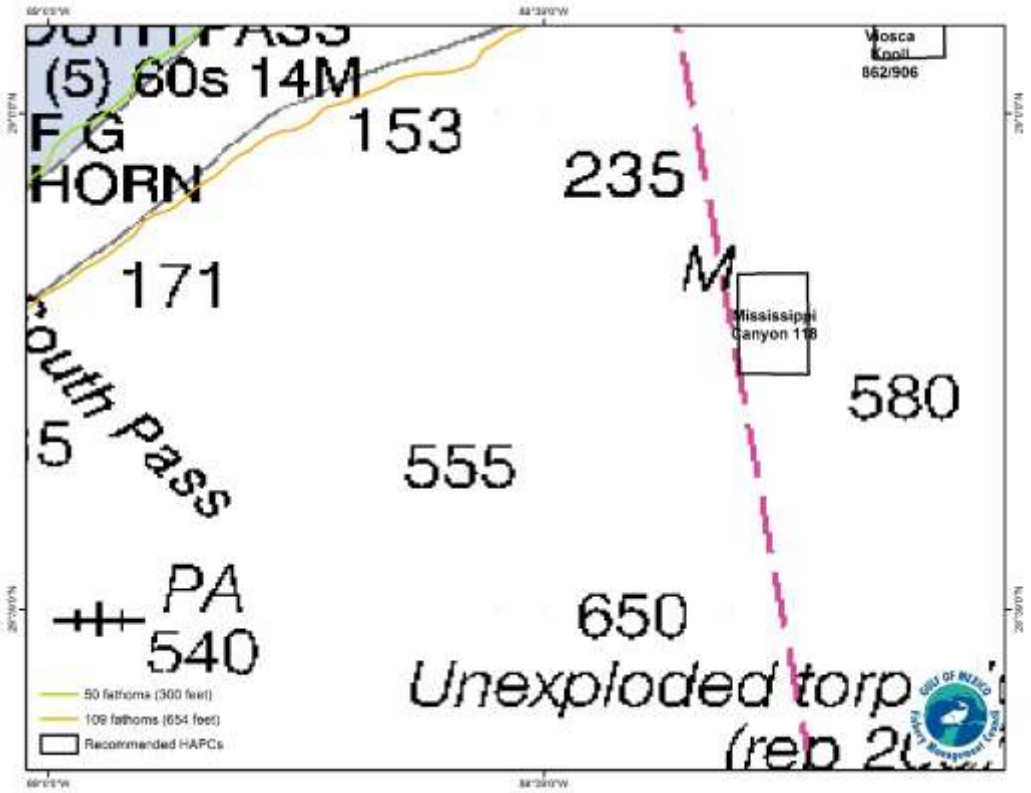

Figure E. Mississippi Canyon 118 overlaid on a nautical chart.

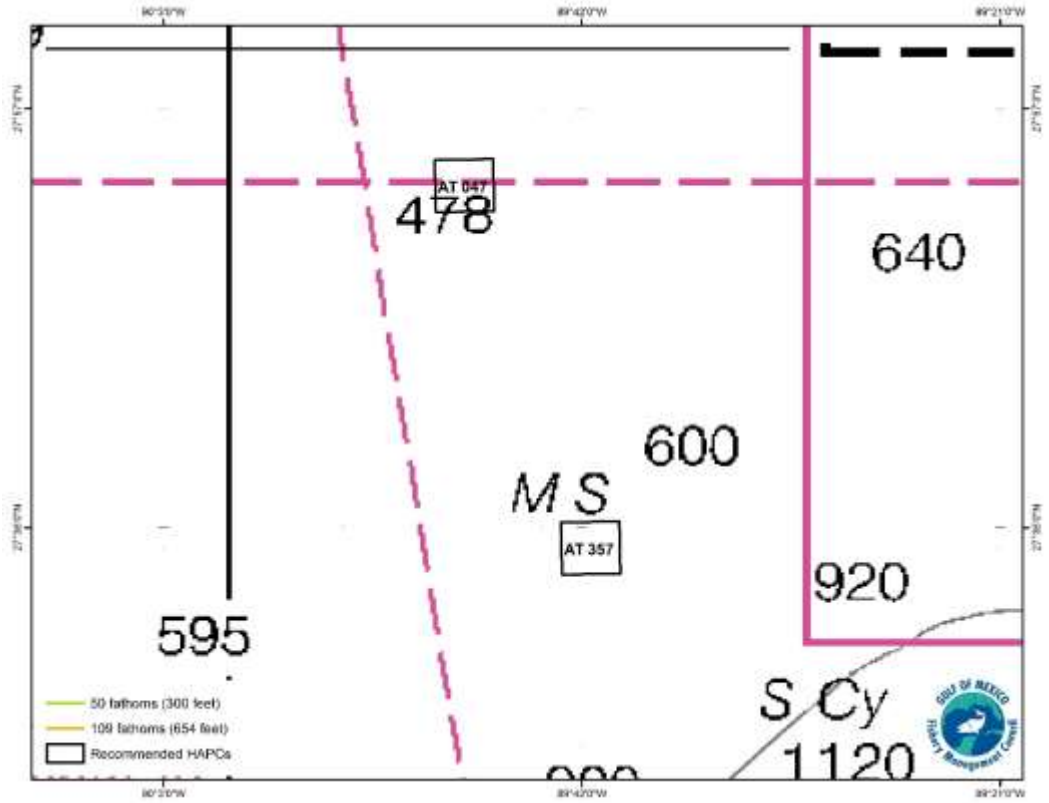

Figure F. AT 047 and AT 357 overlaid on a nautical chart.

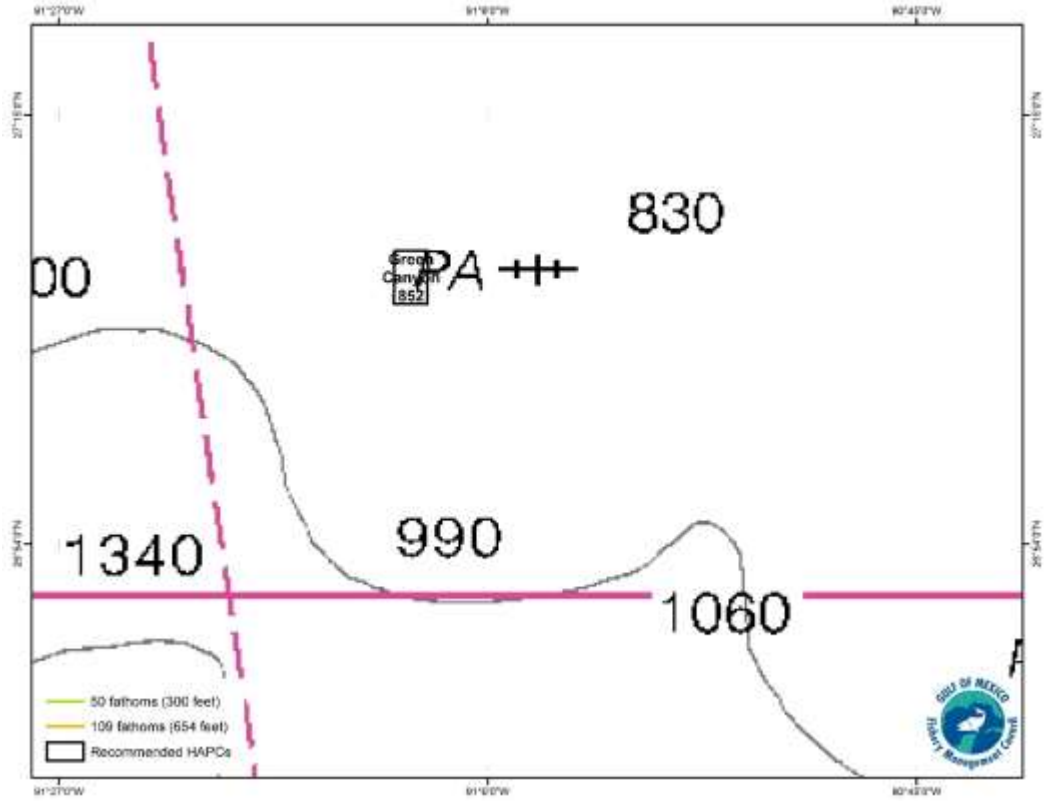

Figure G. Green Canyon 852 overlaid on a nautical chart.

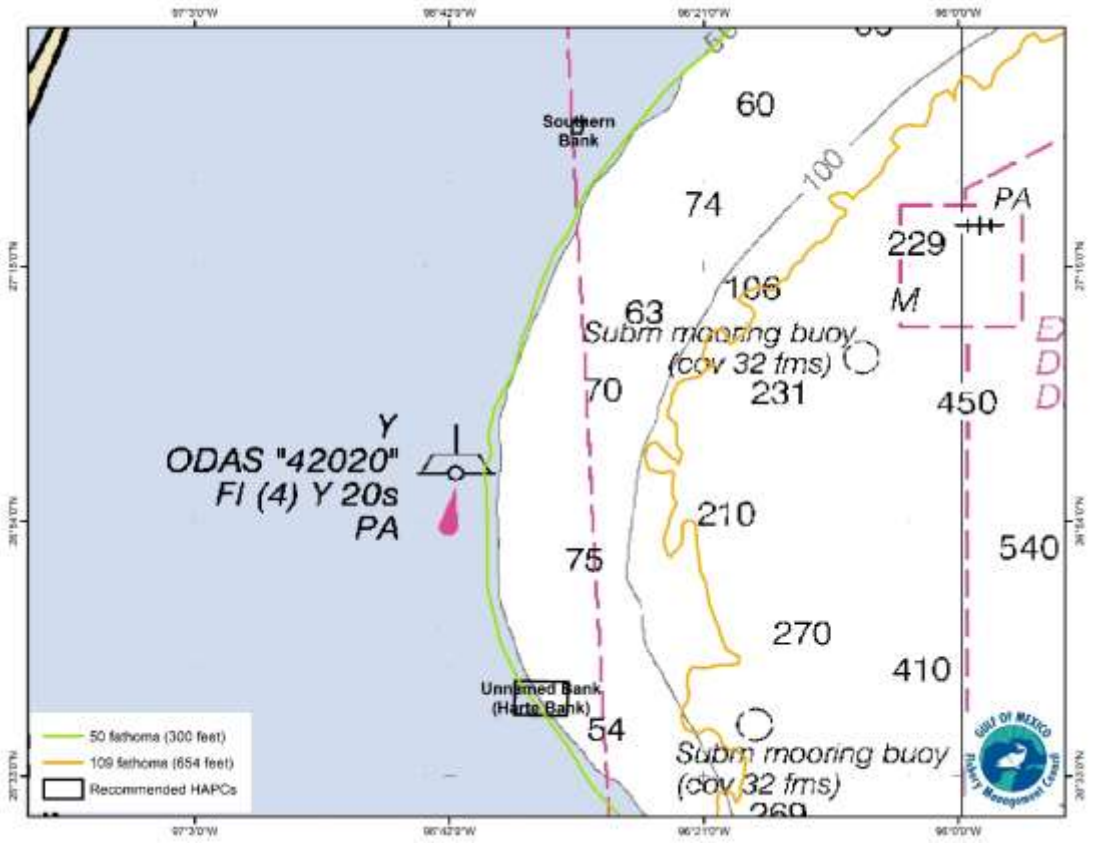

Figure H. Southern Bank and Unnamed Bank (Harte Bank) overlaid on a nautical chart.