Draft Options Paper

Modifications to Shrimp and Golden Crab Access Areas

Amendment 10 to the Coral, Coral Reefs, and Live/Hardbottom Habitats of the South Atlantic Region

Amendment 11 to the Fishery Management Plan for the Shrimp Fishery of the Atlantic

2/12/2018

PURPOSE FOR ACTION

The purpose of Coral Amendment 10 and Shrimp Amendment 11 is to modify the access areas for the golden crab and rock shrimp fisheries while maintaining protection of deep-water coral.

NEED FOR ACTION

The need for Coral Amendment 10 and Shrimp Amendment 11 is to increase access in the golden crab fishery and better achieve optimal yield, modify access in the rock shrimp fishery, and provide protection to essential fish habitat and coral.

BACKGROUND

Coral Habitat Areas of Particular Concern (CHAPC) were first developed in Comprehensive Ecosystem Amendment 1 (SAFMC 1999) and were designed to protect areas with known or likely habitats for coral. The amendment prohibited the use of bottom longlines, traps, pots, and bottom trawls within the CHAPC. The areas were expanded in 2010 and 2015 after new coral areas were discovered (SAFMC 2009, SAFMC 2014). Access areas were created within the CHAPCs to allow for the golden crab and rock shrimp fisheries to operate in historic fishing areas and areas where their gear would not damage or become entangled in coral.

The golden crab fishery is a limited entry fishery that typically operates off Florida but there are fishing zones throughout the South Atlantic region. The three fishing zones are: Northern Zone (north of 28º N lat), Middle Zone (25 to 28º N lat) and Southern Zone (south of 25º N lat) (**Figure 1.1**). In the Northern Zone, golden crab traps cannot be fished in less than 900 feet, and in the Middle and Southern zones, golden crab traps cannot be fished in less than 700 feet. The Southern Zone includes a sub-zone called the small-vessel sub-zone. Within this sub-zone, fishing vessels must be less than 65 feet and be permitted to fish in the southern zone.

When the Stetson Miami Terrace CHAPC was created, it restricted access for the golden crab fishermen in the Northern Zone. Golden crab fishermen requested that historic access to the fishery be reestablished in the Northern Zone at an advisory meeting in January 2013. There was some concern that new closed areas had limited fishable areas for the fishery. Specially, the fishermen wanted historic information from a South Carolina Department of Natural Resource study be plotted, landings from areas north of the Florida/Georgia border be analyzed, and a description of information used to close the area.

Wenner and Ulrich (1987 and 1988) conducted a two-year investigation into potential fishing areas for golden crab off Georgia and South Carolina (**Figure 1.2**). In general, the study caught higher densities of golden crab in areas with silt-clay or foraminiferan tests substrate compared to areas with coral rubble substrate. The highest catch rates occurred from 1,200 to 1,800 feet. In this depth and shallower, male golden crab outnumber female golden crab. When deeper areas were fished, more female golden crab were caught than male.

The researchers indicated that coral mounds were reported to occur in depths from 1,500 to 1,800 feet and reported one large mound in slightly deeper water than most of the golden crab. The study also reported that exploration off Onslow Bay indicated very few golden crab.

The study described the fishing vessel Heavy Duty II as a vessel that was operating in the fishery in 1984 and 1985 off Georgia and South Carolina. The fishery did not take off mainly due to a lack of capital and lack of suitable marketing outlets. A new fishing vessel moved into the Charleston area in 1987 and began fishing.

Landings data for the trips that occurred in 1984 and 1985 have not been found. Searches were done in the Accumulated Landings System, Atlantic Coast Cooperative Statistic Program, and South Carolina Department of Natural Resources. South Carolina landings of golden crab were reported in 1987, 1995, and 1996; however, these data are confidential.

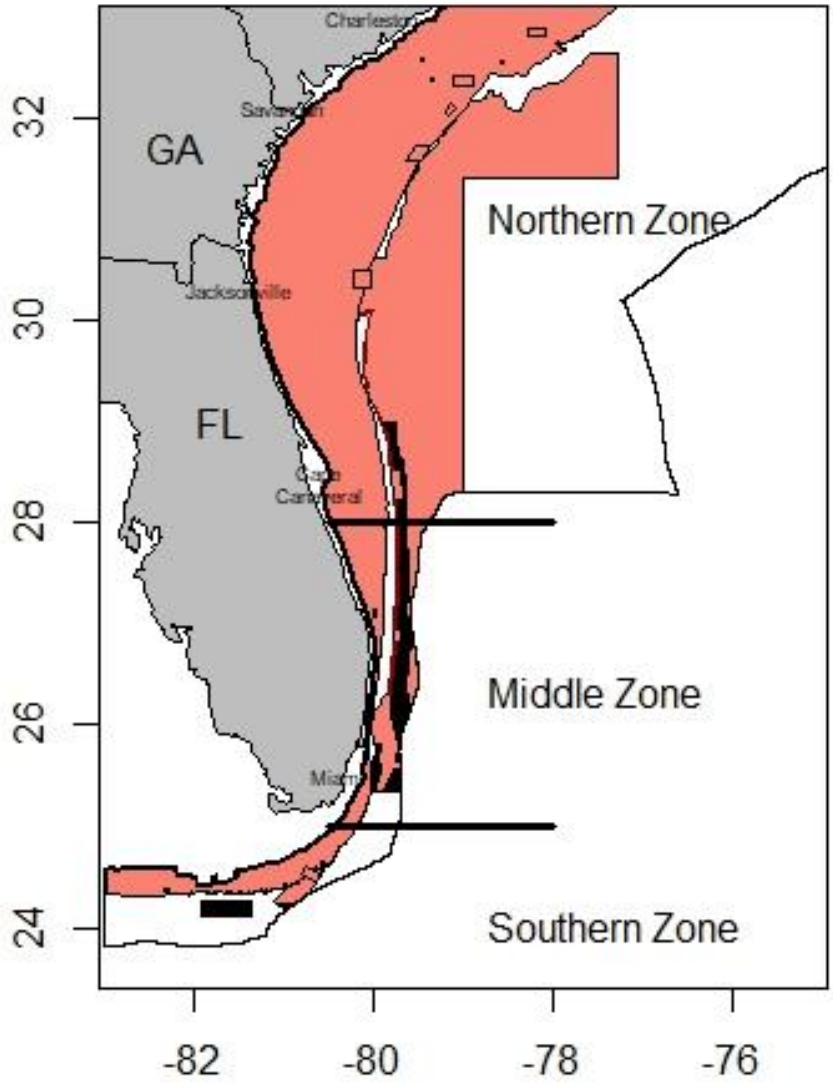

Figure 1.1. Map of the fishing zones for the golden crab fishery in the South Atlantic region. Areas in black are access areas inside Coral Habitat Areas of Particular Concern except for the area shaded in black in the Southern Zone (Small-Vessel Sub-Zone). Other shaded areas are closed to golden crab fishing based on depth or other regulation.

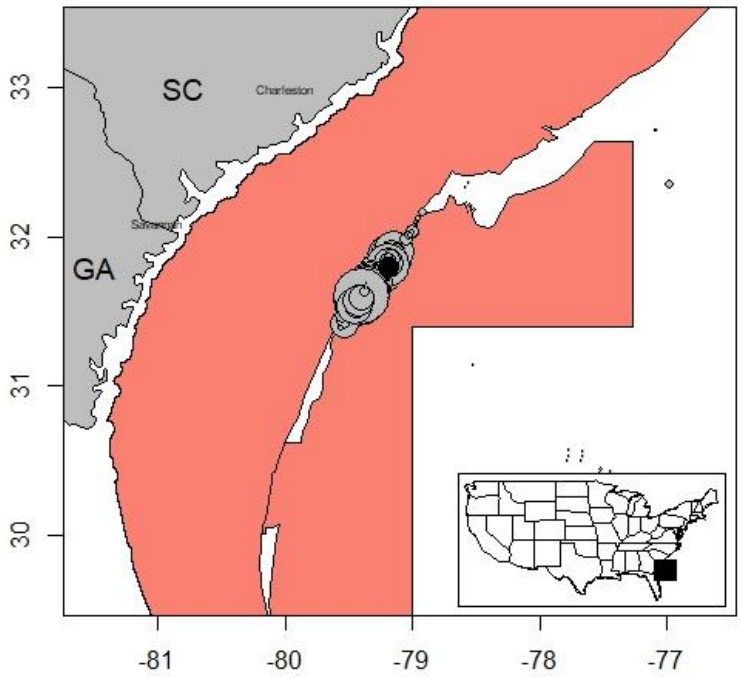

Figure 1.2. Map of catch per trap for golden crab (gray circle) by location from Wenner and Ulrich (1986) and (1987). Larger circles indicate more crab caught per trap. The black circle in the center is the location of a coral mound identified during the study. Shaded areas are closed to golden crab fishing.

The final selection of the 2009 CHAPCs and access areas were based on reports provided to the Council on coral resources in the South Atlantic region (Appendix A-D in CEBA 1 [SAFMC 2009]) and discussions of the Coral, Habitat Protection, Deep-water Shrimp, Golden Crab, and Law Enforcement Advisory Panels (SAFMC 2009). The Council wanted to provide historic access to the fishery using location of fishing effort (SAFMC 2009). There was limited information on where the golden crab fishery operated off Georgia and South Carolina and there were only three years with South Carolina landings compared to off Florida, which had landings every year.

Since the development of these CHAPCs, a predictive model (Kinlan et al. 2012) and the Deep-Sea Coral Research and Technology Program Data Portal[1] were developed (**Figure 1.3**). The predictive model indicates deep-water coral in the location of the Stetson/Miami Terrace. Observed locations of coral habitat from the Deep-Sea Coral Research and Technology Program Data Portal can be plotted on along with the predictive models. Many of these observed points

[1] https://deepseacoraldata.noaa.gov/website/AGSViewers/DeepSeaCorals/mapSites.htm

were used in the creation of the predictive model but observed locations are useful when investigating the potential impact of opening an area to bottom-disturbing gear.

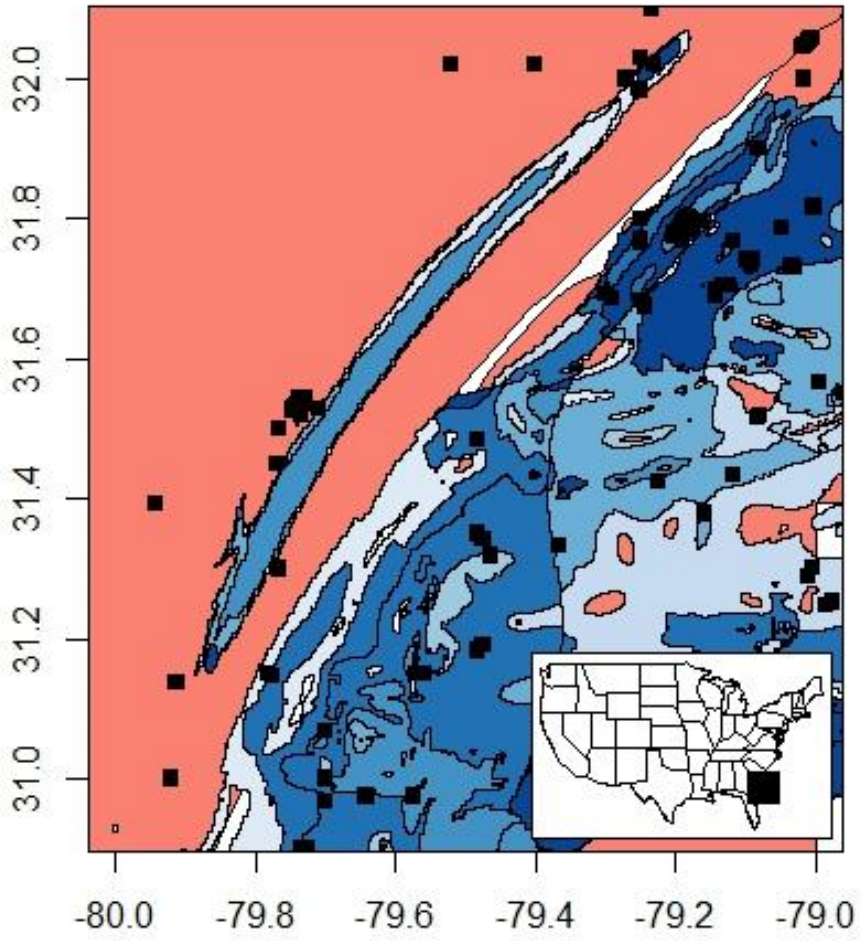

Figure 1.3. Map of predicted coral areas for framework forming scleractinia coral (bottom and right of map) and *Oculina varicosa* (middle of map) from Kinlan et al (2012) focused on areas where golden crab were reported in Wenner and Ulrich (1986 and 1987). Darker blues indicate higher probability of coral. Areas colored in salmon are closed areas to golden crab fishing. The black squares are reported locations of coral from the Deep-Sea Coral Research and Technology Program Data Portal.

The catch of reported during in Wenner and Ulrich (1986 and 1987) indicated most of the golden crab catches occurred in the portion of the Stetson-Miami Terrace off Georgia and South Carolina (**Figure 1.4**). There is overlap in the predicted coral habitat with catches of golden crab. Wenner and Ulrich (1986 and 1987) reported the habitat where the traps were set and indicated that the highest catches of golden crab occurred in habitats without coral. There is an opportunity to map this area in May and results could be available later in the year to confirm predictions of the model or observations from Wenner and Ulrich (1986 and 1987).

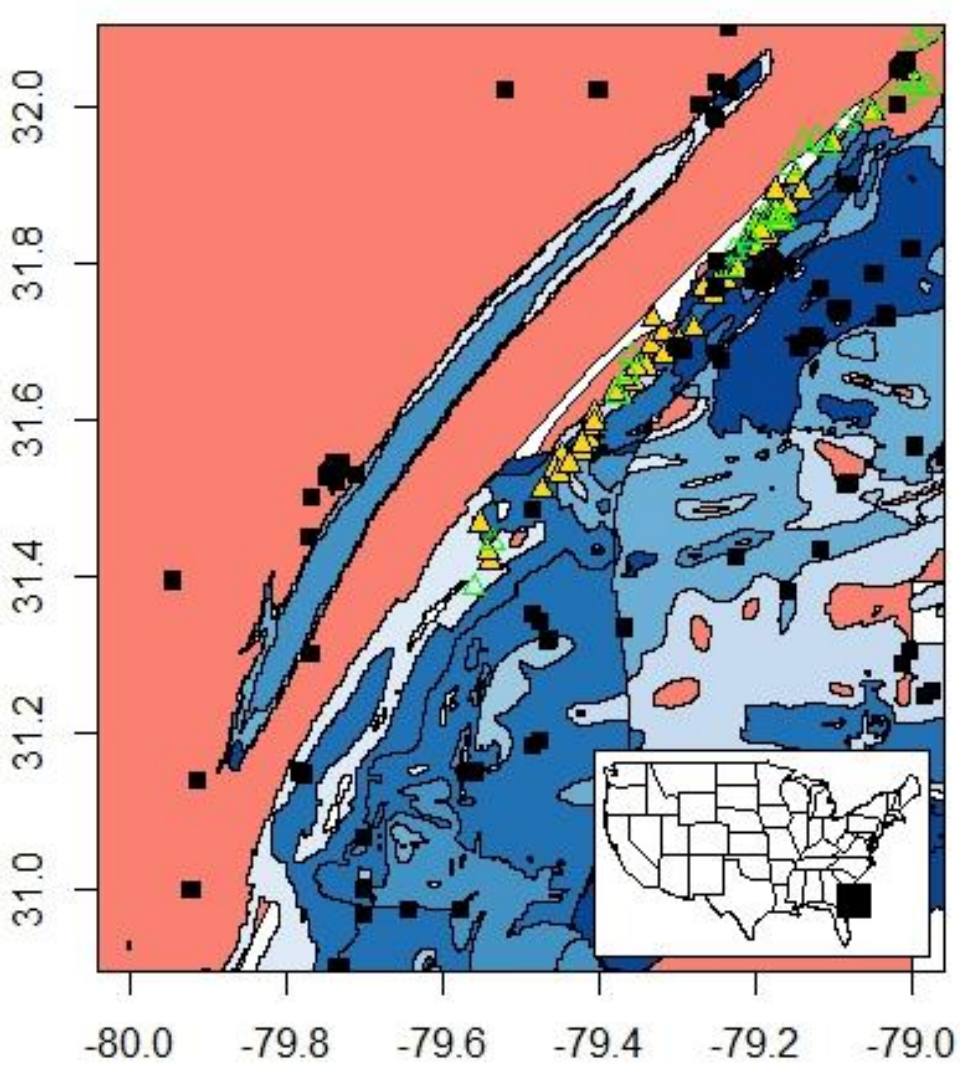

Figure 1.4. This is enlarged map of **Figure 1.3** with locations of golden crab catch (filled yellow triangles) and no catch (unfilled green triangles) from Wenner and Ulrich (1986 and 1987) added. Darker blues indicate higher probability of coral based predictions from Kinlan et al. (2012). Areas colored in salmon are closed areas to golden crab fishing. The black squares are reported locations of coral from the Deep-Sea Coral Research and Technology Program Data Portal.

Adding this new area should not risk exceeding the annual catch limit for golden crab as the current catches are below their annual catch limit (**Table 1**). The golden crab fishery is limited entry, and the number of fishermen in each zone are limited to reduce competition for space.

In 2015, the CHAPC was expanded due to the discovery of additional coral mounds. The expansion of these areas had little impact on the golden crab fishermen. However, rock shrimp fishermen were very concerned with the northern expansion of the Oculina Bank, particularly the eastern edge. The Council worked with the Coral and Deep-water Shrimp Advisory Panels to best protect coral and allow for the fishery to operate in historic fishing areas. During and after

approval of Coral Amendment 8, the Deep-water Shrimp Advisory Panel requested the line move eastward because there was no coral in the area. The eastern edge of the Oculina Bank was mapped in 2017 to provide better resolution into where the coral habitat and soft bottom sediment occurred (**Figure 1.5**).

Table 1. Commercial landings of golden crab in the South Atlantic region from 2008 to 2017. The annual catch limit (ACL) was put in place in 2012.

Species	Year	ACL (lbs)	Landings (lbs)
Golden Crab*	2008		485,273
Golden Crab*	2009		545,307
Golden Crab*	2010		560,121
Golden Crab*	2011		582,284
Golden Crab^	2012	2,000,000	791,940
Golden Crab^	2013	2,000,000	881,723
Golden Crab^	2014	2,000,000	937,448
Golden Crab^	2015	2,000,000	760,501
Golden Crab^	2016	2,000,000	427,523
Golden Crab^	2017	2,000,000	202,279

*Landings came from the Annual Commercial Landings Statistics webpage.
https://www.st.nmfs.noaa.gov/pls/webpls/FT_HELP.SPECIES
^Landings came from Southeast Regional Office Annual Catch Limit webpage.
http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/index.html

The catches of rock shrimp have been variable over the past decade. Storms, abundance of other shrimp, regulations, and other factors have likely impacted rock shrimp landings. Historically (1980s and 1990s), rock shrimp catches were much higher than they are today. But, the fishery had its best year since 2009 in 2017.

Table 2. Commercial landings of rock shrimp in the South Atlantic region from 2008 to 2017.

Species	Year	Landings*
Rock Shrimp	2008	1,875,108
Rock Shrimp	2009	3,853,240
Rock Shrimp	2010	1,382,142
Rock Shrimp	2011	1,260,309
Rock Shrimp	2012	238,649
Rock Shrimp	2013	740,806
Rock Shrimp	2014	380,012
Rock Shrimp	2015	1,054,522
Rock Shrimp	2016	285,646
Rock Shrimp	2017	2,768,126^

*Landings came from the Annual Commercial Landings Statistics webpage.
https://www.st.nmfs.noaa.gov/pls/webpls/FT_HELP.SPECIES
^Landings came from the Florida Fish and Wildlife Conservation Commission's Commercial Fisheries Landings Summaries. https://public.myfwc.com/FWRI/PFDM/ReportCreator.aspx

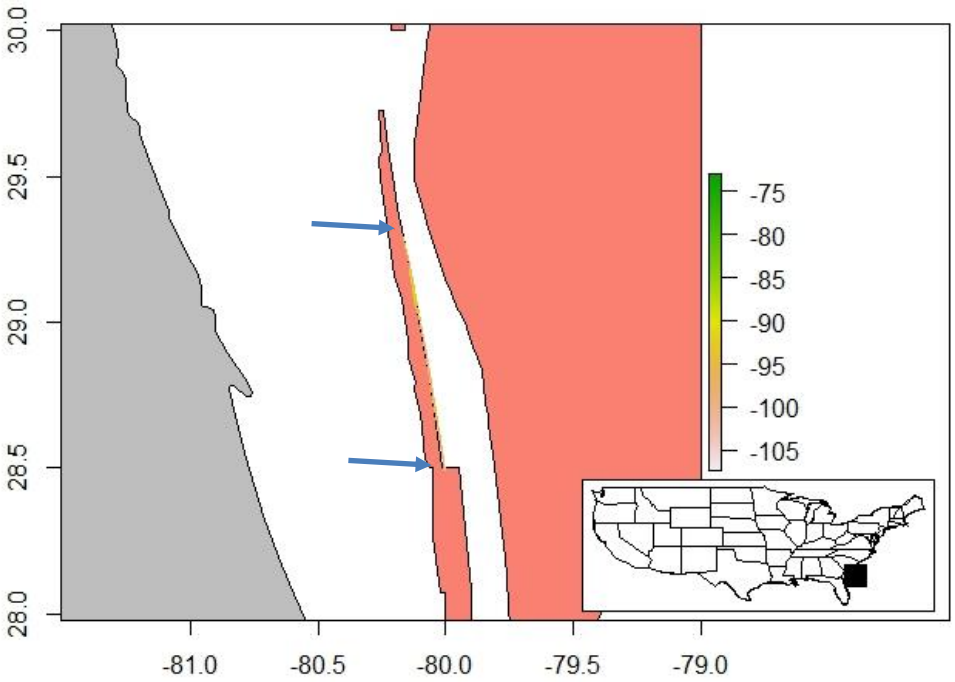

Figure 1.5. Map of Oculina Bank and Stetson-Miami Terrace along with the new NOAA mapping data from 2017. The arrows indicate the beginning of the mapping. Due to the resolution of the data, files were created to allow for user to investigate in higher detail through Google Earth. Oculina Bank boundary and mapping data can be downloaded and imported into the program.

POSSIBLE MANAGEMENT APPROACHES

Typical management approaches for protecting deep-water coral has been to prohibit the use of anchor, anchor and chain, or grapple and chain by all fishing vessels and prohibit the use of bottom-disturbing fishing gear. Bottom-disturbing fishing gear include bottom longlines, trawls, dredge, and pots. Unlike other habitats, coral cannot recover quickly after the area has been impacted. Some of the corals are reef forming and the age of some deep-water corals reefs has been greater than 800 years. Other corals are non-reef forming but instead can form bush or tree-like structures. Black coral, for example, can live to be greater than 2,000 years old (Prouty et al. 2011).

POSSIBLE ACTIONS AND ALTERNATIVES

Action 1. Adjust the golden crab access areas Stetson Miami Coral Habitat Area of Particular Concern (CHAPC)

Alternative 1 (No Action). Do not modify "Allowable Golden Crab Fishing Areas" within the CHAPC boundaries of the northern zone.

Alternative 2. Create a new "Allowable Golden Crab Fishing Areas" within the CHAPC boundaries of the northern zone.

Discussion
An example new Allowable Golden Crab Fishing Zone could extend from approximately 31.7 N 79.3 W southeast to 31.2 N 79.8 W and encompass the areas in the CHAPC (**Figure 1.6**). This fishing zone would miss many of the areas that have documented coral and encompass areas with the highest golden crab catches. The fishing zone would overlap with some areas that have a high probability of coral. There is an opportunity to have this mapped over the summer and, if mapped, the information should be available by September 2018.

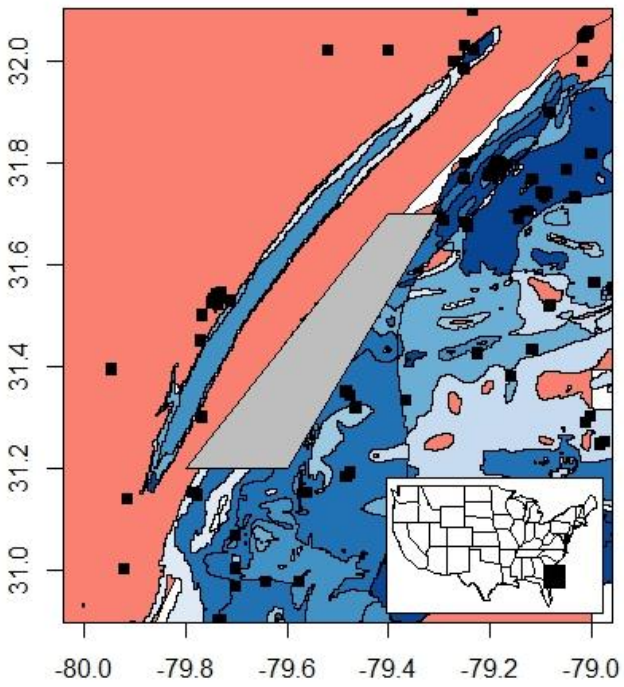

Figure 1.6. This is same map as **Figure 1.4** with an example of a fishing access area in the Northern Zone (gray box). Darker blues indicate higher probability of coral based predictions from Kinlan et al. (2012). Areas colored in salmon are closed areas to golden crab fishing. The black squares are reported locations of coral from the Deep-Sea Coral Research and Technology Program Data Portal.

Action 2. Adjust the Oculina Bank Habitat Area of Particular Concern (OHAPC) boundary.

Alternative 1 (No Action). Do not modify the Oculina Bank OHAPC boundary to allow additional access for the rock shrimp fishery.

Alternative 2. Adjust the boundary on the eastern edge of the Oculina Bank OHAPC.

Discussion
The eastern edge of the Oculina Bank does not appear to have large coral mounds in most of the areas, but the information needs to be reviewed to ensure that opening the area would not impact coral. There is an area on the northern end that has 50 feet change in depth. This could be a

coral mound. An example area could be from 29.12 N 80.13 W extending southeast to 28.5 N 80.01 W extending west to 28.50 N to 80.02 W extending north to 29.12 N 80.14 W (**Figure 1.7**).

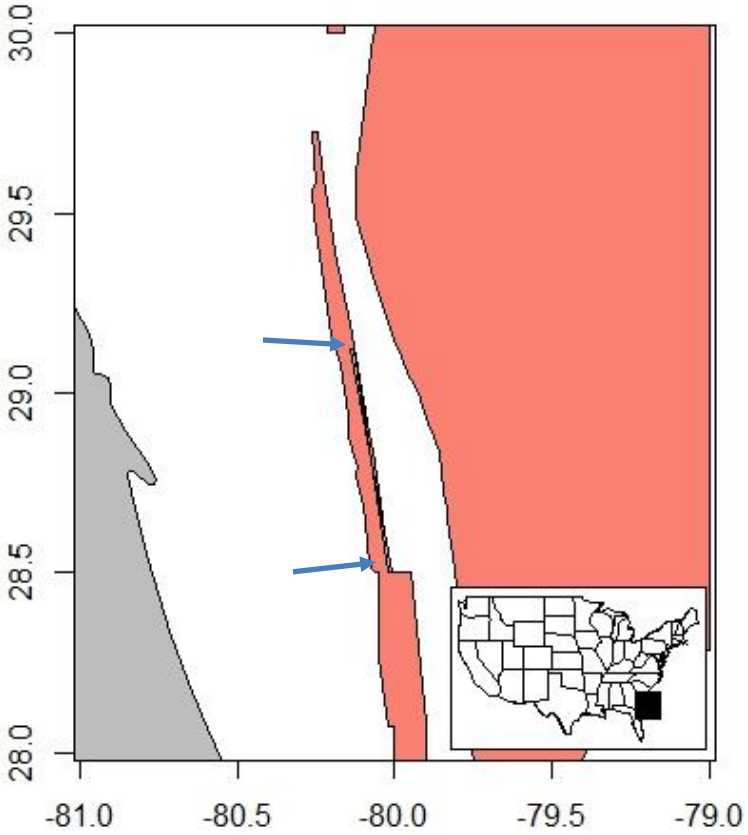

Figure 1.7. This is same map as **Figure 1.5** with an example of a fishing access area in the Northern Zone (gray box). Areas colored in salmon are closed areas to trawling.

DRAFT TIMELINE

Draft options paper reviewed – March 2018
Scoping draft paper presented to Council – June 2018
Scoping hearings – August 2018
Review scoping comments and revise actions/alternatives – September 2018
Review effects analysis and approve for public hearings – December 2018
Public hearings – January/February 2019
Review public hearings comments and approve all actions and alternatives – March 2019
Final action to approve for Secretarial review – June 2019