

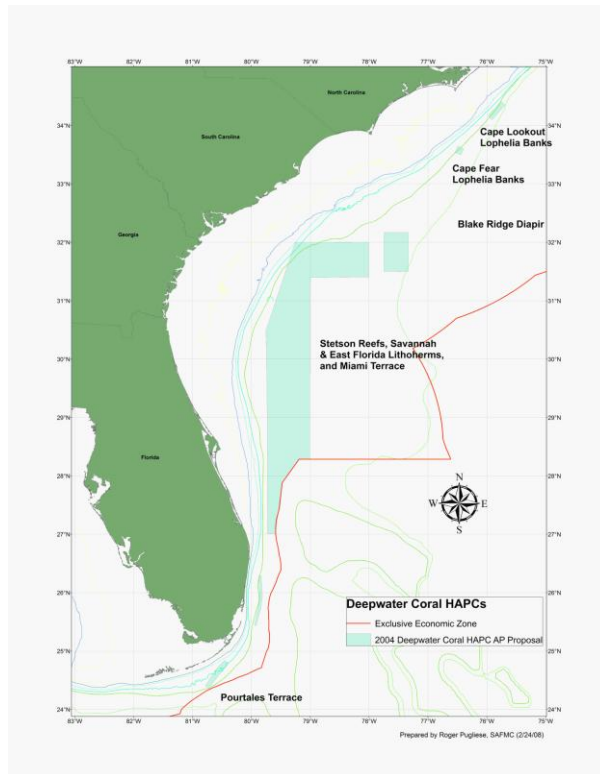
## **APPENDIX E. Alternatives the Council considered but eliminated from detailed study and a brief discussion of the reasons for their elimination**

Pursuant to the FMP for Coral, Coral Reefs and Live/hard bottom habitat of the South Atlantic Region (GMFMC & SAFMC 1982), the Council may designate Coral Habitat Areas of Particular Concern (CHAPCs) to primarily protect habitat from the impact of fishing. In 1998 the Comprehensive Essential Fish Habitat Amendment (SAFMC 1998) established a framework procedure whereby technical advisors would provide the Council with a science-based report on recommendations for designation of any new CHAPCs. In 2004, 2006 and 2007, the Habitat and Coral Advisory Panels met jointly, reviewed available information on the occurrence and characterization of deepwater habitat and provided the Council with summary reports presented in **Appendices A, B, C, and D**. The Council adopted the five alternatives for consideration at public hearings that were held in May 2008. These alternatives were brought to public hearing along with alternatives to address potential fishery impacts on the deepwater habitat from trawling and trapping. Subsequently, the alternatives presented in **Section 4.0** are the result of a long-term process to create new deepwater CHAPCs. In addition, the alternatives as refined are a result of cooperation and collaboration with the royal red shrimp fishermen and the golden crab fishermen to identify traditional fishing grounds and select measures which provide for traditional fishing operations in areas which will not impact deepwater bottom habitat. The following are alternative considered but eliminated for designation of deepwater coral HAPCs; regulation of the deepwater shrimp fishery operations relative to the proposed CHAPCs; regulation of the golden crab fishery relative to the proposed CHAPCs; and monitoring of the golden crab fishery.

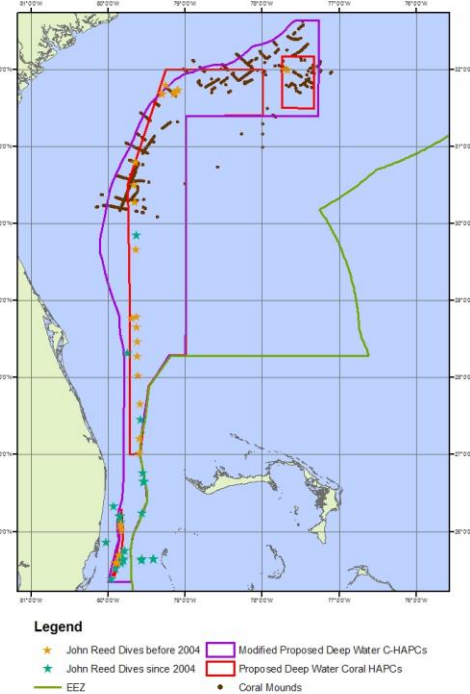
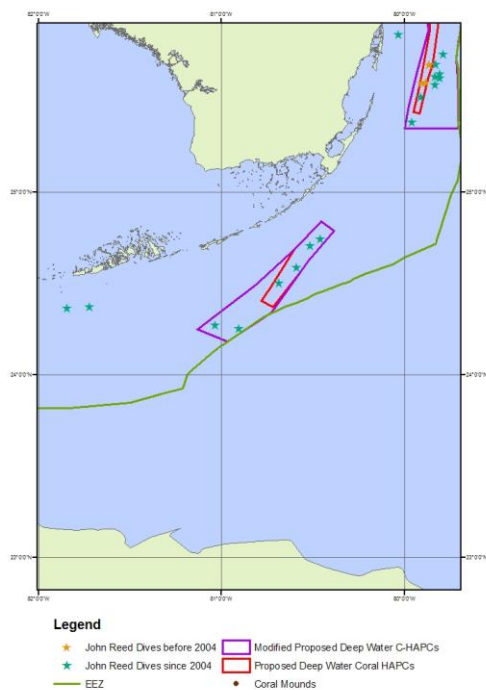
### **A. OTHER ALTERNATIVES CONSIDERED FOR DEEPWATER CHAPCS**

**Other Possible Alternative 1A.** Establish six deepwater Coral Habitat Areas of Particular Concern; 1) Cape Lookout Lophelia Banks HAPC, 2) Cape Fear Lophelia Banks HAPC, 3) the Stetson Reefs HAPC, 4) Savannah and East Florida Lithoherms HAPC; 5) Miami Terrace HAPC; and 6) Pourtales Terrace HAPC.

This alternative (**Figure E-1**) was based on a previously adopted recommendation to the Council submitted by the Habitat and Coral Advisory Panels and supported by information in 2004 reports to SAFMC on deepwater coral habitat distribution in the South Atlantic Region. The alternative was removed from consideration after new information on deepwater habitat distribution and characterization was provided in updated technical reports (Reed 2006 and Ross 2006) to the Council. The new information served as the foundation for adoption of the combined CHAPC proposals by the Council for further consideration and analyses. In addition, the area was recommended by advisors as a network of CHAPCs. This alternative was eliminated from detailed consideration in lieu of analyzing each as a sub-alternative. **Figures E-2 and E-3** present new dive and other habitat distribution and research that provided the foundation to expand and consolidate the initially proposed CHAPCs.



**Figure E-1. insert title.**



**Figures E2 and E3. insert title.**

(Note: Proposed DWCHAPCs do not include additional AP recommended modifications to use 300 meter contour for Miami Terrace area of CHAPC and extension of western boundary to cover special habitats identified in Popenoe maps).

The above maps show the original deepwater CHAPC proposal and the revision developed at June 2006 Joint Habitat and Coral Advisory Panel Meeting to reflect habitat-driven consolidation of six areas into four deepwater CHAPC proposals.

**Other Possible Alternative 2A.** Establish the Cape Lookout Lophelia Banks HAPC.

The alternative was removed from consideration and eliminated from detailed study after new information on deepwater habitat distribution and characterization was provided in technical reports (Ross 2006) to the Council. New information provided the Habitat and Coral Advisory Panels and the Council with more detailed information on distribution and characterization of deepwater habitat off North Carolina. Alternatives considered subsequently more accurately represent the known distribution of deepwater coral habitat offshore of Cape Lookout.

**Other Possible Alternative 3A.** Establish the Cape Fear Lophelia Banks HAPC.

The alternative was removed from consideration and eliminated from detailed study after new information on deepwater habitat distribution and characterization was provided in technical reports (Ross 2006) to the Council. New information provided the Habitat and Coral Advisory Panels and Council with more detailed information on distribution and characterization of deepwater habitat off North Carolina. Alternatives considered subsequently more accurately represent the known distribution of deepwater coral habitat offshore of Cape Fear.

**Other Possible Alternative 4A.** Establish the Stetson Reefs HAPC.

The alternative was removed from consideration and eliminated from detailed study after new information on deepwater habitat distribution and characterization was provided in technical reports (Reed 2006 and Ross 2006) to the Council. New information provided the Habitat and Coral Advisory Panels and Council with more detailed information on distribution and characterization of deepwater habitat off South Carolina and Georgia. Subsequently, later alternatives considered more accurately represent the known distribution of deepwater coral habitat offshore of these states. In addition, merging this alternative with Alternative 5B provides a more complete representation of known deepwater coral habitat distribution from the Stetson Reefs, through the Savannah and East Florida Lithoherms and the Miami Terrace. This alternative was rejected because it would not address the Council's intent to protect the known distribution of deepwater coral habitat.

**Other Possible Alternative 5A.** Establish the Savannah and East Florida Lithoherms HAPC.

The alternative was removed from consideration and eliminated from detailed study after new information on deepwater habitat distribution and characterization was provided in technical reports (Reed 2006 and Ross 2006) to the Council. In addition, merging this alternative with Alternative 5B provides a more complete representation of known deepwater coral habitat distribution from the Stetson Reefs, through the Savannah and East Florida Lithoherms and the Miami Terrace. This alternative was rejected because it would not address the Councils' intent to protect known distribution of deepwater coral habitat.

**Other Possible Alternative 6A.** Establish the Pourtales Terrace HAPC.

The alternative was removed from consideration and eliminated from detailed study after new information on deepwater habitat distribution and characterization was provided in technical

reports (Reed 2006 and Ross 2006) to the Council. This alternative was rejected because it would not address the Councils' intent to protect known distribution of deepwater coral habitat.

## **B. OTHER ALTERNATIVES CONSIDERED FOR REGULATING THE DEEPWATER SHRIMP FISHERY OPERATIONS RELATIVE TO THE PROPOSED CHAPCS**

**Other Possible Alternative 1B.** Amend the Shrimp FMP to Regulate Fishing for or Possession of Shrimp in the Deepwater Coral HAPCs.

The Council considered regulating fishing for deepwater shrimp through the Shrimp FMP but determined a more effective method to address the main action to protect deepwater habitat would be accomplished through gear regulation under the Coral FMP. In addition, regulating the royal red shrimp fishery directly would require adding the species to the management unit and development of SFA parameters for royal red shrimp which could possibly significantly delay implementation of proposed coral protection measures. Therefore, this alternative was considered but eliminated from detailed study.

**Other Possible Alternative 2B.** Prohibit fishing for or possession of deepwater shrimp in or from the deepwater coral HAPCs.

In the area encompassed by the deepwater CHAPCs the following additional regulation would apply: (1) Fishing for or possession of deepwater shrimp (rock shrimp, and royal red shrimp) in or from the HAPCs is prohibited.

The Council considered regulating fishing for deepwater shrimp through the Shrimp FMP but determined a more effective method to address the main action to protect deepwater habitat would be accomplished through gear regulation under the Coral FMP. In addition, regulating the royal red shrimp fishery directly would require adding the species to the management unit and development of SFA parameters for royal red shrimp which could possibly significantly delay implementation of proposed coral protection measures. Therefore, this alternative was considered but eliminated from detailed study.

**Other Possible Alternative 3B.** Prohibit fishing for or possession of shrimp in or from the deepwater coral HAPCs.

In the area encompasses by the deepwater coral HAPCs the following additional regulation would apply: (1) Fishing for or possession of shrimp (white shrimp, brown shrimp, pink shrimp, rock shrimp, and royal red shrimp) in or from the HAPCs is prohibited.

The Council considered regulating fishing for deepwater shrimp through the Shrimp FMP but determined a more effective method to address the main action to protect deepwater habitat would be accomplished through gear regulation under the Coral FMP. In addition, regulating the royal red shrimp fishery directly would require adding the species to the management unit and development of SFA parameters for royal red shrimp which could possibly significantly delay

implementation of proposed coral protection measures. Therefore, this alternative was considered but eliminated from detailed study.

**Other Possible Alternative 4B.** Amend the Shrimp FMP to Establish Allowable Gear Areas and Regulate Fishing for or Possession of Shrimp in the Deepwater Coral HAPCs.

In October 2004 the Council's Habitat and Coral Advisory Panels developed consensus recommendations on measures to be included in the Comprehensive Ecosystem-based Amendment. The Habitat and Coral Advisory Panels indicated that adequate information should be available to define the fishing area from the VMS system required for the rock shrimp fishery. The consensus was that measure could enhance protection of unique habitat values of deepwater coral/habitat including the proposed deepwater CHAPCs and deepwater EFH-HAPCs including the Charleston Bump EFH-HAPC.

Creation of allowable gear areas outside the CHAPC for the shrimp fishery was considered but eliminated from further consideration. In part, this determination was the result of preliminary VMS information indicating the rock shrimp fishery did not occur in depths even close to the deepwater habitat under consideration. In addition, further analyses of VMS data by NMFS provided the Council with a characterization of royal red shrimp fishing activity which showed virtually all fishing occurred in waters shallower than the proposed CHAPCs. In addition, regulating the royal red shrimp fishery directly would require adding the species to the management unit and development of SFA parameters for royal red shrimp which could possibly significantly delay implementation of proposed coral protection measures. Subsequently, the need to create gear areas for the rock shrimp was not necessary to address gear concerns that could be addressed directly under the Coral FMP.

**Other Possible Alternative 5B.** Establish an Allowable Gear Area for deepwater trawls for the harvest of rock shrimp based on fishing operation area as defined by data from the approved Vessel Monitoring System.

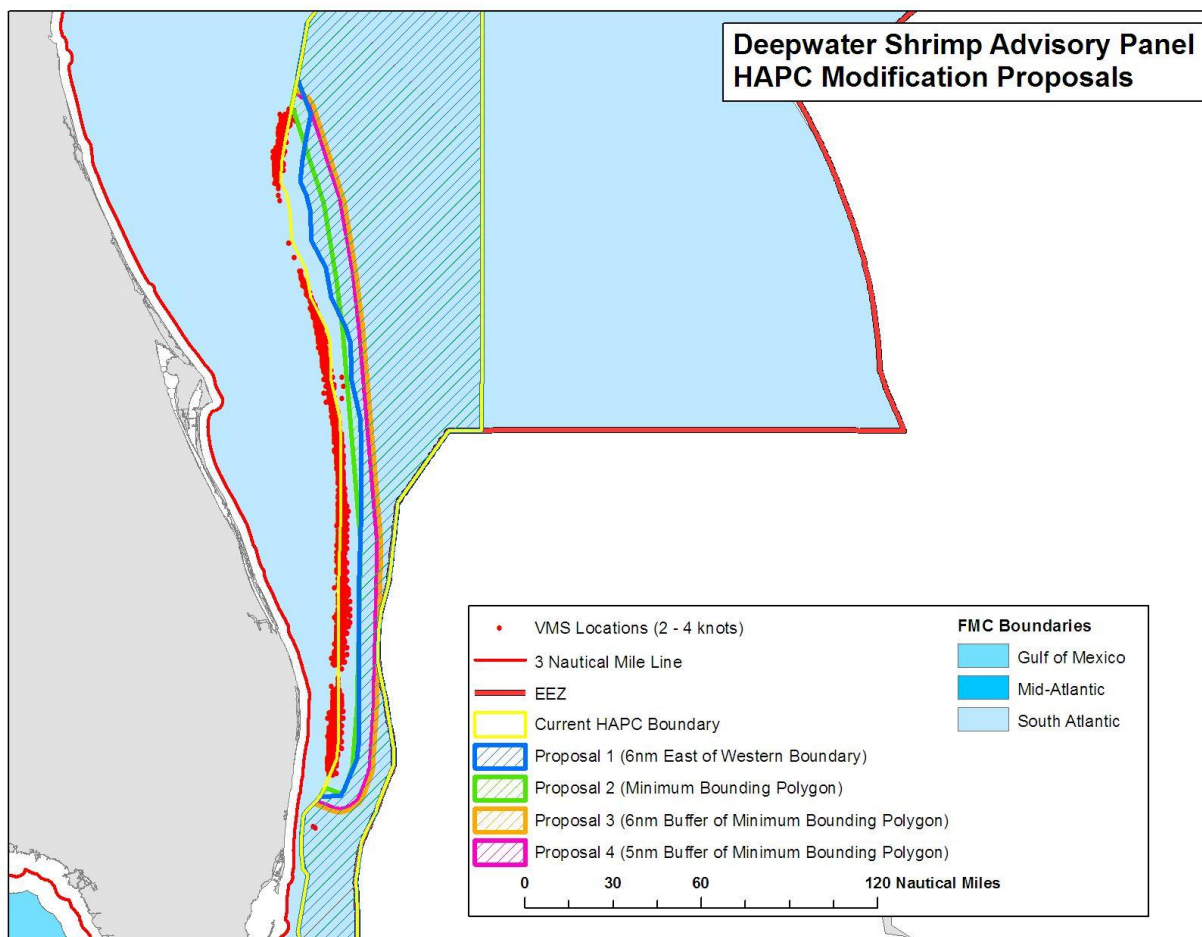
This alternative addressed harvest of rock shrimp which subsequently were found not to occur or be harvested in depths or habitat associated with proposed deepwater CHAPCs. Therefore, this alternative was considered but eliminated from detailed study.

**Other Possible Alternative 6B.** Establish an Allowable Gear Area for deepwater trawls for the harvest of rock shrimp based on fishing operation area as defined by data from the approved Vessel Monitoring System and historic fishing grounds.

This alternative addressed harvest of rock shrimp which subsequently were found not to occur or be harvested in depths or habitat associated with proposed deepwater CHAPCs. Therefore, this alternative was considered but eliminated from detailed study.

**Other Possible Alternative 7B.** Move the west boundary of the proposed CHAPC eastward to exclude all VMS points from the CHAPC.

The Deepwater Shrimp Advisory Panel met formally and informally between January and March 2008 to develop proposals for Council consideration that would allow the fishery to continue to operate while avoiding damaging deepwater coral habitat. The Council approved bringing the alternatives (**Figure E-4**) developed by the Deepwater Advisory Panel to public hearing to collect additional information and input on the proposals. The Council determined that this alternative would allow the fishery to expand and operate in areas of both high and low profile habitat. This alternative would eliminate the minimal impact to the fishery but would potentially allow fishing on known deepwater habitat. The Council, at their June 2008, meeting re-evaluated this alternative after the May 2008 public hearings and approved a motion to eliminate it from further analyses.



**Figure E-4. insert title.**

**Other Possible Alternative 8B.** Move the west boundary of the proposed CHAPC eastward 5 nautical miles from the eastern boundary of the polygon from Alternative 2.

The Deepwater Shrimp Advisory Panel met formally and informally between January and March 2008 to develop proposals for Council consideration that would allow the fishery to continue to operate while avoiding damaging deepwater coral habitat. The Council approved bringing the alternatives (**Figure E-4**) developed by the Deepwater Advisory Panel to public hearing to collect additional information and input on the proposals. The Council determined that this

alternative would allow the fishery to expand and operate in areas of both high and low profile deepwater coral habitat. This alternative would eliminate the minimal impact to the fishery but would potentially allow fishing on known deepwater habitat. The Council, at their June 2008 meeting, re-evaluated this alternative after the May 2008 public hearings and approved a motion to eliminate from further analyses.

**Other Possible Alternative 9B.** Move the west boundary of the proposed CHAPC eastward 6 nautical miles from the eastern boundary of the polygon from Alternative 2.

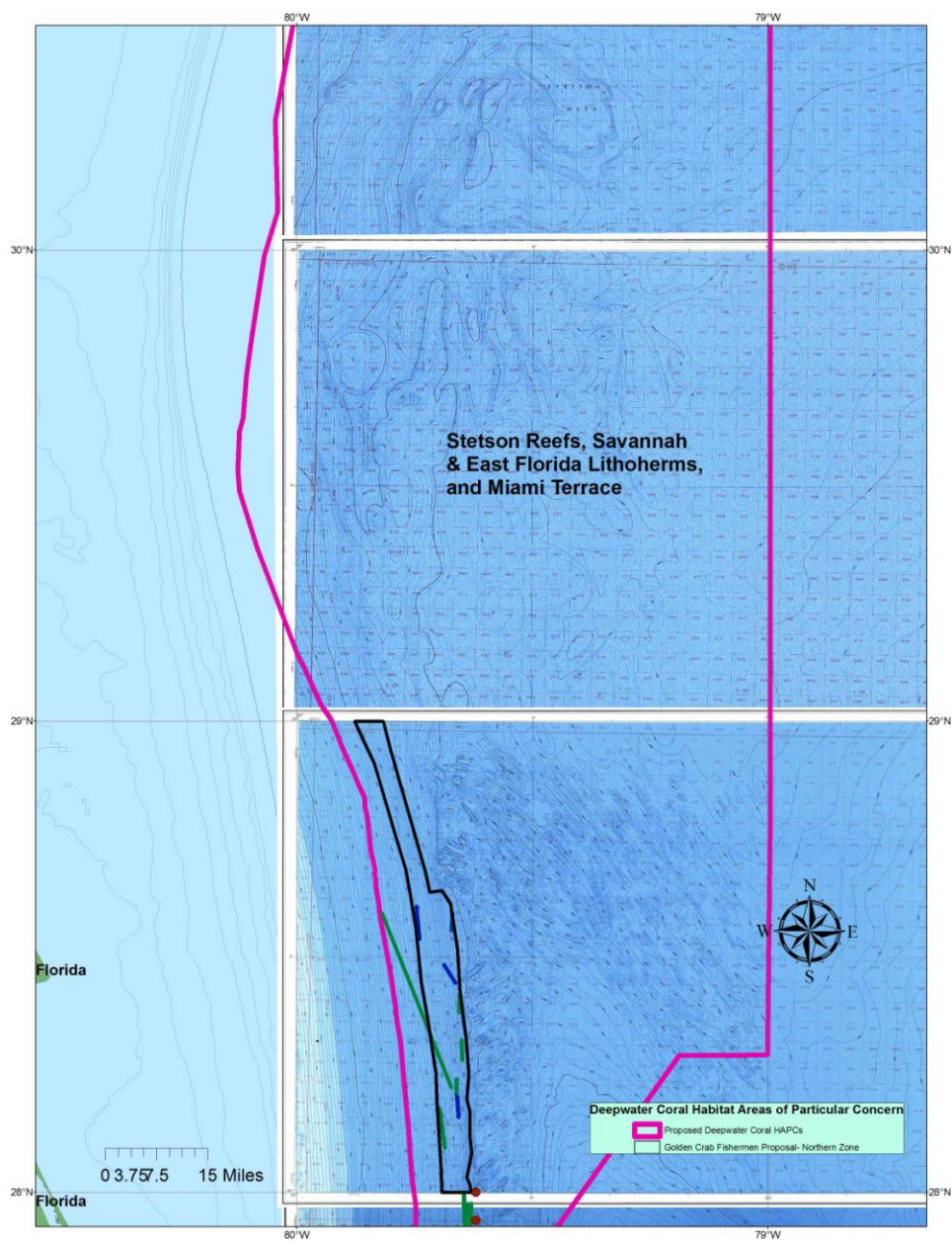
The Deepwater Shrimp Advisory Panel met formally and informally between January and March 2008 to develop proposals for Council consideration that would allow the fishery to continue to operate while avoiding damaging deepwater coral habitat. The Council approved bringing the alternatives (**Figure E-4**) developed by the Deepwater Advisory Panel to public hearing to collect additional information and input on the proposals. The Council determined that this alternative would allow the fishery to expand and operate in areas of both high and low profile deepwater coral habitat. This alternative would eliminate the minimal impact to the fishery but would potentially allow fishing on known deepwater habitat. The Council, at their June 2008 meeting, re-evaluated this alternative after the May 2008 public hearings and approved a motion to eliminate from further analyses.

### **C. OTHER ALTERNATIVES CONSIDERED FOR REGULATING THE GOLDEN CRAB FISHERY OPERATIONS RELATIVE TO THE PROPOSED CHAPCS**

**Other Possible Alternative 1C.** Northern area where fishing is taking place – continue the eastern boundary north from the middle area boundary along the 700 meter depth contour up to 28 degrees 38 minutes, then along the 600 meter contour northwards to 29 degrees. Eastern boundary along the 500 meter contour starting at about 79 degrees 41 minutes; 28 degrees moving northwards. This is a box within a box except that the southernmost boundary must be extended westward to the boundary of the proposed CHAPC.

The Golden Crab AP met on January 27-28, 2008 to review the CHAPC proposal and discuss fishing operations relative to these proposals. Subsequently, Council staff met informally with a number of golden crab fishermen, including some AP members, on February 26, 2008 to help in the refinement of these proposals for consideration at the March Council meeting (**Figures E-5 and E-6**).



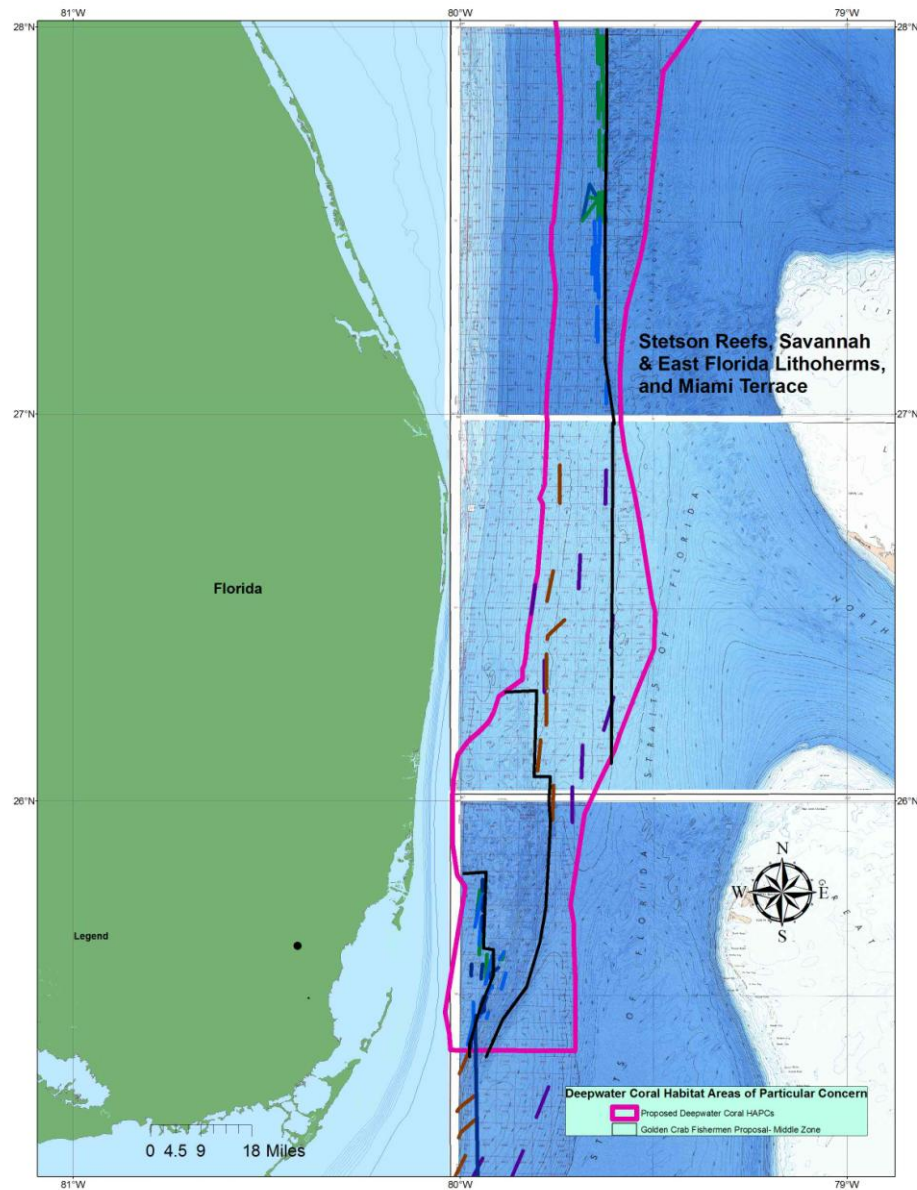


**Figure E-5.** Insert title.

Fishing areas and **Other Possible Alternative 1C** for allowable gear area for golden crab fishing in the CHAPC in the Northern Zone (Data Source: Traps set locations represented by short colored lines, were provided by Golden Crab Fishermen).



**Other Possible Alternative 2C.** Middle area: Move the western boundary towards the east as shown by the latitude/longitude points provided and move the eastern boundary as shown by the latitude/longitude points provided. Create an “allowable golden crab fishing area” within the proposed CHAPC boundaries.



**Figure E-6.** **Insert title**

Fishing areas and **Other Possible Alternative 2C** for allowable gear areas for golden crab fishing in the Coral HAPC in the Middle Zone (Data Source: Traps set locations represented by short colored lines, were provided by Golden Crab Fishermen).

**Other Possible Alternative 3C.** Northern Zone – include provision for areas to be designated as “allowable golden crab areas” after research shows habitat allows fishing (e.g., cooperative research projects).

By eliminating this alternative from detailed consideration the Council reaffirmed their intent to focus action on providing for the traditional fishery.

**Other Possible Alternative 4C.** Create an “allowable golden crab fishing area” in the sand/mud zone in the northern zone.

By eliminating this alternative from detailed consideration the Council reaffirmed their intent to focus action on providing for the traditional fishery. Much of the area proposed would overlap with deepwater habitat and there was not sufficient data to identify it as traditional fishing grounds.

**Other Possible Alternative 5C.** Northern zone: preserve traditional golden crab fishing grounds.

The Advisory Panel chairman clarified at the March 2008 Council meeting that the Panel was recommending the establishment of allowable gear areas for golden crab fishing which lie within the deepwater CHAPC versus moving the proposed boundaries. The Council requested comment on the industry proposal to establish fishing areas where the traditional fishery has operated. The Advisory Panel provided a revised recommendation for the Northern Zone at public hearing (**Figure E-7**). Panel members collaborated with Council staff to further refine those proposals to focus on traditional fishing grounds and areas which would not impact deepwater coral habitat. The Council, at the June 2008, meeting adopted the alternative for the Northern Zone presented in **Section 4.0** as preferred. Therefore, this alternative was considered but eliminated from further detailed study.

**Other Possible Alternative 6C.** Middle zone: preserve traditional golden crab fishing grounds. Revised Alternative- see detailed summary for boundary modifications.

The Advisory Panel chairman clarified at the March 2008 Council meeting that the Panel was recommending the establishment of allowable gear areas for golden crab fishing which lie within the deepwater CHAPC versus moving the boundaries. The Council requested comment on the industry proposal to establish fishing areas where the traditional fishery has operated can continue to operate without impacting deepwater coral habitat. The Advisory Panel provided a revised recommendation for the Middle Zone at public hearing (**Figure E-7**). Panel members collaborated with Council staff to further refine those proposals to focus on traditional fishing grounds and areas which would not impact deepwater coral habitat. The Council, at the June 2008 meeting, adopted the alternative for the Middle Zone presented in **Section 4.0** as preferred. Therefore, this alternative was considered but eliminated from further detailed study.

**Other Possible Alternative 7C.** Southern zone: preserve traditional golden crab fishing grounds. Revised Alternative- see detailed summary for boundary modifications.

The Advisory Panel chairman clarified at the March 2008 Council meeting that the Panel was recommending the establishment of allowable gear areas for golden crab fishing which lie within the deepwater CHAPC versus moving the boundaries. The Council requested comment on the industry proposal to establish fishing areas where the traditional fishery has operated can continue to operate without impacting deepwater coral habitat. The Advisory Panel provided a revised recommendation for the Southern Zone at public hearing (see figure below). Panel members collaborated with Council staff to further refine those proposals to focus on traditional fishing grounds and areas which would not impact deepwater coral habitat. The Council, at the June 2008 meeting adopted the alternative for the Southern Zone presented in Section 4.0 as preferred. Therefore, this alternative was considered but eliminated from further detailed study.

**Other Possible Alternative 8C.** Make the entire portion of the proposed CHAPC between 28 degrees and 29 degrees latitude and east of 79 degrees 30 minutes longitude “an allowable golden crab fishing area”.

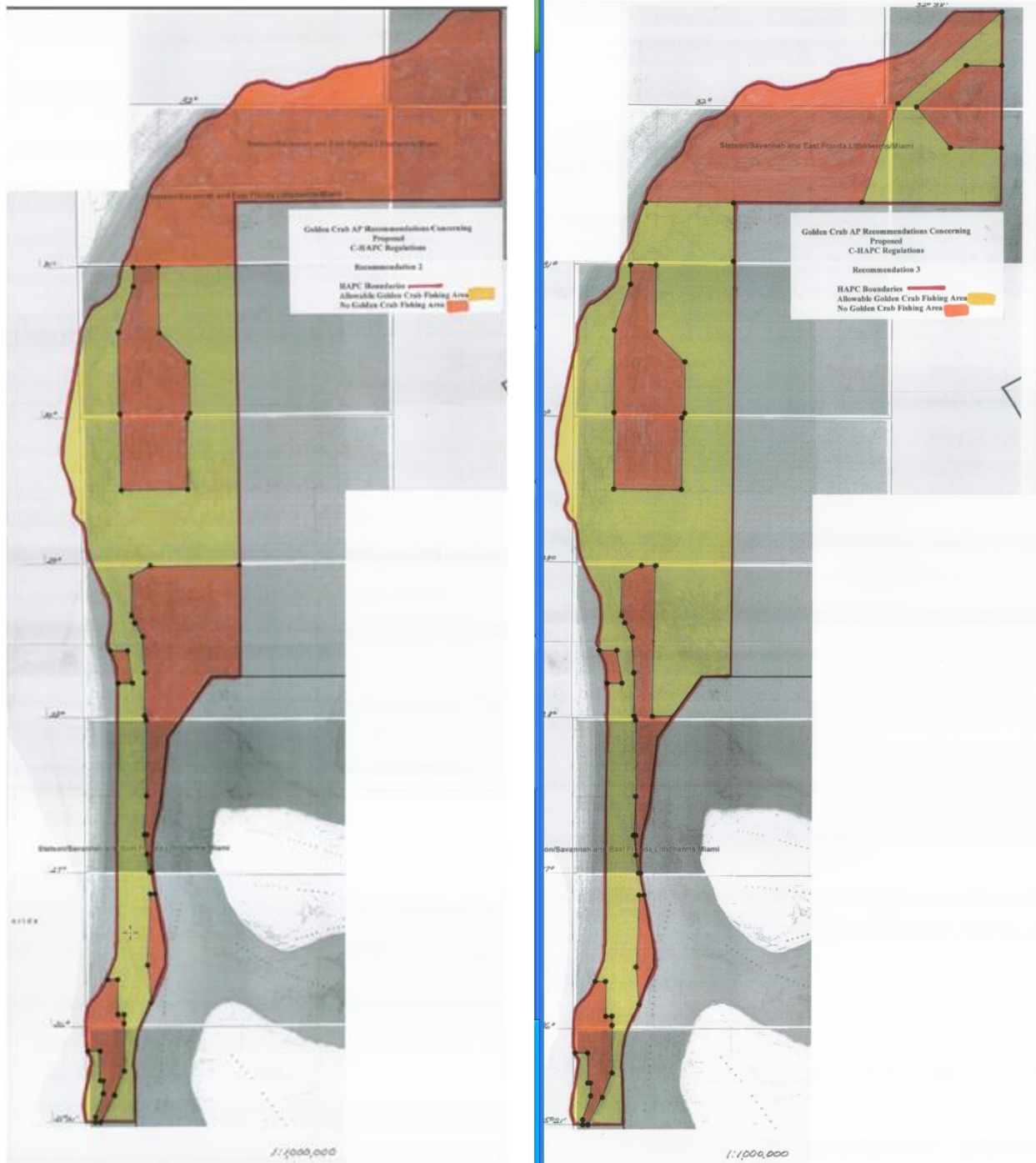
Much of the area proposed would overlap with deepwater habitat and do not have sufficient data to be identified as traditional fishing grounds. Figures below present maps of the proposals and the evaluation of the alternative relative to deepwater habitat information were reviewed with golden crab fishermen and by the Council at the June 2008 Council meeting. The Council concluded eliminating this alternative from detailed consideration would reaffirm the intent to focus present action on providing for the traditional fishery.

**Other Possible Alternative 9C.** Make the entire portion of the proposed CHAPC between 31 degrees and 31 degrees 23 minutes 28 seconds latitude “an allowable golden crab fishing area”.

Much of the area proposed would overlap with deepwater habitat and do not have sufficient data to be identified as traditional fishing grounds. Figures below present maps of the proposals and the evaluation of the alternative relative to deepwater habitat information were reviewed with golden crab fishermen and by the Council at the June 2008 Council meeting. The Council concluded eliminating this alternative from detailed consideration would reaffirm the intent to focus present action on providing for the traditional fishery.

**Other Possible Alternative 10C.** In the extreme northern portion of the CHAPC create a “C” shaped “allowable golden crab fishing area.

The Council concluded by eliminating this alternative from detailed consideration would reaffirm the intent to focus present action on providing for the traditional fishery. Much of the area proposed would overlap with deepwater habitat and have sufficient data to be identified as traditional fishing grounds. The following maps present the proposals and the evaluation of the alternative relative to deepwater habitat information reviewed with golden crab fishermen and at the June 2008 Council meeting.

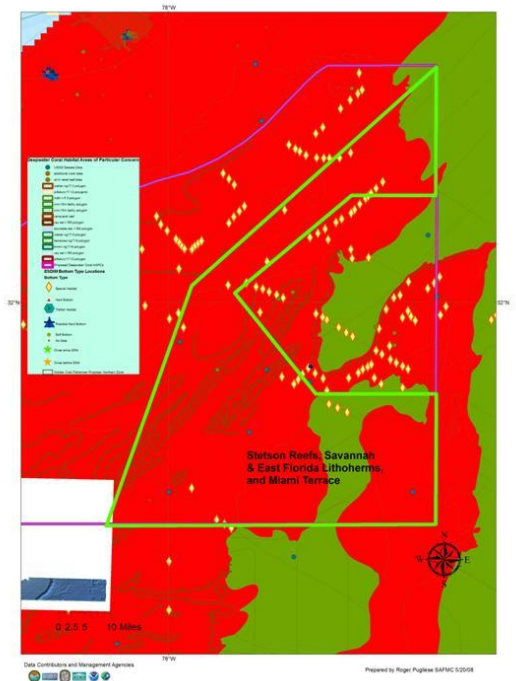
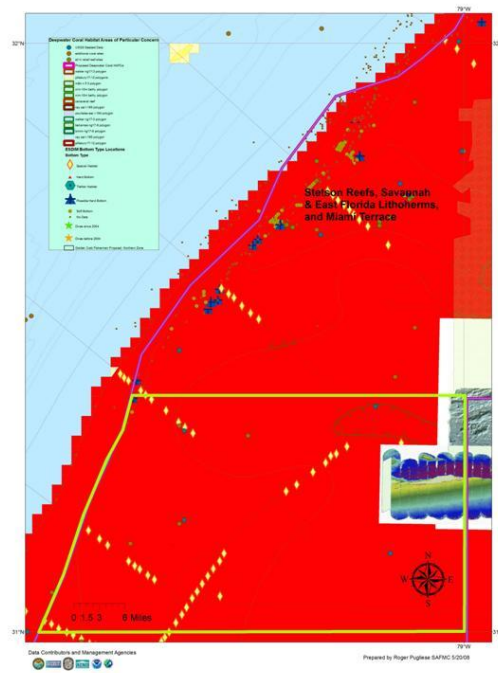
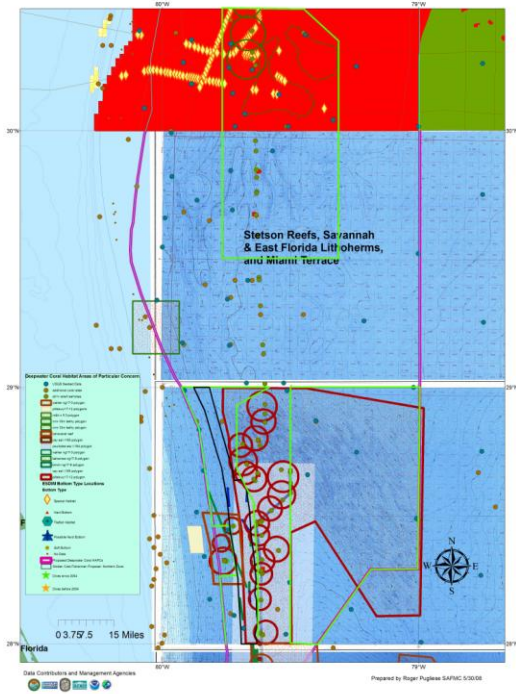


**Figure E-7.** **Insert title**

**Other Possible Options 5C-10C** presented by the Golden Crab Advisory Panel at the May 2008 Public Hearings







Habitat distribution associated with **Other Possible Alternatives 8C, 9C and 10C**

## **D. OTHER ALTERNATIVES CONSIDERED FOR MONITORING THE GOLDEN CRAB FISHERY**

**Other Possible Alternative 1D.** Require monitoring of golden crab vessels using acoustic monitoring. The monitoring of vessels and/or trap sets using acoustics was discussed with the Advisory Panel recommending it be considered for public hearing.

This alternative would provide enforcement of CHAPC and limit golden crab fishing to areas which did not impact habitat. This alternative was brought to public hearing however, while sensors may exist to monitor gear and or the vessel, the network of fixed buoys to hold such monitors and transmission capabilities necessary to monitor the fishery do not exist at this time. In addition, acoustic monitoring in the deep ocean is very limited and even sensors may need to be developed to handle extreme depths or distances signals must travel. Subsequently, the Council at the June 2008 meeting eliminated this alternative from consideration for detailed study and identified it as a future research need.