

**Options Paper**  
for  
**Coral Habitat Areas of  
Particular Concern**  
**Recommendations for Extension**  
**October 2012**

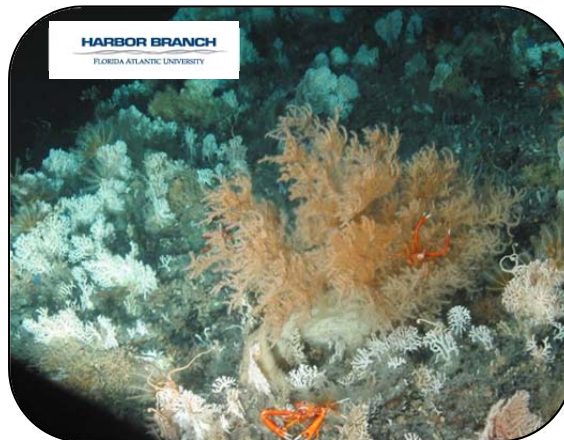


# Why is the South Atlantic Fishery Management Council considering taking Action?

Discoveries of previously uncharacterized areas of deepwater coral resources have been brought forward by the South Atlantic Council's Coral Advisory Panel (AP). Recent scientific exploration has identified areas of high relief features and hardbottom habitat outside of the boundaries of existing Coral Habitat Areas of Particular Concern (HAPCs). During their 2011 October meeting, the Coral Advisory Panel came forward with recommendations to the South Atlantic Council to revisit the boundaries of the Oculina HAPC, Stetson-Miami Terrace Coral HAPC, and Cape Lookout Coral HAPC to incorporate these areas of additional deepwater coral habitat. The Habitat AP reviewed the Coral AP recommendation in November 2011 and discussed protection of habitat associated with the deepwater ecosystem. In addition, the AP was presented preliminary analyses of fishing activity (Vessel Monitoring System data) associated with the HAPC extension recommendations. The South Atlantic Council reviewed the Coral and Habitat APs recommendations and associated VMS analyses for expansion of these areas during their December 2011 meeting, and approved the measures for public scoping in Comprehensive Ecosystem-Based Amendment 3 (CE-BA 3). The Coral and Habitat APs refined their recommendations for expansion during their May 2012 meetings and presented recommendations for these areas during the June 2012 South Atlantic Council meeting.

The Deepwater Shrimp and Shrimp APs reviewed the Coral HAPC expansion recommendations during their April 2012 meeting, and suggested the South Atlantic Council consider modifications to the expansion proposals brought forward by the Coral AP. The Shrimp APs presented their recommendations for these areas during the June 2012 South Atlantic Council meeting.

The South Atlantic Council deferred development of the Coral HAPC measures until a joint AP meeting is held to discuss the various recommendations. The joint meeting of the Coral and Deepwater Shrimp APs, as well as representatives from the Habitat and Law Enforcement APs has been scheduled for October 18, 2012 to allow these groups the opportunity to discuss the various recommendations.



*Live Bottom Habitat on Stetson-Miami Terrace Coral HAPC.  
John Reed, HBOI, FAU*

## Option 1. Expand boundaries of the Oculina Bank HAPC

**Alternative 1 (No Action).** Do not modify the boundaries of the Oculina Bank HAPC.

The existing Oculina Bank HAPC is delineated by the following boundaries: on the north by 28°30' N, on the south by 27°30' N, on the east by the 100-fathom (183-m) contour, and on the west by 80°00' W; and two adjacent satellite sites: the first bounded on the north by 28°30' N, on the south by 28°29' N, on the east by 80°00' W, and on the west by 80°03' W; and the second bounded on the north by 28°17' N, on the south by 28°16' N, on the east by 80°00' W, and on the west by 80°03' W.

**Alternative 2.** Modify the northern boundary of the Oculina Bank HAPC.

**Sub-Alternative 2a.** Modify the northern boundary of the Oculina Bank HAPC from the current northern boundary of the Oculina HAPC (28° 30'N) to 29° 43.5'W. The west and east boundaries would follow the 60 meter and 100 meter depth contour lines, respectively, as represented in the simplified polygon (**Figure 1**). Sub-Alternative 2a = 430 square miles.

The Coral and Habitat APs endorse Sub-Alternative 2a as a preferred alternative. The APs discussed that establishing the northern boundary along the 60 and 100 meter depth contour lines (west and east, respectively) would protect the most amount of coral resources that are not contained within the current HAPC boundary. They discussed that inclusion would allow substrate to recover while conserving hardbottom habitat. Their recommendation is based on NOAA bathymetric charts depicting the original reef tract, and ground-truthed using multibeam surveys and ROV dives during explorations in 2011.

**Sub-Alternative 2b.** Modify the northern boundary of the Oculina Bank HAPC from the current northern boundary of the Oculina HAPC (28° 30'N) to 29° 43.5'W. The west and east boundaries would follow the 70 meter and 90 meter depth contour lines, respectively, as represented in the simplified polygon (**Figure 2**). Sub-Alternative 2b = 228 square miles.

The Shrimp and Deepwater Shrimp APs developed a new alternative for the Council's consideration that builds off of what is delineated in Sub-Alternative 2b. This new alternative is their preferred measure for a northern extension. The recommendation of the APs is based on a modified set of points collected from various captains that have fished the area for decades. Their preferred alternative is depicted in **Figure 6b**.

**Sub-Alternative 2c.** Modify the northern boundary of the Oculina Bank HAPC from the current northern boundary of the Oculina HAPC (28° 30'N) to 29° 43.5'W. The west and east boundaries would follow the 70 meter and 100 meter depth contour lines, respectively, as represented in the simplified polygon (**Figure 3**). Sub-Alternative 2c = 278 square miles.

**Sub-Alternative 2d.** Modify the northern boundary of the Oculina Bank HAPC: from the current northern boundary of the Oculina HAPC (28° 30'N) to 29° 43.5'W. The west

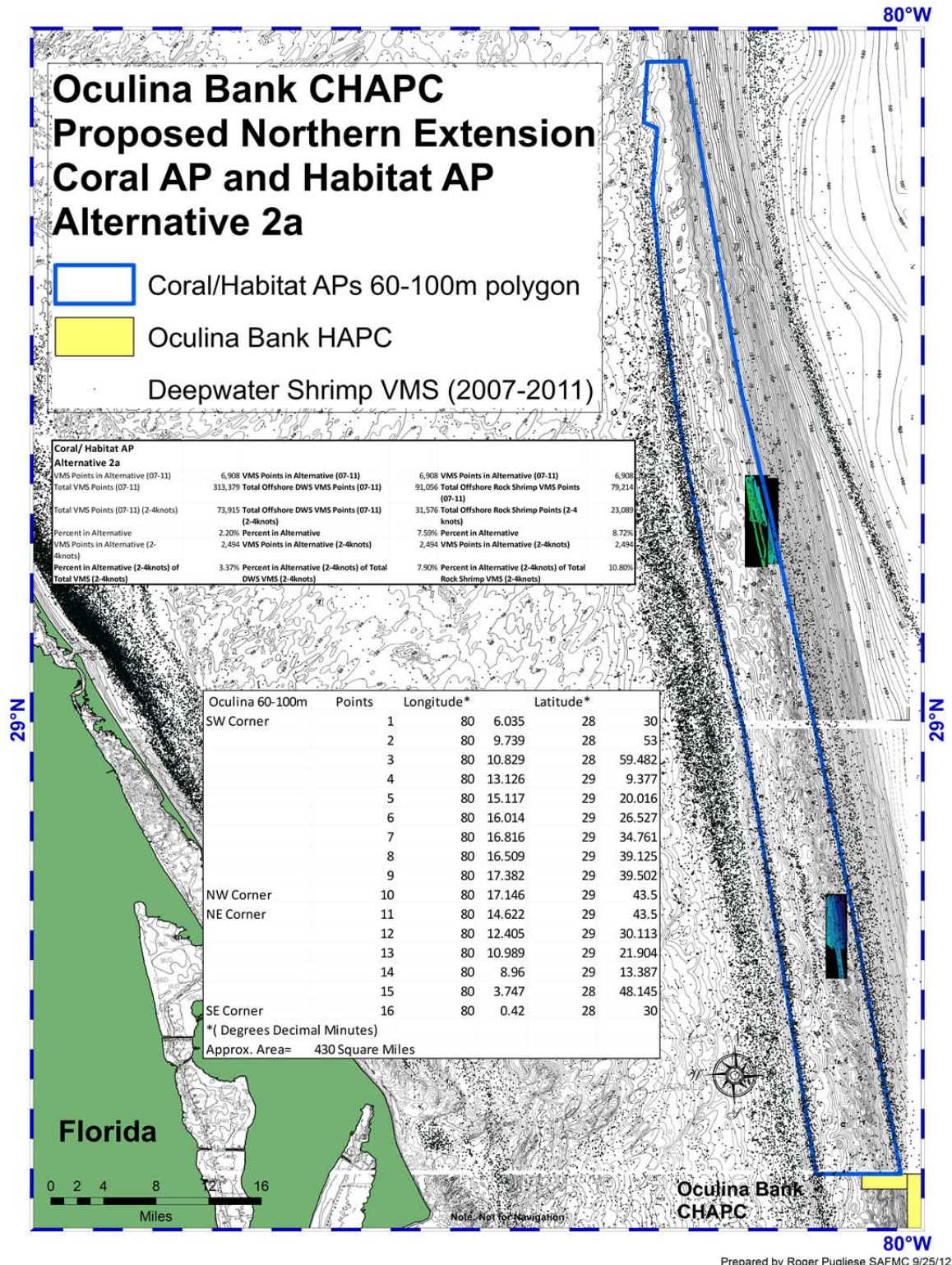
and east boundaries would follow the 60 meter and 90 meter depth contour lines, respectively, as represented in the simplified polygon (**Figure 4**). Sub-Alternative 2d = 380 square miles.

**Alternative 3.** Modify the western boundary of the Oculina Bank HAPC from 28° 4.5'N to the north boundary of the current Oculina HAPC (28° 30'N). The east boundary would coincide with the current western boundary of the Oculina HAPC (80° W). The west boundary could either use the 60 meter contour line, or the 80° 03'W longitude (**Figure 5**). Alternative 3 = 76 square miles.

The Coral and Habitat APs endorse Alternative 3 as a preferred alternative.

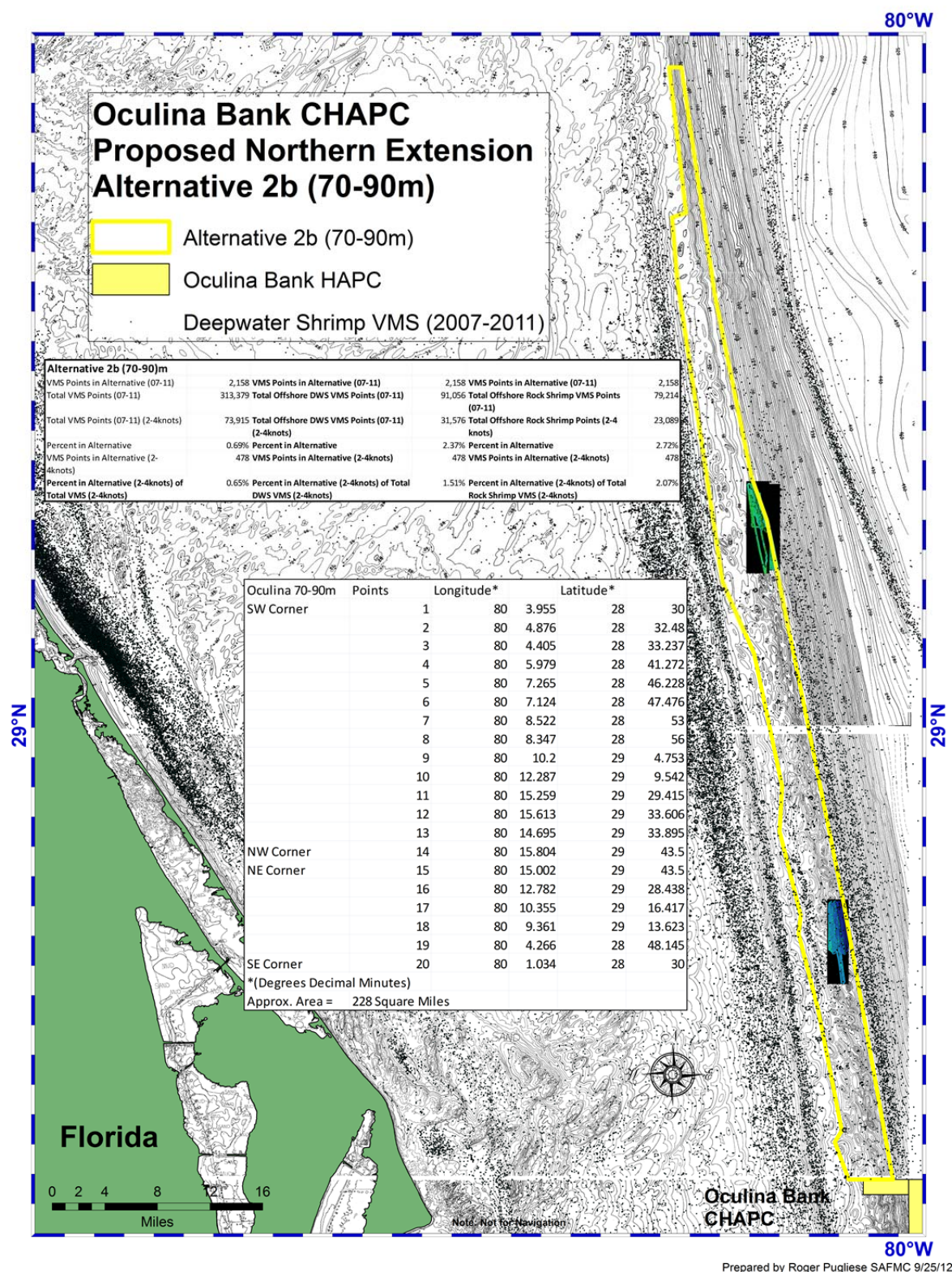
The Shrimp and Deepwater Shrimp APs suggest that the area within the proposed extension of the western boundary might be a candidate for a shrimp fishery access area because there are historical rock shrimp production areas within this proposed extension.





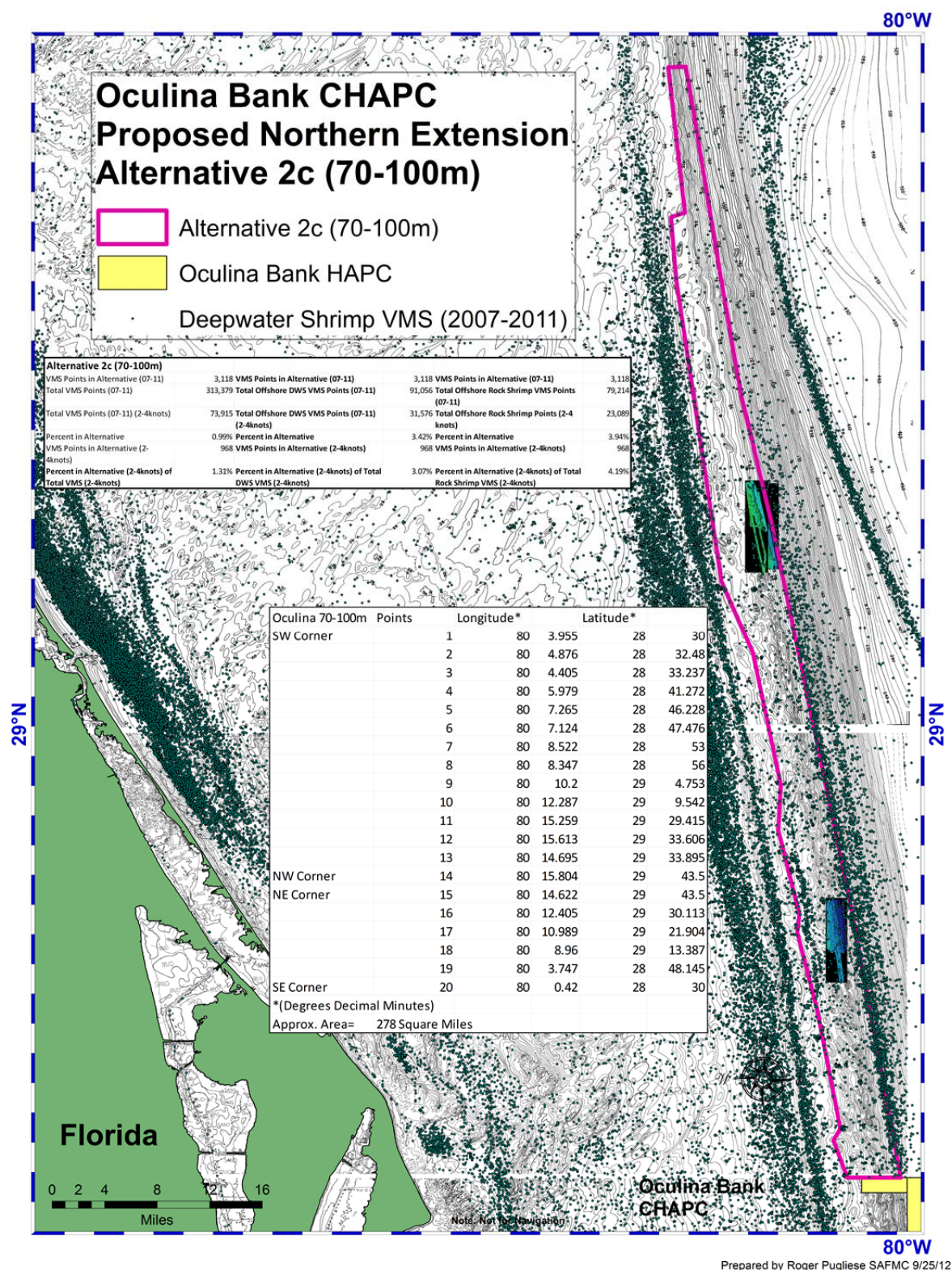
**Figure 1.** Option 1, Sub-Alternative 2a. Modification to the northern boundary of the Oculina Bank HAPC. In this northern zone, the west and east boundaries would follow the 60 meter and 100 meter depth contour lines, as represented in the simplified polygon. This is a preferred option of the Coral and Habitat APs.





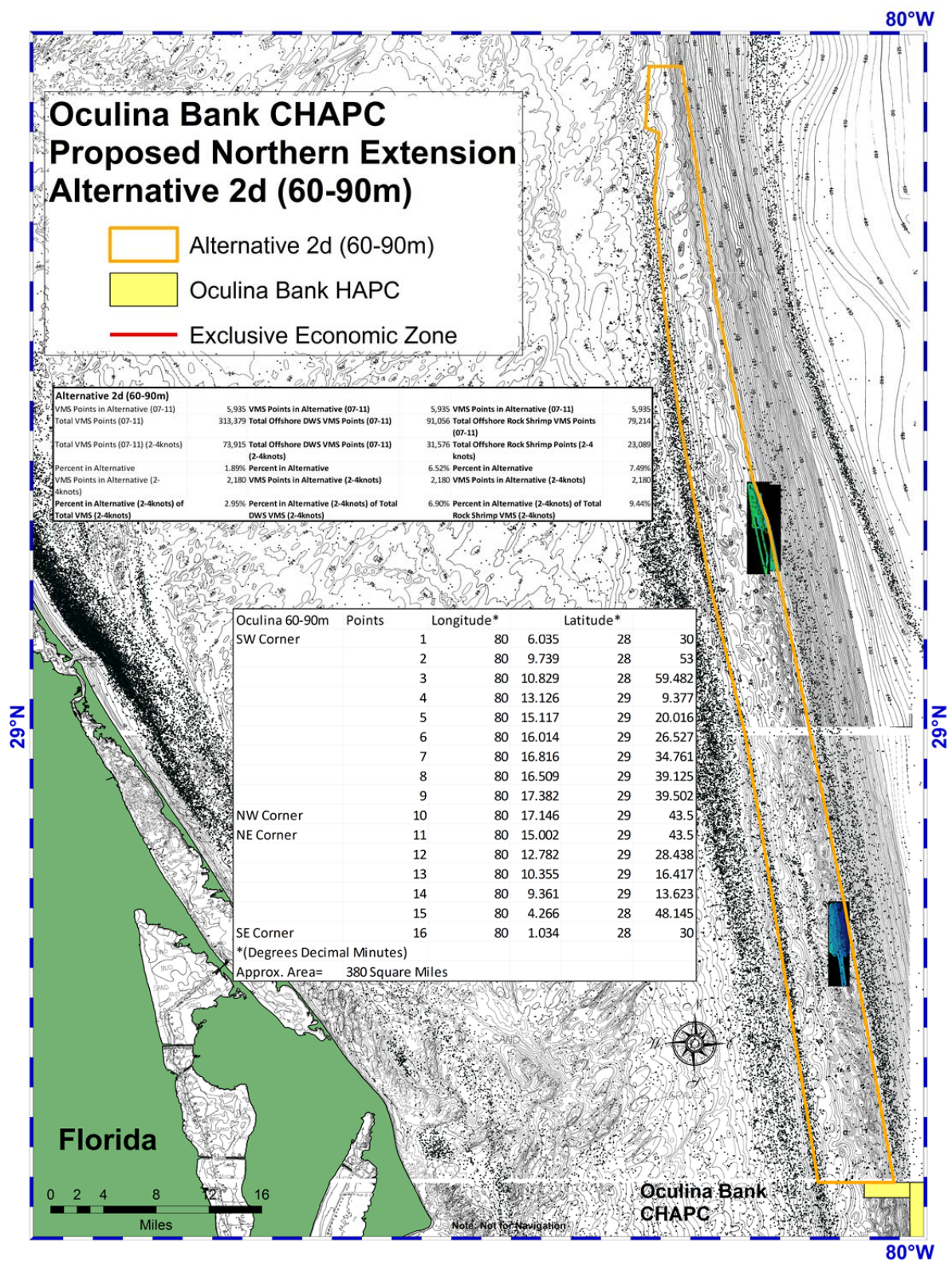
**Figure 2.** Option 1, Sub-Alternative 2b. Modification to the northern boundary of the Oculina Bank HAPC. In this northern zone, the west and east boundaries would follow the 70 meter and 90 meter depth contour lines, as represented in the simplified polygon.





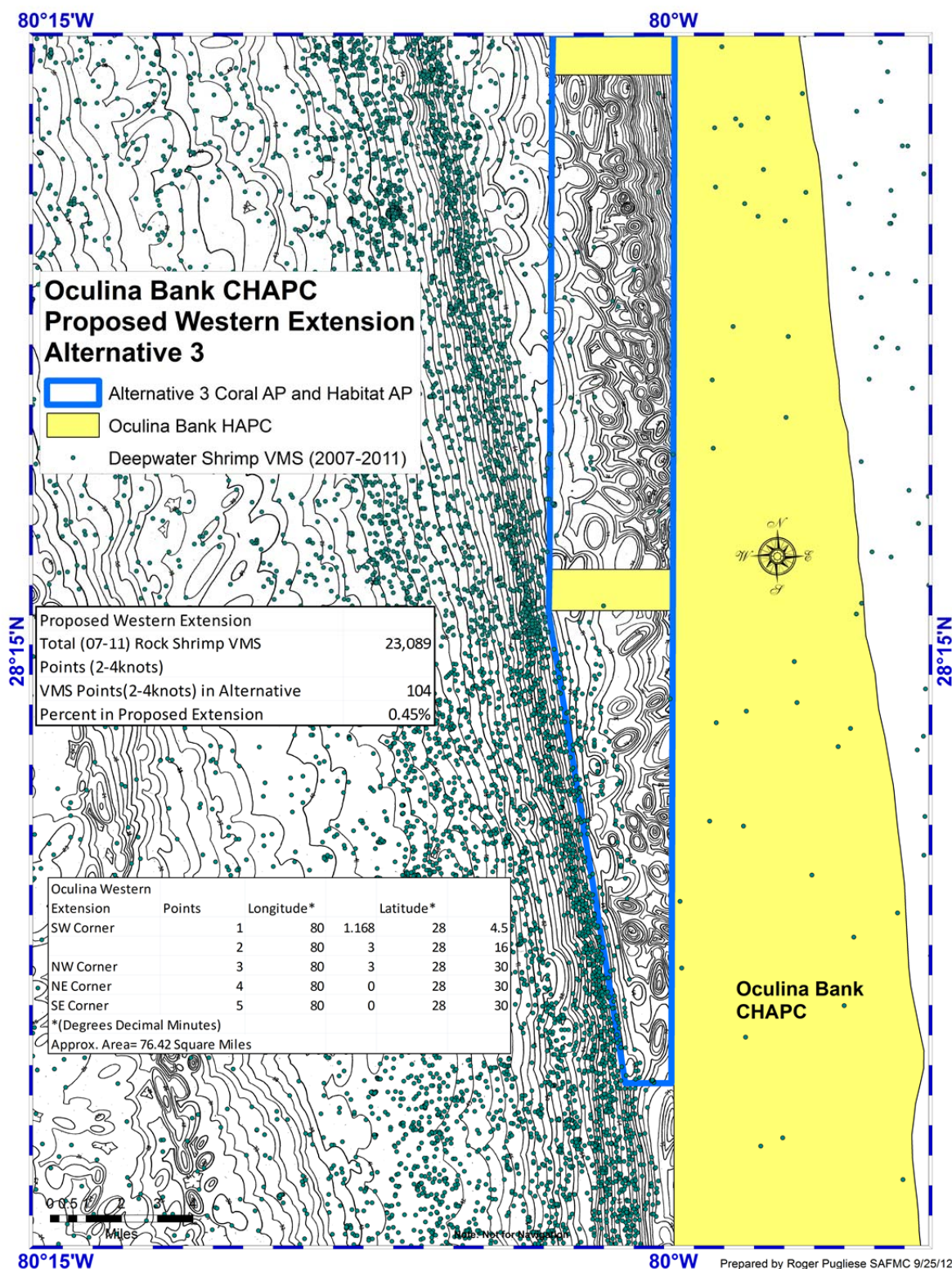
**Figure 3.** Option 1, Sub-Alternative 2c. Modification to the northern boundary of the Oculina Bank HAPC. In this northern zone, the west and east boundaries would follow the 70 meter and 100 meter depth contour lines, as represented in the simplified polygon.





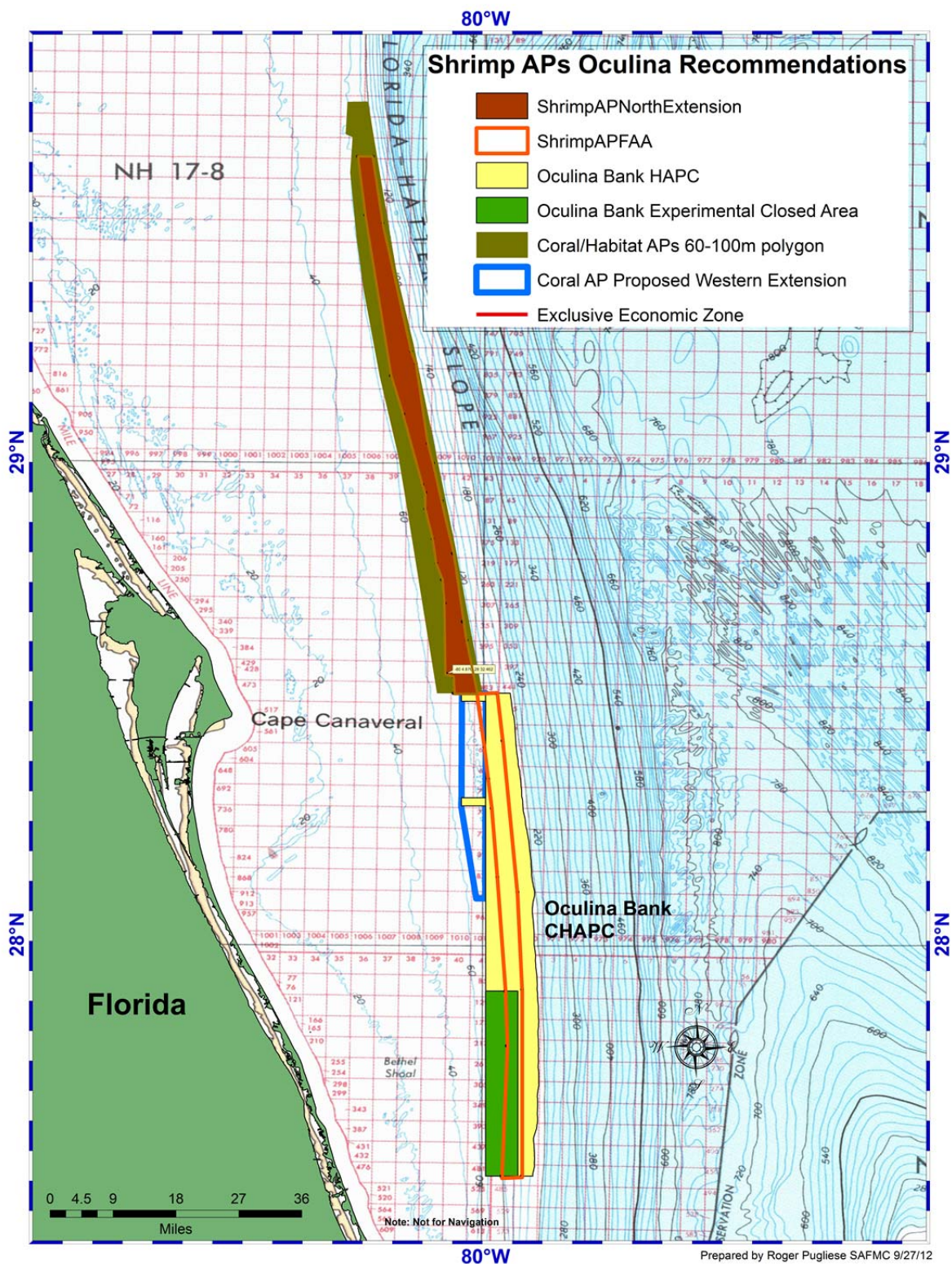
**Figure 4.** Option 1, Sub-Alternative 2d. Modification to the northern boundary of the Oculina Bank HAPC. In this northern zone, the west and east boundaries would follow the 60 meter and 90 meter depth contour lines, as represented in the simplified polygon.





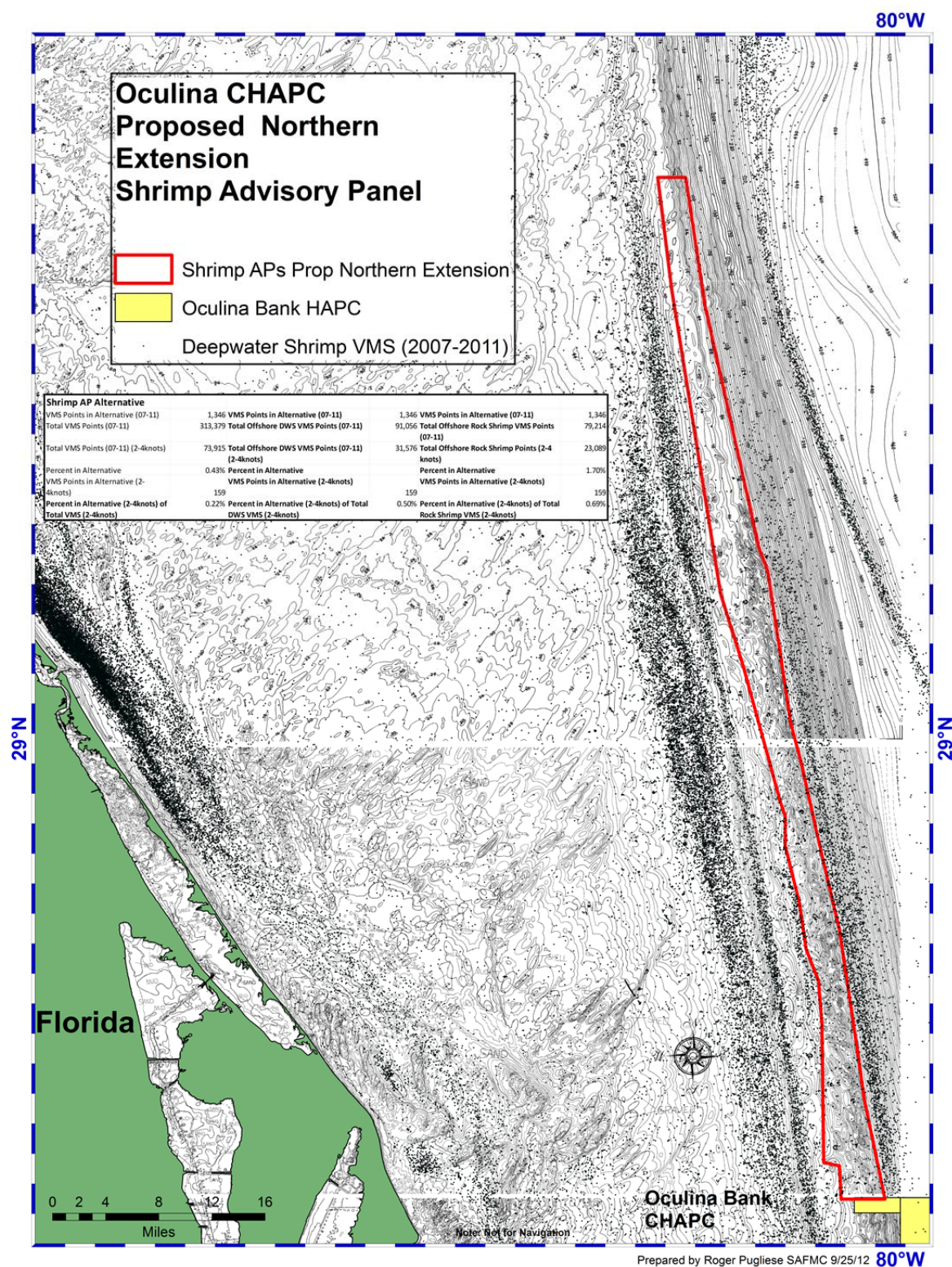
**Figure 5.** Option 1, Alternative 3. Modification to the western boundary of the Oculina Bank HAPC. The west boundary would follow the 80° 03'W longitude between 28° 30'N and 28° 16'N which is the western border of the Oculina HAPC satellite regions, and would follow the 60 meter contour as represented in the simplified polygon. This is a preferred option of the Coral and Habitat APs.





**Figure 6a.** Shrimp and Deepwater Shrimp Advisory Panel recommendations for Oculina Bank HAPC extensions. This represents the preferred options (modifications to the northern and existing HAPC) of the Deepwater Shrimp AP.





**Figure 6b.** Zoomed in view of Shrimp and Deepwater Shrimp Advisory Panel recommendation for extension of northern Oculina Bank HAPC boundary.

## **Other Possible Options for Oculina Bank HAPC for Council to Consider:**

### **Shrimp and Deepwater Shrimp AP Recommendation for a new Alternative for the existing Oculina Bank HAPC:**

At their April 2012 meeting, the Shrimp and Deepwater Shrimp APs came forward with a recommendation for modifying the existing Oculina Bank HAPC. The Council has not yet discussed this recommendation because they deferred discussion of expansion of the HAPCs at their June 2012 Council meeting until after the joint AP meeting. This option will be presented to the Council in December 2012.

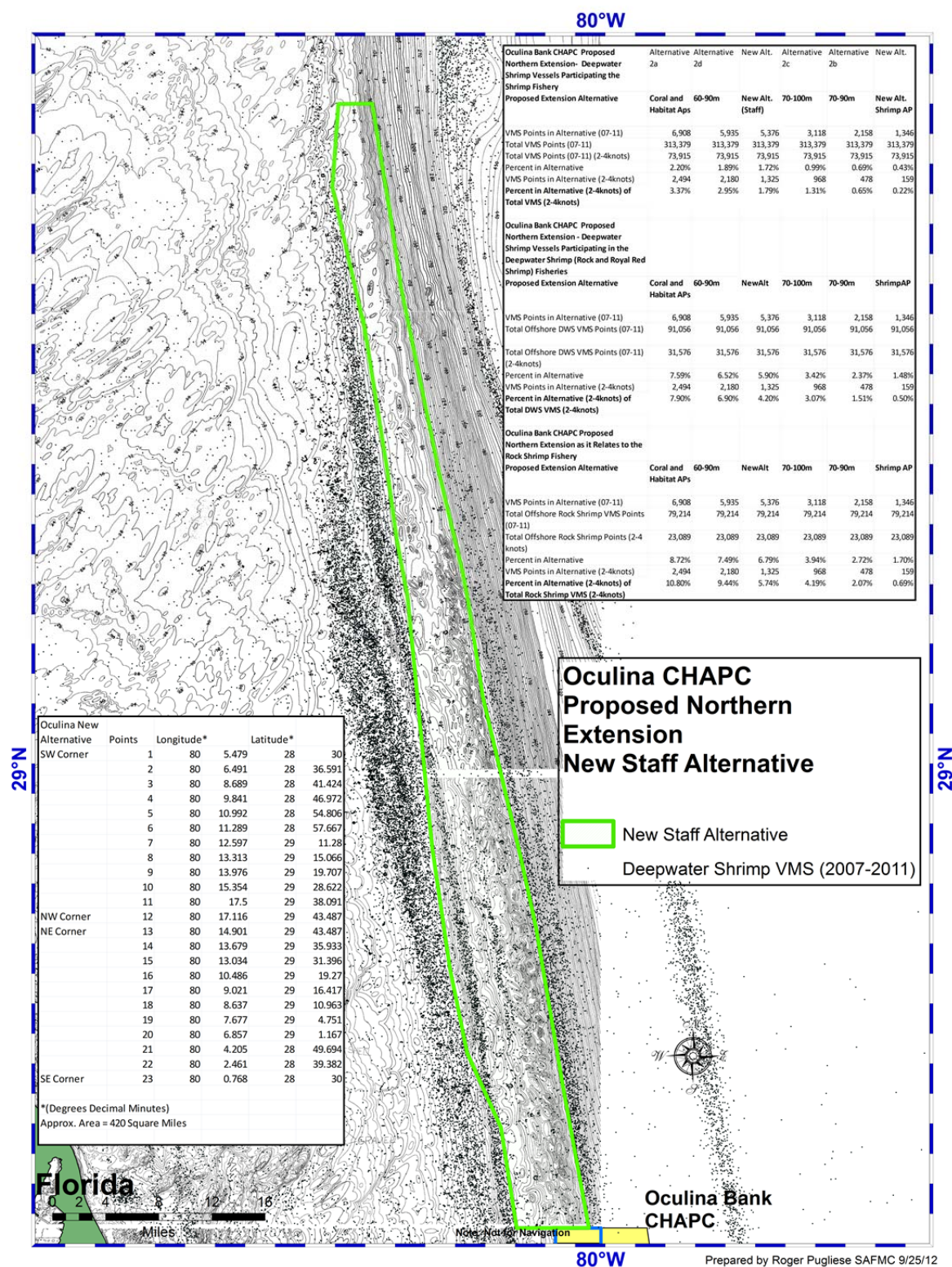
The APs are interested in development of a Shrimp Fishery Access Area (open fishing) from the north end of the existing Oculina Bank HAPC, following the 90-100 meter contour to the west and the 140 meter contour to the east, to the south end of the Oculina Bank HAPC. They discussed this would connect highly productive rock shrimp bottom south of the Oculina Bank HAPC to that which exists to the north of the HAPC. Their proposed modification to the existing boundary is identified in **Figure 6a**.

### **Staff Recommendation for a new Alternative for extension of the northern Oculina Bank HAPC boundary:**

The new alternative (**Figure 7**) for the northern extension of the Oculina Bank Coral HAPC was developed after further review of the high resolution bathymetry indicated additional habitat occurrence, and also after a more refined analysis of the VMS data indicated a higher percentage of rock shrimp fishing VMS points falling in the Coral and Habitat APs recommended alternative. The new alternative includes both habitat in the form of possible significant pinnacle distribution falling along the western boundary, while adjusting the western and eastern boundaries to eliminate edges where concentrated fishing has occurred on predominantly sand/mud bottom habitat - where if live/hard bottom or coral habitat occurred it may be significantly damaged.

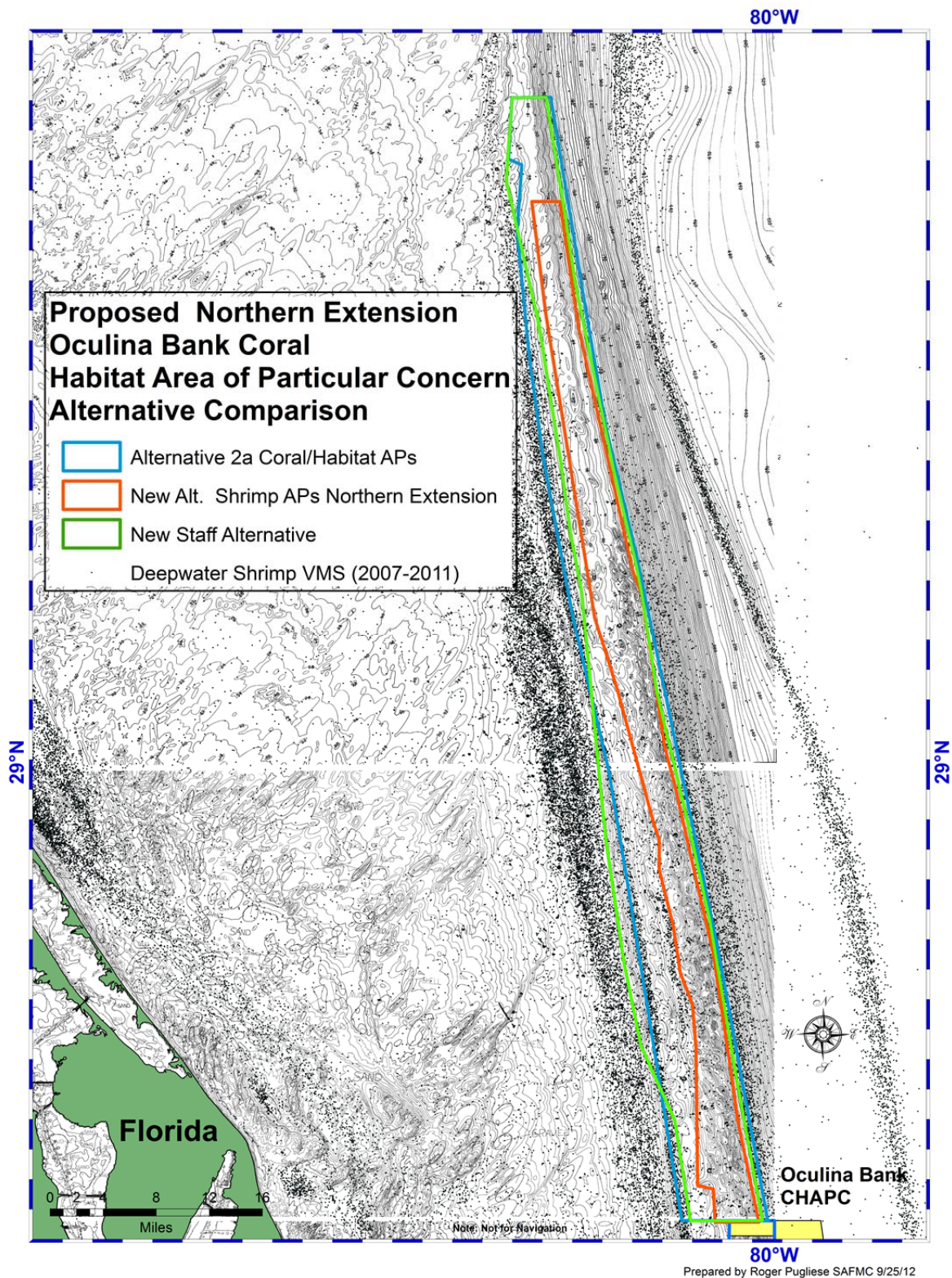
A comparison of the Coral and Habitat APs' recommendation (Alternative 2a), Shrimp AP's new alternative, and the new staff alternative for a northern expansion of Oculina Bank HAPC is shown in **Figure 8**. Figures A, B, and C show how the VMS data were used to define the fishing areas for deepwater shrimp (both rock and royal red) and rock shrimp. Finally, a comparison of all alternatives and impacts on fishing is shown in **Table 1**.





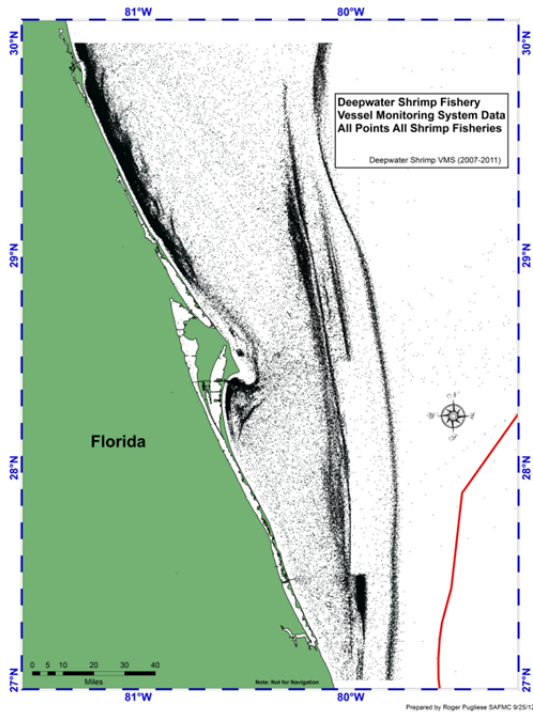
**Figure 7.** Staff recommendation for a new Alternative for extension of the northern Oculina Bank HAPC boundary. This alternative modifies the Coral and Habitat AP recommendation to reduce concentrated areas of historical fishing activity based on the VMS data, while incorporating the areas habitat occurrence based on high resolution bathymetry.



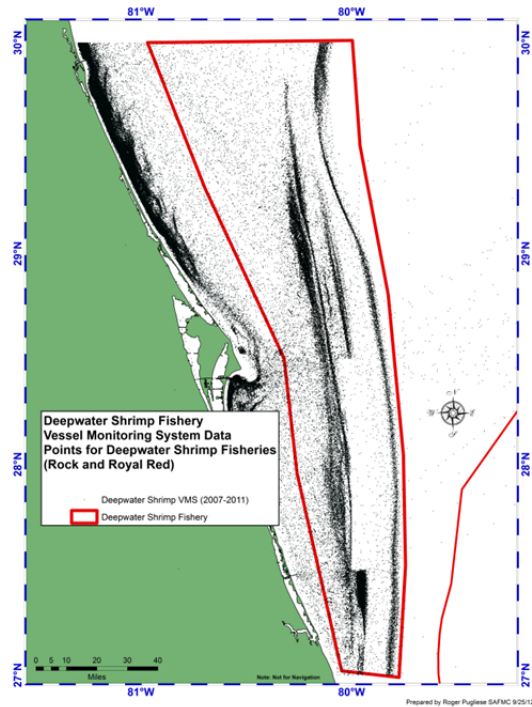


**Figure 8.** Scenarios for expanding the northern Oculina Bank HAPC boundary. The chart overlays the recommendations for a northern expansion from the Deepwater Shrimp AP, Coral AP and the Council staff.

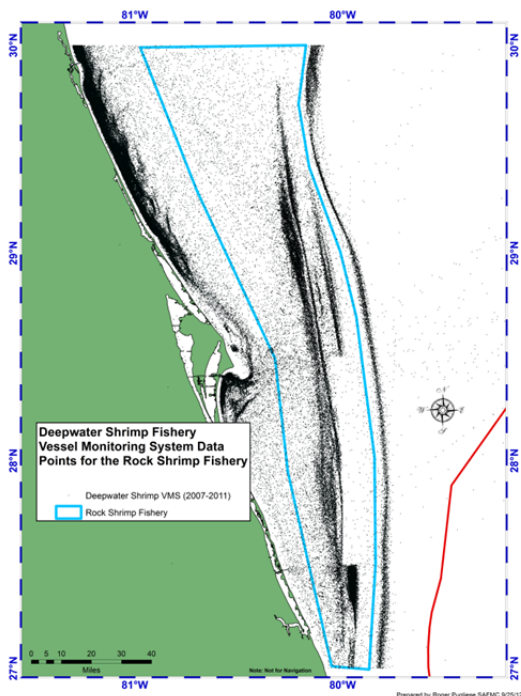
Figures A, B, and C represent the different characterizations of the VMS Footprint



**Figure A.** Deepwater VMS points (2007-2011).



**Figure B.** Proxy footprint for deepwater shrimp fishery (both rock and royal red shrimp).



**Figure C.** Proxy footprint for the rock shrimp fishery.

Deepwater Shrimp Vessel Monitoring System (VMS) points were provided by NOAA Fisheries for the period 2007 through partial 2011. Request for update was submitted to NOAA Fisheries and when system contractor completes work additional information will be provided and further analyses may be possible prior to public hearing. For the analyses, VMS points with speed 2-4 knots are used as a proxy for fishing (CEBA1).

The VMS points were spatially divided to serve as proxies for all shrimp fishing (Figure A), the deepwater rock and royal red shrimp fisheries (Figure B), and the rock shrimp fishery (Figure C). The VMS analyses presented in the Figures and Tables in this Options Paper are divided into three areas: 1) fishing in the Alternative as it relates to all shrimp fishing by permitted vessels carrying VMS; 2) fishing in the Alternative as it relates to deepwater shrimp fishing by permitted vessels carrying VMS; and 3) fishing in the Alternative as it relates to rock shrimp fishing by permitted vessels carrying VMS.



**Table 1.** VMS descriptive activity corresponding to the alternatives for expansion of the Oculina Bank HAPC.

<b>Oculina Bank CHAPC Proposed Northern Extension- Deepwater Shrimp Vessels Participating the Shrimp Fishery</b>	Alternative 2a	Alternative 2d	New Alt.	Alternative 2c	Alternative 2b	New Alt.
<b>Proposed Extension Alternative</b>	<b>Coral and Habitat Aps</b>	<b>60-90m</b>	<b>New Alt. (Staff)</b>	<b>70-100m</b>	<b>70-90m</b>	<b>New Alt. Shrimp AP</b>
VMS Points in Alternative (07-11)	6,908	5,935	5,376	3,118	2,158	1,346
Total VMS Points (07-11)	313,379	313,379	313,379	313,379	313,379	313,379
Total VMS Points (07-11) (2-4knots)	73,915	73,915	73,915	73,915	73,915	73,915
Percent in Alternative	2.20%	1.89%	1.72%	0.99%	0.69%	0.43%
VMS Points in Alternative (2-4knots)	2,494	2,180	1,325	968	478	159
<b>Percent in Alternative (2-4knots) of Total VMS (2-4knots)</b>	<b>3.37%</b>	<b>2.95%</b>	<b>1.79%</b>	<b>1.31%</b>	<b>0.65%</b>	<b>0.22%</b>
<b>Oculina Bank CHAPC Proposed Northern Extension - Deepwater Shrimp Vessels Participating in the Deepwater Shrimp (Rock and Royal Red Shrimp) Fisheries</b>						
<b>Proposed Extension Alternative</b>	<b>Coral and Habitat Aps</b>	<b>60-90m</b>	<b>NewAlt</b>	<b>70-100m</b>	<b>70-90m</b>	<b>ShrimpAP</b>
VMS Points in Alternative (07-11)	6,908	5,935	5,376	3,118	2,158	1,346
Total Offshore DWS VMS Points (07-11)	91,056	91,056	91,056	91,056	91,056	91,056
Total Offshore DWS VMS Points (07-11) (2-4knots)	31,576	31,576	31,576	31,576	31,576	31,576
Percent in Alternative	7.59%	6.52%	5.90%	3.42%	2.37%	1.48%
VMS Points in Alternative (2-4knots)	2,494	2,180	1,325	968	478	159
<b>Percent in Alternative (2-4knots) of Total DWS VMS (2-4knots)</b>	<b>7.90%</b>	<b>6.90%</b>	<b>4.20%</b>	<b>3.07%</b>	<b>1.51%</b>	<b>0.50%</b>
<b>Oculina Bank CHAPC Proposed Northern Extension as it Relates to the Rock Shrimp Fishery</b>						
<b>Proposed Extension Alternative</b>	<b>Coral and Habitat Aps</b>	<b>60-90m</b>	<b>NewAlt</b>	<b>70-100m</b>	<b>70-90m</b>	<b>Shrimp AP</b>
VMS Points in Alternative (07-11)	6,908	5,935	5,376	3,118	2,158	1,346
Total Offshore Rock Shrimp VMS Points (07-11)	79,214	79,214	79,214	79,214	79,214	79,214
Total Offshore Rock Shrimp Points (2-4 knots)	23,089	23,089	23,089	23,089	23,089	23,089
Percent in Alternative	8.72%	7.49%	6.79%	3.94%	2.72%	1.70%
VMS Points in Alternative (2-4knots)	2,494	2,180	1,325	968	478	159
<b>Percent in Alternative (2-4knots) of Total Rock Shrimp VMS (2-4knots)</b>	<b>10.80%</b>	<b>9.44%</b>	<b>5.74%</b>	<b>4.19%</b>	<b>2.07%</b>	<b>0.69%</b>

## Option 2. Implement a transit provision through the Oculina Bank HAPC

**Alternative 1 (No Action).** Do not implement a transit provision through Oculina Bank HAPC. Currently, possession of rock shrimp in or from the area on board a fishing vessel is prohibited.

**Alternative 2.** Allow for transit through the Oculina Bank HAPC. When transiting the Oculina Bank HAPC, gear must be stowed in accordance with CFR Section 622.35 (i)(2). Vessels must maintain a minimum speed of 5 knots while in transit through the Oculina Bank HAPC. In the event minimal speed is not sustainable, vessel must communicate to appropriate contact.

The Shrimp and Deepwater Shrimp APs endorse a transit provision through the Oculina Bank HAPC as a preferred alternative and recommend a modified version of Alternative 4 that would include a revision to the language for stowage of gear: Stowing means doors in racks and nets out of water.

### **\*CFR § 622.35 (i)(2):**

(2) For the purpose of paragraph (i)(1) of this section, transit means direct, non-stop progression through the MPA. Fishing gear appropriately stowed means—

(i) A longline may be left on the drum if all gangions and hooks are disconnected and stowed below deck. Hooks cannot be baited. All buoys must be disconnected from the gear; however, buoys may remain on deck.

(ii) **A trawl or try net may remain on deck, but trawl doors must be disconnected from such net and must be secured.**

(iii) A gillnet, stab net, or trammel net must be left on the drum. Any additional such nets not attached to the drum must be stowed below deck.

(iv) Terminal gear (i.e., hook, leader, sinker, flasher, or bait) used with an automatic reel, bandit gear, buoy gear, handline, or rod and reel must be disconnected and stowed separately from such fishing gear. A rod and reel must be removed from the rod holder and stowed securely on or below deck.

(v) A crustacean trap, golden crab trap, or sea bass pot cannot be baited. All buoys must be disconnected from the gear; however, buoys may remain on deck.

### **Option 3. Expand boundaries of Stetson-Miami Terrace Coral HAPC**

**Alternative 1 (No Action).** Do not expand the boundaries of the Stetson-Miami Terrace Coral HAPC.

The existing Stetson-Miami Terrace Coral HAPC is delineated by the coordinates identified in CFR §633.35 (n)(iii).

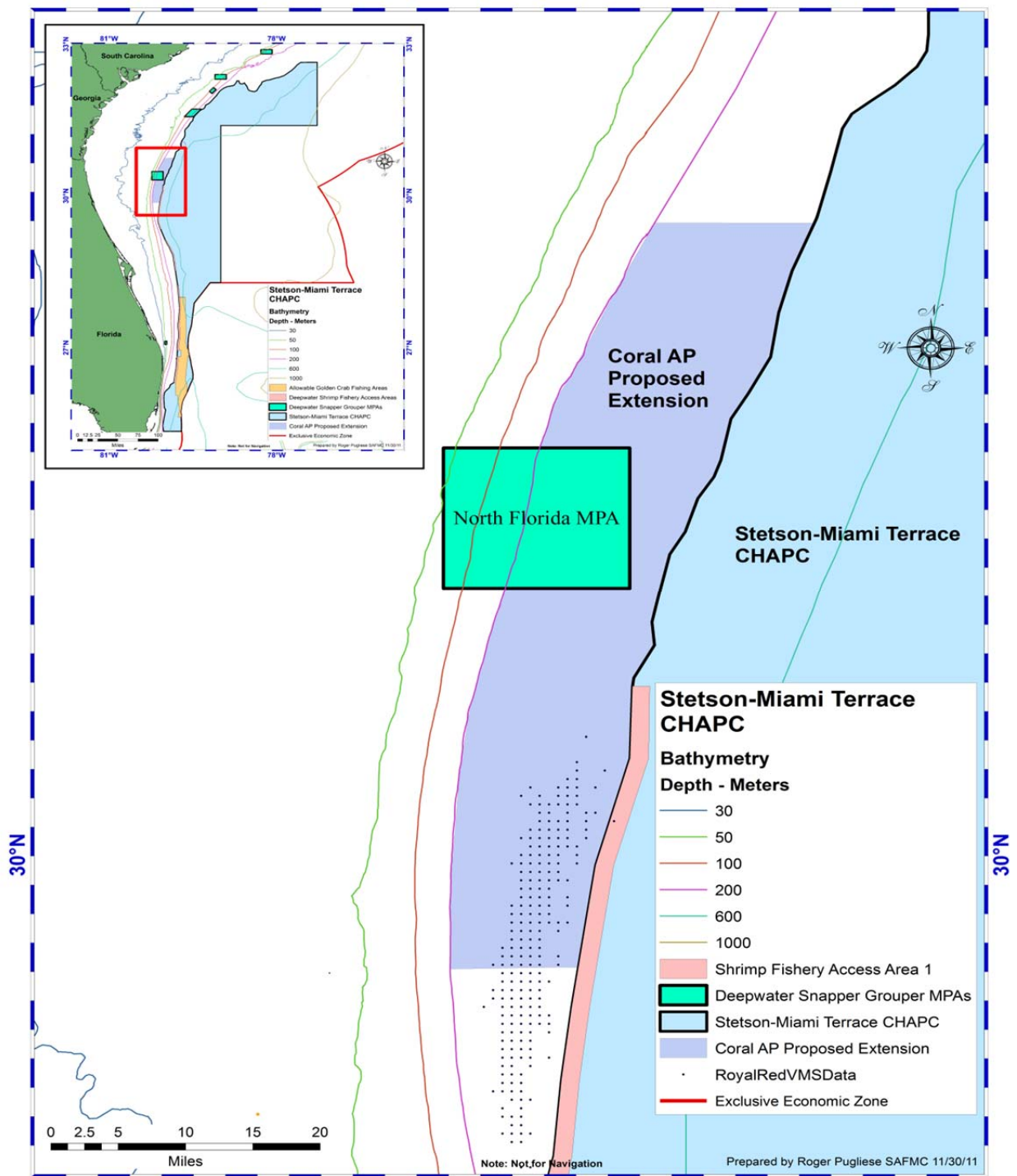
**Alternative 2.** Expand Stetson-Miami Terrace Coral HAPC in the area west of the existing boundary approximately by the 200 meter depth contour between latitude 30°45.0' to the north and latitude 29°52.0' to the south (**Figure 9**).

During their May meeting, the Coral AP revised their original preferred recommendation, (Alternative 2), and this is shown in **Figures 11 and 12**. The Habitat AP also endorse the revised version of Alternative 2 as a preferred alternative. The expansion would include known (mapped) benthic habitat and exclude those areas where habitat has not been found. This recommendation is also based on high resolution bathymetry from the Navy indicating high relief mounds in the proposed extension of southern boundary. The western limit of the expanded zone remains as stated in Alternative 2 (following the 200 meter depth contour).

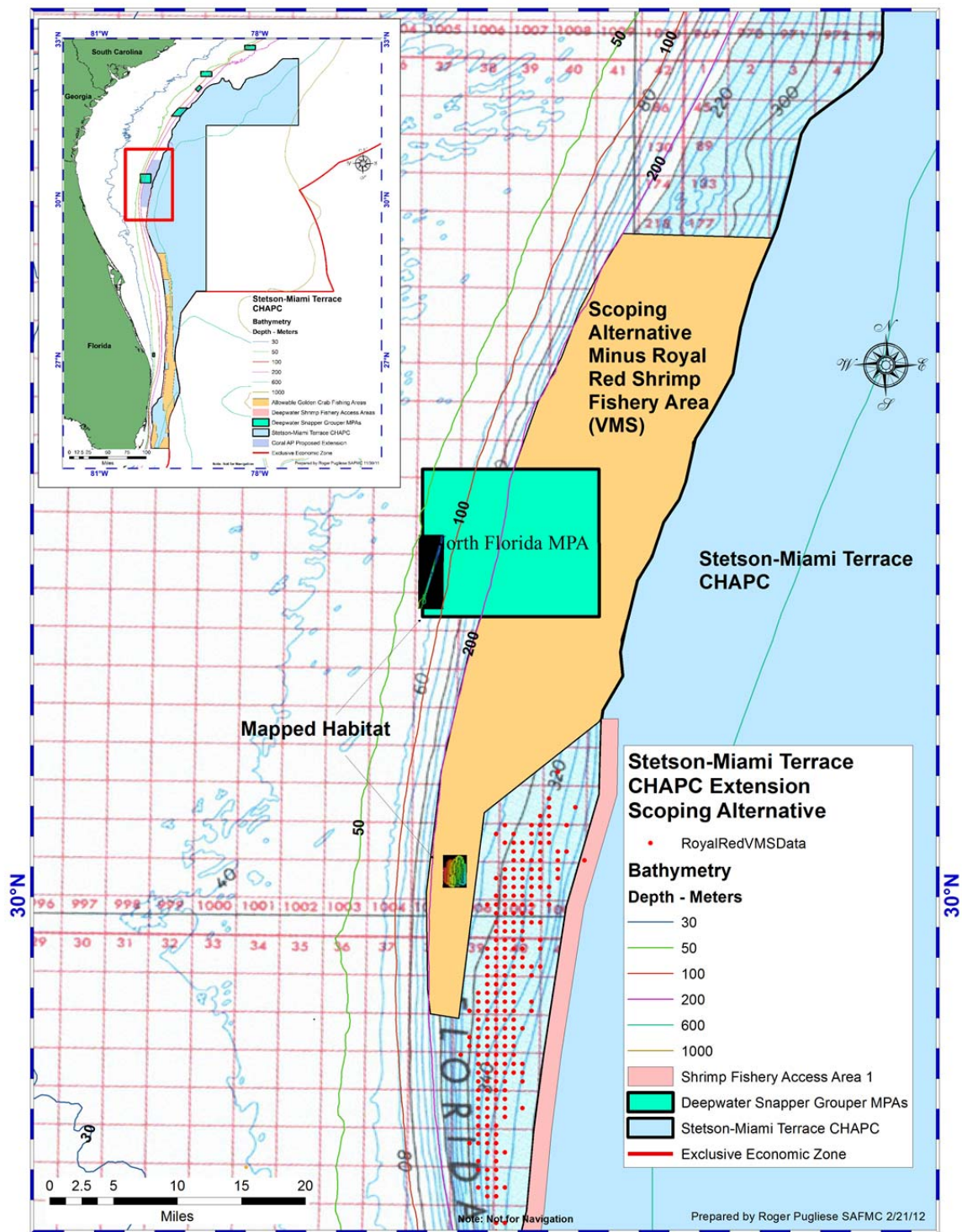
*Note:* This AP recommendation abuts the existing Shrimp Fishery Access Area 1 and would require the Council to modify this deepwater shrimp access provision designated in CE-BA 1.

**Alternative 3.** Modify the Coral AP recommendation for expanding the Stetson-Miami Terrace Coral HAPC to include area of mapped habitat within the expansion, and exclude areas of royal red fishery activity based on VMS data (**Figure 10**).

The Shrimp and Deepwater Shrimp APs endorse Alternative 3 as a preferred measure, with the inclusion of a disabled vessel provision. With the proximity of the open trawable areas adjacent to the existing HAPC and the proposed extension, the APs discussed the importance of a disabled vessel provision to avoid penalty if communication to the appropriate contact is initiated when in distress.

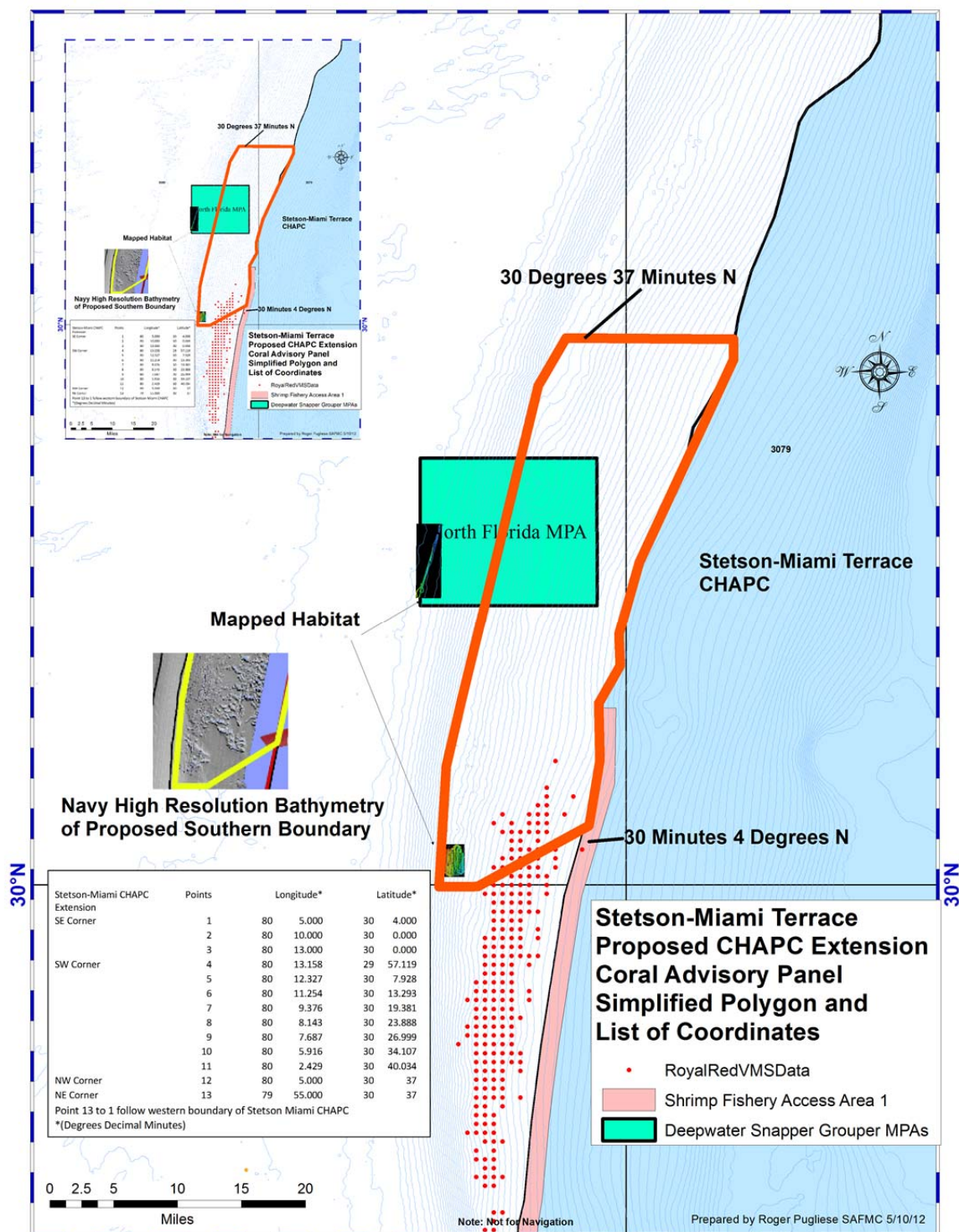


**Figure 9.** Option 3, Alternative 2, the Coral Advisory Panel’s original proposed expansion of the Stetson-Miami Terrace HAPC western boundary. They have proposed a revised recommendation, depicted in Figure 9.

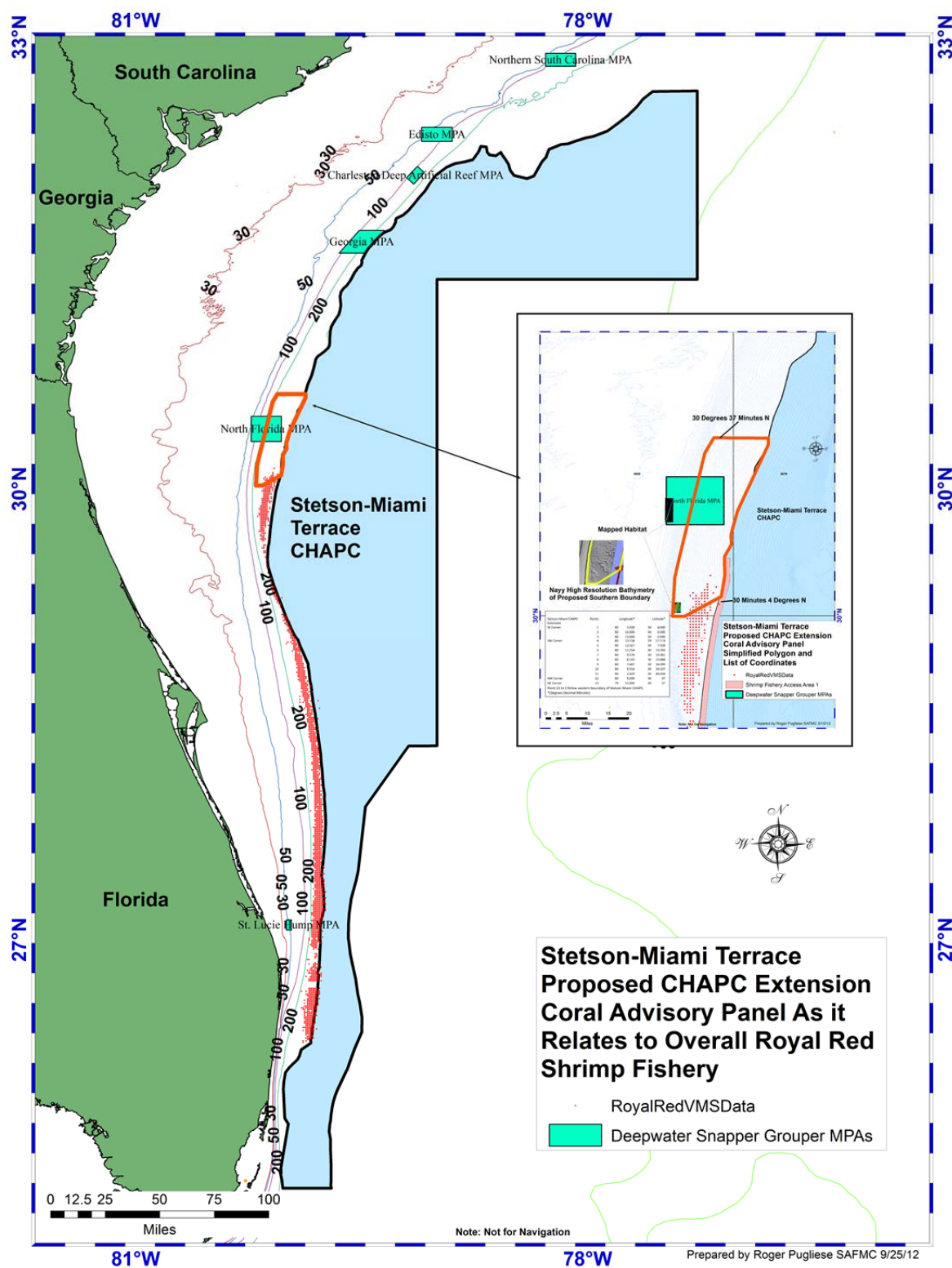


**Figure 10.** Option 3, Alternative 3, modifications to the Coral AP's original recommendation for expanding the Stetson-Miami Terrace CHAPC based on suggestions from shrimp industry representatives during the CE-BA 3 public scoping process. This figure includes area of mapped habitat within the Coral AP's original proposed extension and excludes areas of royal red fishery activity based on VMS data. This represents the preferred option of the Deepwater Shrimp AP.





**Figure 11.** Coral and Habitat AP preferred recommendation for modification of Option 3, Alternative 2.



**Figure 12.** Coral and Habitat AP preferred recommendation for modification of Stetson-Miami Terrace Coral HAPC as it relates to overall royal red shrimp fishery activity based on VMS data.

## Option 4. Expand boundaries of Cape Lookout Coral HAPC

**Alternative 1. (No Action)** Do not modify the boundaries of the Cape Lookout CHAPC.

The existing Cape Lookout Coral HAPC is identified by the following coordinates:

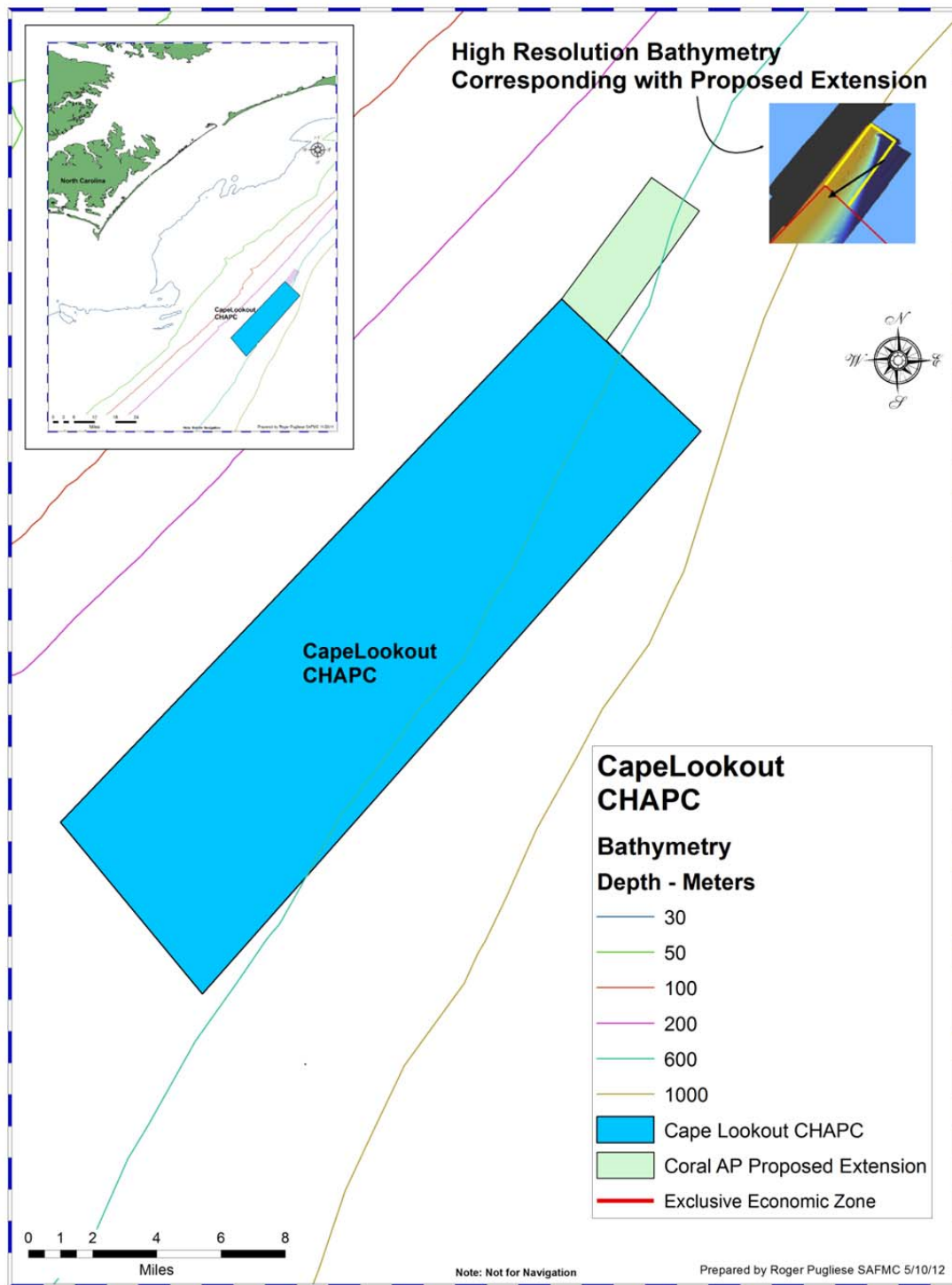
<u>Latitude</u>	<u>Longitude</u>
34°24'37"	75°45'11"
34°10'26"	75°58'44"
34°05'47"	75°54'54"
34°21'02"	75°41'25"

**Alternative 2.** Extend the northern boundary to encompass the area identified by the following coordinates (**Figure 13**):

<u>Latitude</u>	<u>Longitude</u>
34°24.6166'	75°45.1833'
34°23.4833'	75°43.9667'
34°27.9'	75°42.75'
34°27.0'	75°41.5'

The Coral and Habitat APs endorse Alternative 2 as a preferred. The APs discussed this would incorporate an area of newly discovered deepwater coral *Lophelia* habitat northern of the existing boundary.

The Shrimp and Deepwater Shrimp APs did not endorse a preferred alternative.



**Figure 13.** Option 4, Alternative 2. Coral Advisory Panel’s proposed expansion of the Cape Lookout Coral HAPC northern boundary. This represents the preferred option of the Coral and Habitat APs.

## NOTES