

**Evaluation of Regulations for  
the Expansion of the Flower  
Garden Banks National Marine  
Sanctuary Expansion**

**White Paper**

**October 2016**



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# TABLE OF CONTENTS

Table of Contents .....	i
List of Tables .....	ii
List of Figures .....	iii
Background .....	1
Map of Fishing Effort in the Gulf of Mexico (VMS) .....	4
Map of Shrimping Effort in the Gulf of Mexico (Shrimp ELB) .....	5
Oil and Gas Platforms in the Gulf of Mexico (Both Active and Inactive) and Pipeline .....	6
BOEM No Activity Zones .....	8
Stetson Bank .....	9
West Flower Garden Bank, East Flower Garden Bank, and Horseshoe Bank .....	10
MacNeil Bank .....	12
Rankin Bank, 28 Fathom Bank, and Bright Bank .....	15
Geyer Bank .....	17
McGrail Bank .....	18
Sonnier Bank .....	19
Alderdice Bank .....	22
Elvers Bank .....	24
Bouma Bank, Bryant Bank, Rezak Bank and Sidner Bank .....	26
Parker Bank .....	29
Example of “No Bottom Tending Gear Zone” .....	30
Summary .....	32

## LIST OF TABLES

<b>Table 1.</b> Comparison of the existing and proposed areas outlined in the FGBNMS expansion DEIS.....	1
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## LIST OF FIGURES

<b>Figure 1.</b> Vessel Monitoring System pings in 5 km (2.7 nautical miles) by 5 km grids.....	4
<b>Figure 2.</b> Shrimp electronic logbook points for the Gulf of Mexico. ....	5
<b>Figure 3.</b> Oil and gas platforms in the Gulf of Mexico.....	6
<b>Figure 4.</b> Pipelines for oil and gas in the Gulf of Mexico.....	7
<b>Figure 5.</b> Existing BOEM no activity zones. ....	8
<b>Figure 6.</b> Stetson Bank existing FGBNMS boundary (in red), existing HAPC (hatched lines) and proposed expansion (outlined in purple).....	9
<b>Figure 7.</b> East Flower Garden Bank, West Flower Garden Bank and Horseshoe Bank. ....	11
<b>Figure 8.</b> MacNeil Bank existing HAPC (hatched lines) and proposed expansion (outlined in purple). ....	13
<b>Figure 9.</b> Gulf of Mexico Fishery Management Council suggested revision to the boundary of the proposed expansion in Preferred Alternative 3.....	14
<b>Figure 10.</b> Rankin, Bright, and 28 Fathom Banks: existing HAPC (hatched lines) and proposed expansion (outlined in purple). ....	16
<b>Figure 11.</b> Geyer Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple). ....	17
<b>Figure 12.</b> McGrail Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple). ....	18
<b>Figure 13.</b> Sonnier Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple). ....	20
<b>Figure 14.</b> Gulf of Mexico Fishery Management Council suggested revision to the boundary of the proposed expansion of Sonnier Bank.....	21
<b>Figure 15.</b> Alderdice Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple). ....	23
<b>Figure 16.</b> Elvers Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple). ....	25
<b>Figure 17.</b> Bouma Bank, Bryant Bank, Rezak Bank and Sidner Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple).....	27
<b>Figure 18.</b> Gulf of Mexico Fishery Management Council suggested revision to the boundary of the proposed expansion of the Bouma Bank Complex.....	28
<b>Figure 19.</b> Parker Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple). ....	29
<b>Figure 20.</b> Example of using the BOEM “no activity zone” to delineate a “no bottom tending gear zone.” .....	31

## Background

The Gulf of Mexico Fishery Management Council (Council) is concerned about the regulations proposed for the expansion of the Flower Garden Banks National Marine Sanctuary (FGBNMS). The current project analyzes the current boundaries of the proposed expansion, the current no activity zones for oil and gas activity, fishing effort, and existing habitat areas of particular concern in the Gulf of Mexico (Gulf). Each site is analyzed with existing information and recommendations about regulations are presented. This work will be presented to the Council at its October 2016 meeting and will be modified according to the Council’s guidance.

Current regulations for the FGBNMS expansion “grandfather in” existing oil and gas platforms and pipelines. The Gulf is home to more than 3,000 oil and gas platforms, more than 2,500 shipwrecks and other numerous artificial reefs. Fishermen have used many of the areas that are currently being proposed as extensions of the FGBNMS regulations (Table 1). Some of these fisheries require the use of anchors to prevent unsafe practices at sea. The Council requests that a blanket approach not be used in the expansion of the FGBNMS, and that there be consideration for existing user groups that would be heavily affected should these proposed area closures take place. The Council requests that the FGBNMS consider alternate regulations that would accommodate historic fishing practices as the FGBNMS is accommodating historic use by oil and gas.

**Table 1.** Comparison of the existing and proposed areas outlined in the FGBNMS expansion DEIS. The Current Area is the existing area of the Sanctuary or HAPC. The proposed area is the area proposed in the FGBNMS Expansion DEIS Preferred Alternative 3. If the Current Status is empty then the area has no current designation. If the Current Status says “partial” then a portion of the proposed area is already designated, but not the complete proposed area.

Site	Current Area (sq miles)	Proposed Area (sq miles)	Current Status	Regulations?
Stetson Bank	2.3	2.3	Sanctuary/HAPC	Yes
West Flower Garden, East Flower Garden, and Horseshoe Banks	85.5	147.4	Partial Sanctuary/HAPC	Yes
MacNeil Bank	10.7	8.3	Partial HAPC	No
Rankin, 28 Fathom and Bright Bank	107.4	82.9	HAPC	No
Geyer Bank	17.4	15.3	Partial HAPC	No
McGrail Bank	18.7	12.0	HAPC	Yes
Sonnier Bank	11.9	5.6	Partial HAPC	No
Alderdice Bank	6.6	8.0	Partial HAPC	No
Elvers Bank		20.1		No
Bouma, Bryant, Rezak, and Sidner Banks	41.1	53.6	Partial HAPC	No
Parker Bank		27.7		No
<b>Total</b>	<b>301.6</b>	<b>383.2</b>		

The following results describe each of the areas in Preferred Alternative 3 FGBNMS DEIS (NOAA, 2016), with minimal comments on Alternatives 4 and 5 with regard to the FGBNMS expansion proposed regulations.

Ultimately, the Council requests that the FGBNMS

- Maintain current fishing regulations in the existing HAPCs with regulations
- Continue to allow historical fishing practices in the areas that are outside the BOEM no activity zones by establishing a tiered approach that would include:
  - If the area has an established “no activity zone” by BOEM, create a “no bottom tending gear zone” that utilizes the pre-established boundaries of the “no activity zone.”
  - Establish a truncated “no bottom tending gear zone” for banks that have updated information but do not have “no activity zones” established by BOEM (e.g. Horseshoe Bank).
  - In these “no bottom tending gear zones,” prohibit all fishing that is not by hook and line and prohibit all anchoring (i.e. no bottom trawling gear, bottom long line gear, traps or dredges).
  - Allow historic fishing practices (with gear other than hook and line) within the proposed sanctuary boundary area to continue as long as that fishing is not occurring in the “no bottom tending gear zone.”
  - Allow anchoring by fishing vessels over soft sediment outside the “no bottom tending gear zone”. These vessels must carry an operating vessel monitoring system (VMS); and anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc) and equipped with a weak link environmental safe guard and must be [redacted] pounds or less in size.
- Establish a certificate program or endorsement program that would allow for education of fishermen within the FGBNMS on the environmental importance of the area(s), fishing restricted areas and appropriate gear types (i.e. anchor type). This program could be a requirement for anyone that fishes in the FGBNMS proposed boundaries.
- Provide an adequate number of mooring buoys on any of the expanded “no bottom tending gear zones” to allow access for the public.

Within each area, there will be three separate “tiers” of regulations. Tier 1- inside the “no bottom tending gear zones would: allow fishing only by hook and line, prohibit anchoring by fishing vessels, and require a special endorsement from the FGBNMS. Tier 2- outside the “no bottom tending gear zone” and inside the Council recommended boundary of the expansion of FGBNMS (Preferred Alternative 3) would: allow anchoring of vessels with a vessel monitoring system by using a soft sediment specific anchor with weak link and prohibit bottom trawling, traps, and dredges. Tier 3- outside of the proposed boundary would: have no FGBNMS imposed regulations (all regulations that currently exist are maintained)

### Current Fishing Regulations

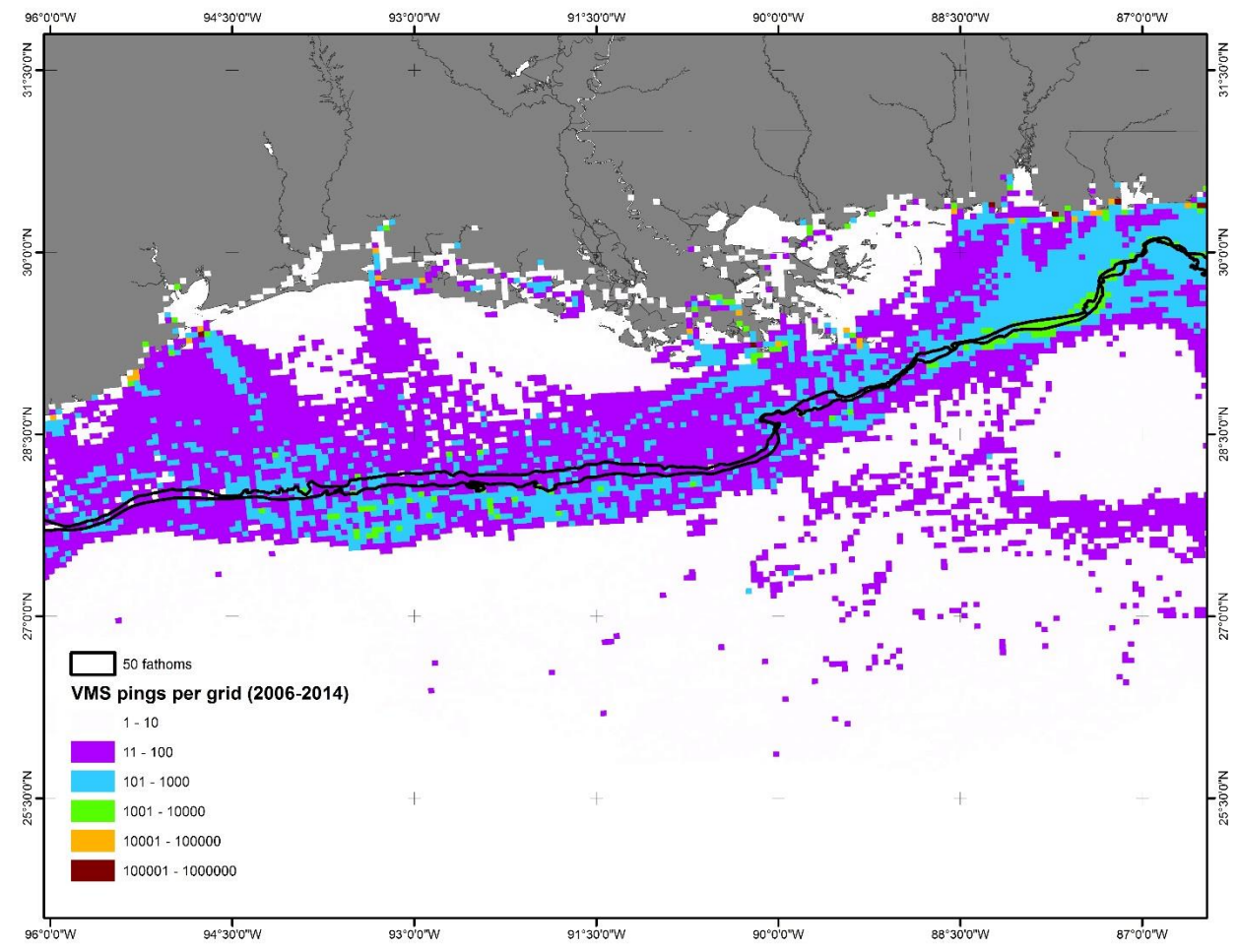
- West and East Flower Garden Banks HAPC prohibits fishing with bottom longline, bottom trawl, buoy gear, dredge, pot or trap and bottom anchoring by fishing vessels year round.
- Stetson Bank HAPC prohibits fishing with bottom longline, bottom trawl, buoy gear, pot or trap and bottom anchoring by fishing vessels year round.
- Within the FGBNMS (East and West Flower Garden Banks and Stetson Bank) there is only fishing allowed by hook-and-line, and no anchoring in the FGBNMS boundaries
- McGrail Bank HAPC prohibits fishing with bottom longline, bottom trawl, buoy gear, pot or trap and bottom anchoring by fishing vessels year round.



## Map of Fishing Effort in the Gulf of Mexico (VMS)

Each vessel with a vessel monitoring system (VMS) sends out a position report once per hour, but the number of pings increases (more position reports in time) when a vessel is approaching an environmentally sensitive area

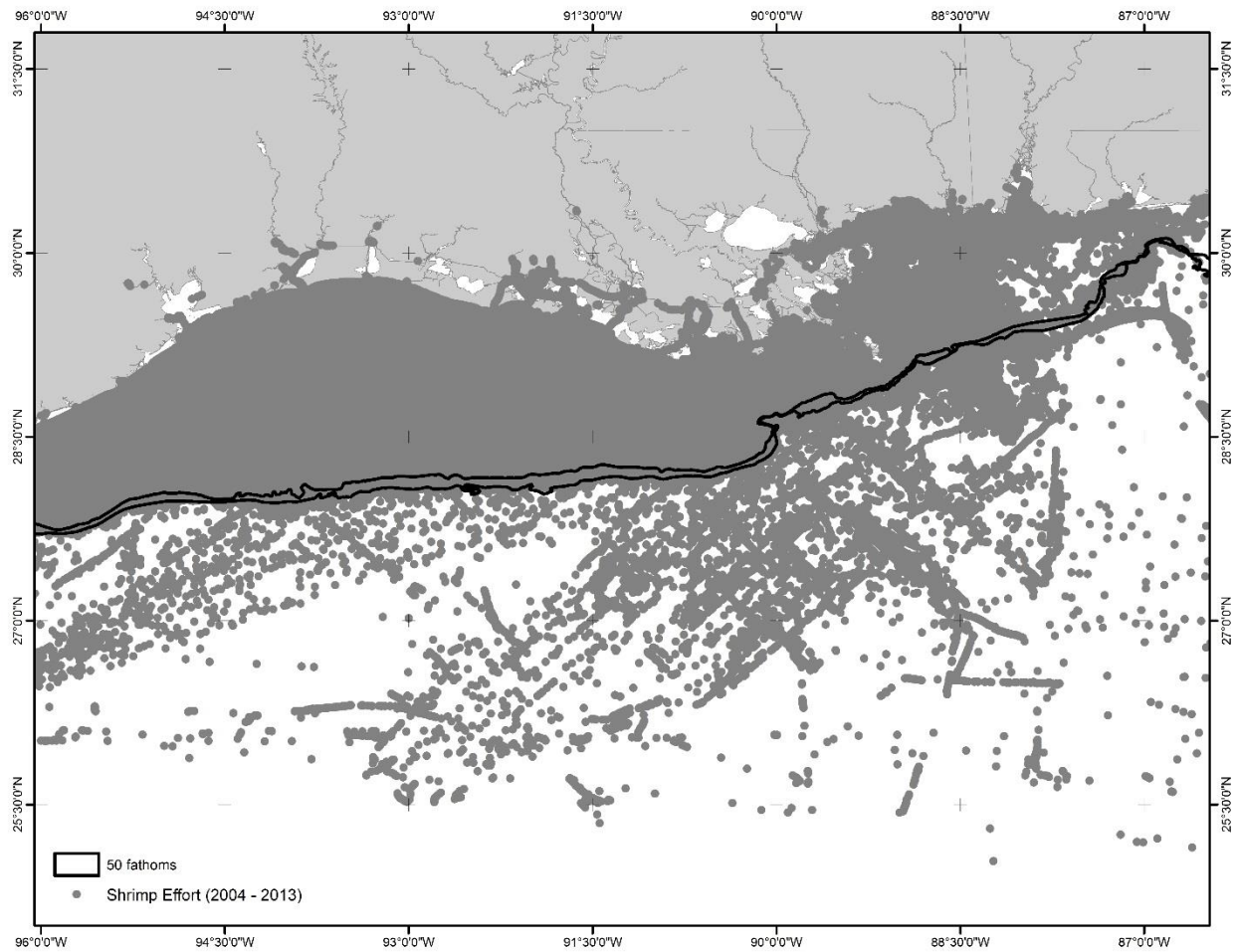
([http://www.nmfs.noaa.gov/ole/about/our\\_programs/vessel\\_monitoring.html](http://www.nmfs.noaa.gov/ole/about/our_programs/vessel_monitoring.html)). The VMS program monitors over 4,000 vessels in U.S. waters, twenty four hours a day. Below is a depiction of the VMS data from 2006 to 2014 for vessels with bottom tending gear with a federal Gulf Reef Fish, Lobster, or Shrimp permit (Figure 1).



**Figure 1.** Vessel Monitoring System pings in 5 km (2.7 nautical miles) by 5 km grids. The number of pings in each cell. Colors are arranged by orders of magnitude.

## Map of Shrimping Effort in the Gulf of Mexico (Shrimp ELB)

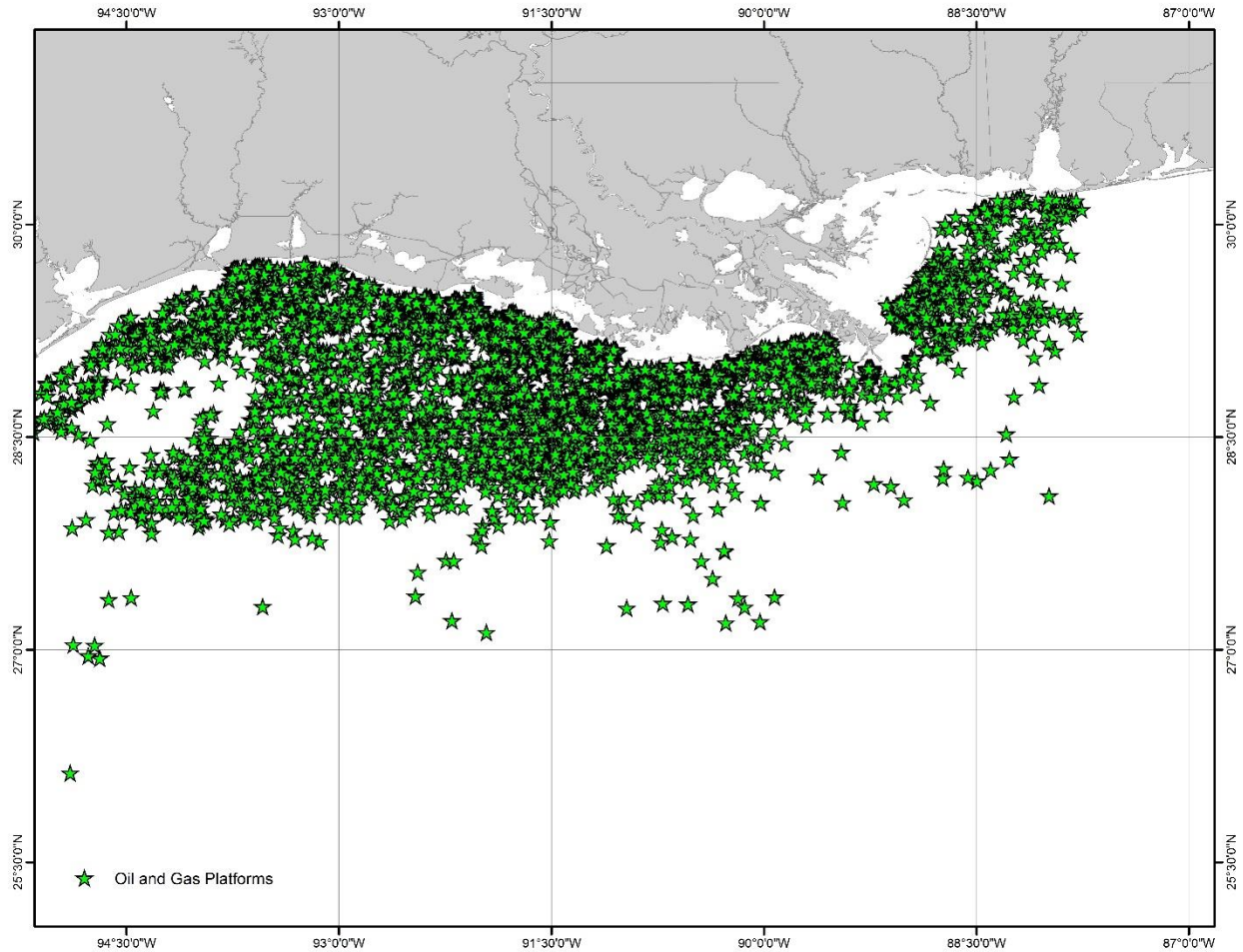
Shrimp electronic logbooks (ELB) are on approximately one third of the shrimping fleet (~500 units). However, at the onset of the ELB program, there were not 500 units, and the increase to 500 units took a few years. ELB data points are locations collected every ten minutes. The data is then filtered based on time and distance between points to determine if a vessel was likely towing. The data presented below are tow points from the ELB data (Figure 2). Data are inclusive of the years 2004-2013.



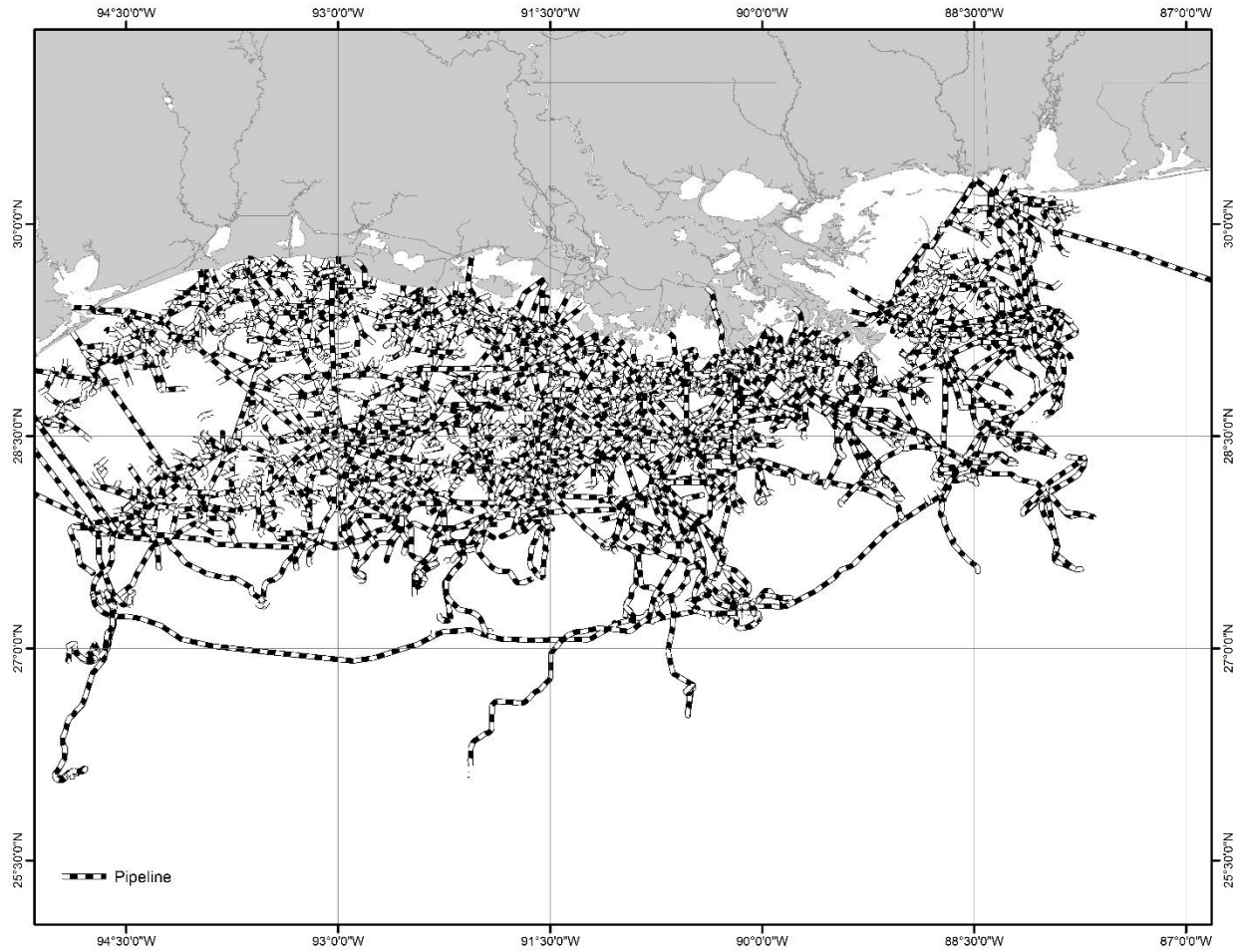
**Figure 2.** Shrimp electronic logbook points for the Gulf of Mexico.

## Oil and Gas Platforms in the Gulf of Mexico (Both Active and Inactive) and Pipeline

Oil and gas platforms are all throughout the Gulf. Below are the documented active and inactive platforms in the Gulf of Mexico. Some of these may have been removed in the recent years, and many are nearing the end of their useful lives.



**Figure 3.** Oil and gas platforms in the Gulf of Mexico

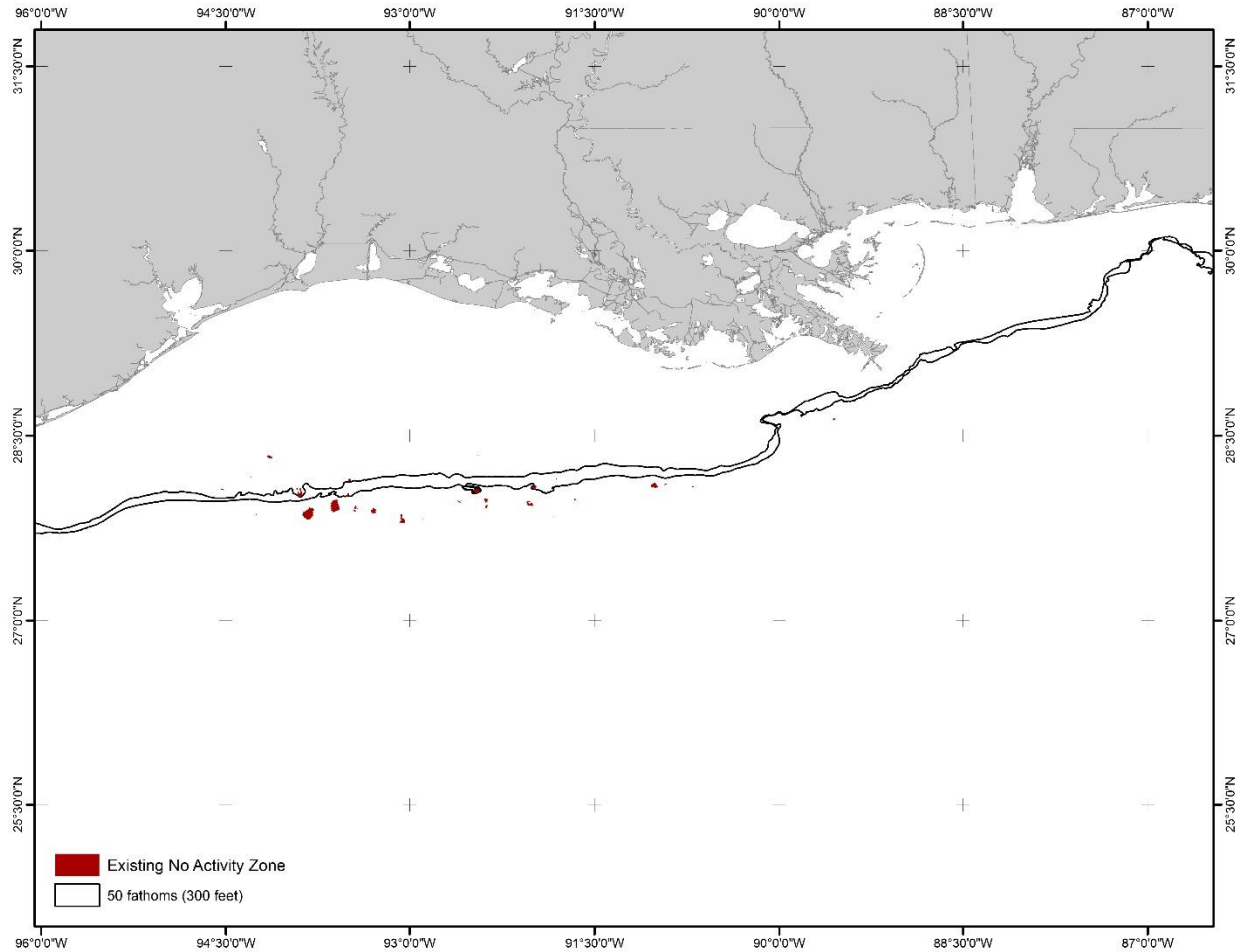


**Figure 4.** Pipelines for oil and gas in the Gulf of Mexico.



## BOEM No Activity Zones

The Bureau of Ocean Energy Management (BOEM) currently has “no activity zones” which prohibit oil and gas exploration, extraction, and infrastructure to protect particularly sensitive areas (Figure 5); this is currently just over 110 square nautical miles. These zones are currently under revision, but it should be noted that the current boundaries are in effect. As the no activity zones are modified, the BOEM will need to update nautical navigation charts.



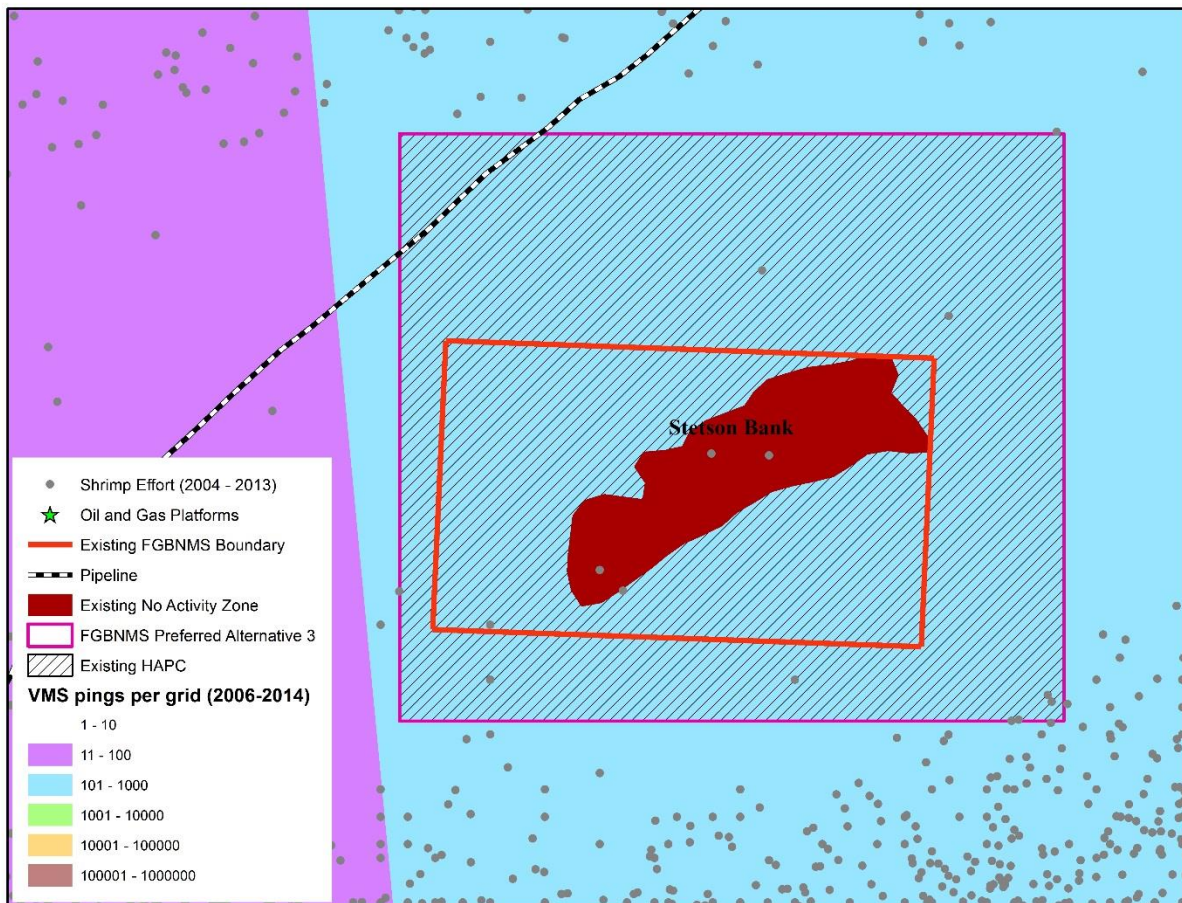
**Figure 5.** Existing BOEM no activity zones. These zones are currently under revision (M. Mueller, Benthic Ecologist, BOEM personal communication, 2016) but serve as a template for discussion for this paper.

## Stetson Bank

Stetson Bank is already part of the FGBNMS and is a recognized HAPC with fishing regulations (Figure 6). The boundaries of the HAPC and the FGBNMS differ. The Council is currently in the process of initiating a document to review HAPCs, both identifying new areas and revising existing HAPCs. The Council encourages the FGBNMS to maintain the current boundary instead of modifying it to Preferred Alternative 3, as it appears that there has been historic fishing practices in the southeast corner of the HAPC. This area does not appear to be a highly used area for reef fish fishing via VMS data; it should be noted that only bottom tending gear were used in the VMS analysis.

### Recommendations

- Maintain the current FGBNMS boundary and fishing regulations



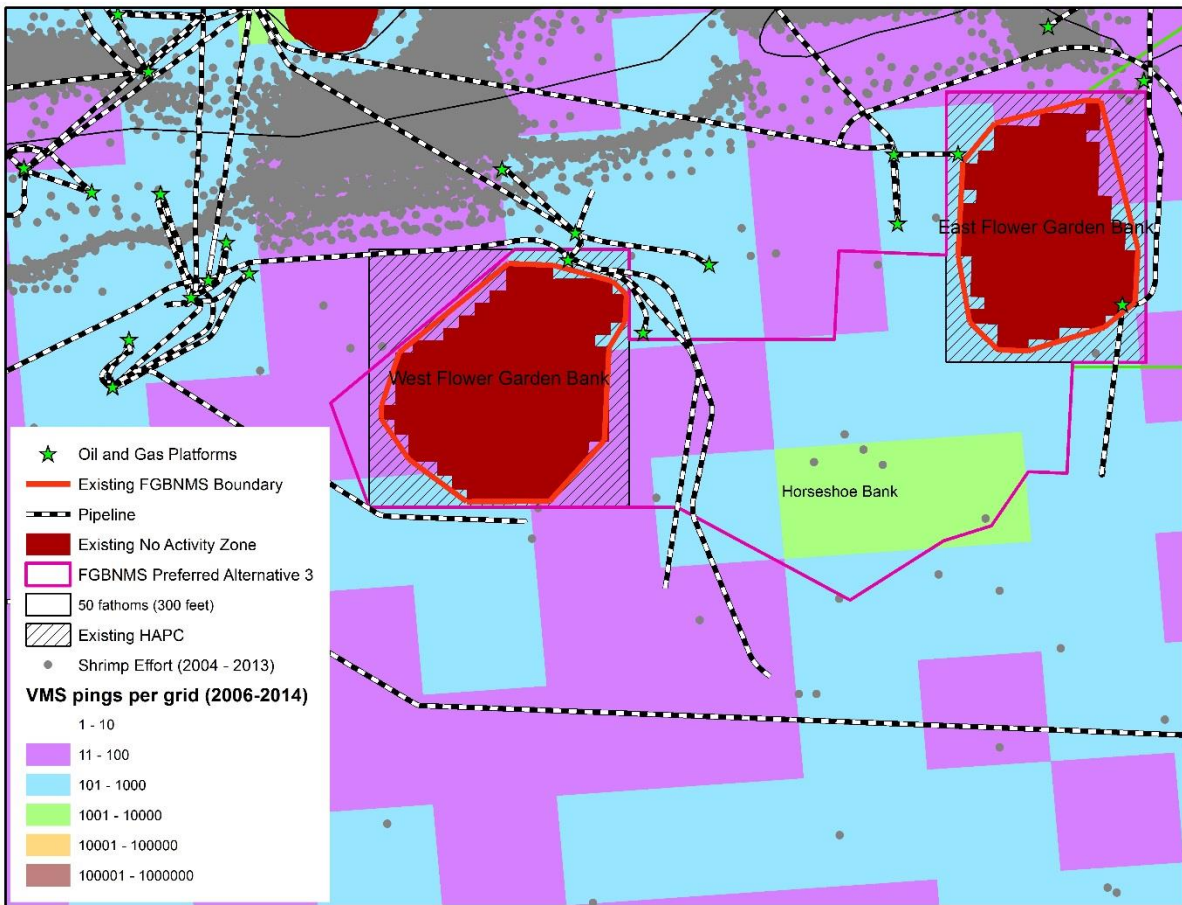
**Figure 6.** Stetson Bank existing FGBNMS boundary (in red), existing HAPC (hatched lines) and proposed expansion (outlined in purple).

## **West Flower Garden Bank, East Flower Garden Bank, and Horseshoe Bank**

There are sections of the East and West Flower Garden Banks that are already no bottom tending gear HAPCs. However, with the FGBNMS's Preferred Alternative 3, the expansion to include Horseshoe Bank would greatly affect the reef fish fishery in the southeast portion of the proposed boundary (Figure 7). Many of these fisheries operate using anchors in soft sediment, and historic fishing practices should be accommodated as historical oil and gas use is accommodated. All recommendations are based on Figure 7.

### *Recommendations*

- Maintain fishing regulations in the existing HAPCs
- Continue to allow historic fishing practices in the area highlighted in green in the southeast section by the following:
  - Allow anchoring by fishing vessels over soft sediment (anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc)
  - Allow historic fishing practices in the area to continue as long as it is not over the hard bottom reef
  - Establish a truncated “no bottom tending gear zone” for Horseshoe bank, similar to the no activity zones established over East and West Flower Garden Banks, that would delineate this “no bottom tending gear zone.”
  - In the “no bottom tending gear zone,” prohibit all fishing that is not by hook-and-line and prohibit all anchoring



**Figure 7.** East Flower Garden Bank, West Flower Garden Bank and Horseshoe Bank. Existing FGBNMS boundary (in red), existing HAPC (hatched lines) and proposed expansion (outlined in purple).

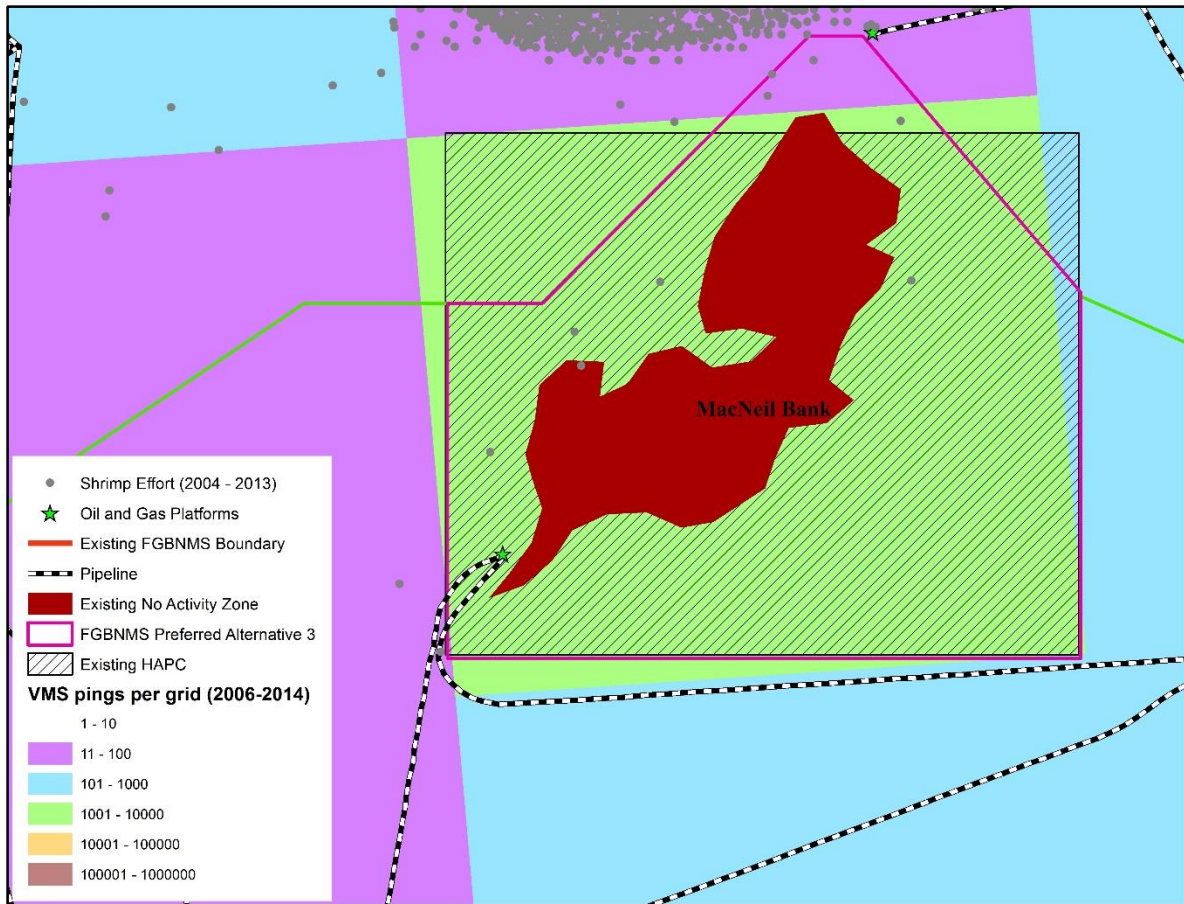


## MacNeil Bank

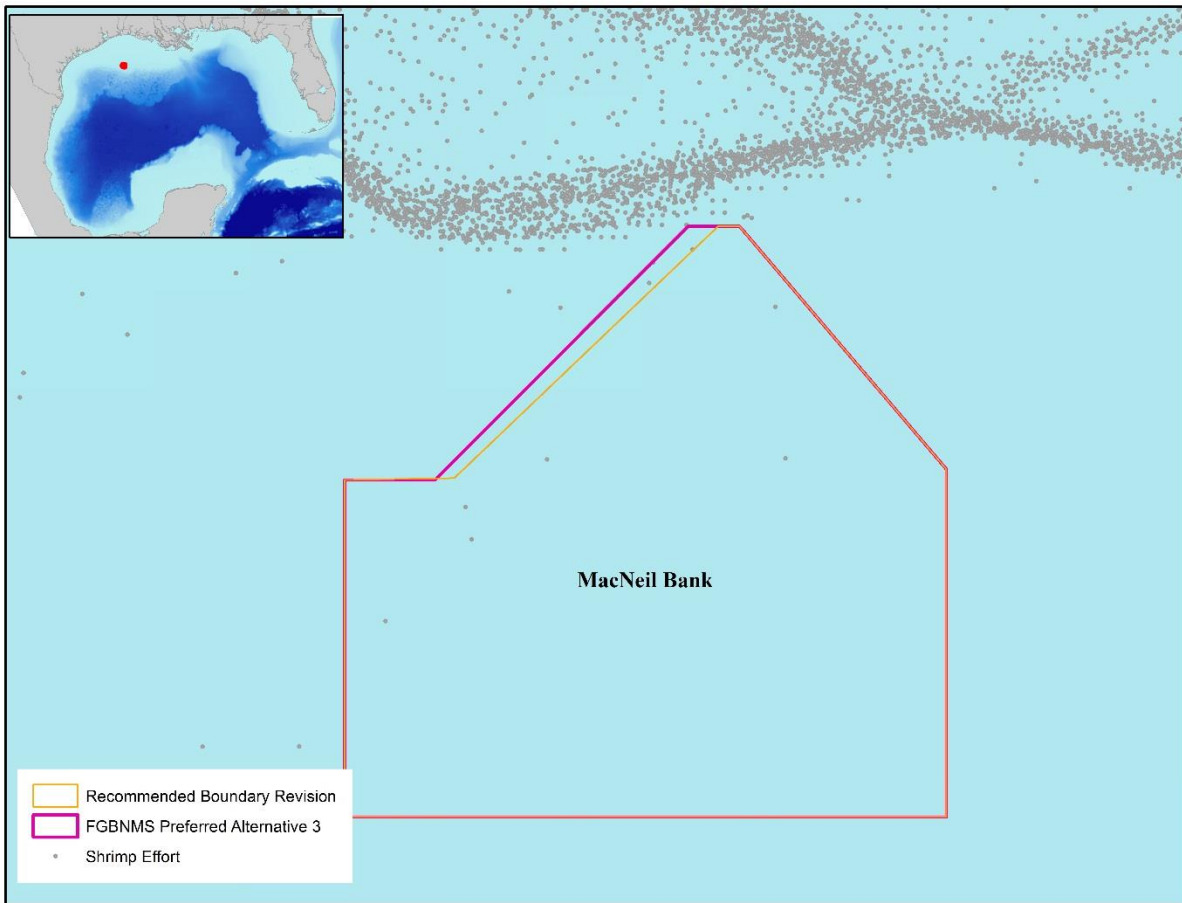
MacNeil Bank is already designated as a HAPC with no fishing regulations (Figure 8). The Council has already provided information to the FGBNMS to revise the proposed northwestern boundary (Preferred Alternative 3) slightly to accommodate the shrimp fishery historic use (Figure 9). All recommendations are based on Figure 9.

### *Recommendations*

- Continue to allow historic fishing practices in the area highlighted in green in the southeast section by the following:
  - Establish a truncated “no bottom tending gear zone (including anchors)” for MacNeil bank that coincides with the established BOEM “no activity zone” established
  - Prohibit trawling within the boundaries of the proposed expansion of FGBNMS
  - Allow anchoring by fishing vessels over soft sediment (anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc) as long as this area is not in the “no bottom tending gear zone.”
  - Allow historic fishing practices in the area to continue as long as they comply with the bottom tending gear regulations and have a FGBNMS endorsement (as described above)



**Figure 8.** MacNeil Bank existing HAPC (hatched lines) and proposed expansion (outlined in purple).



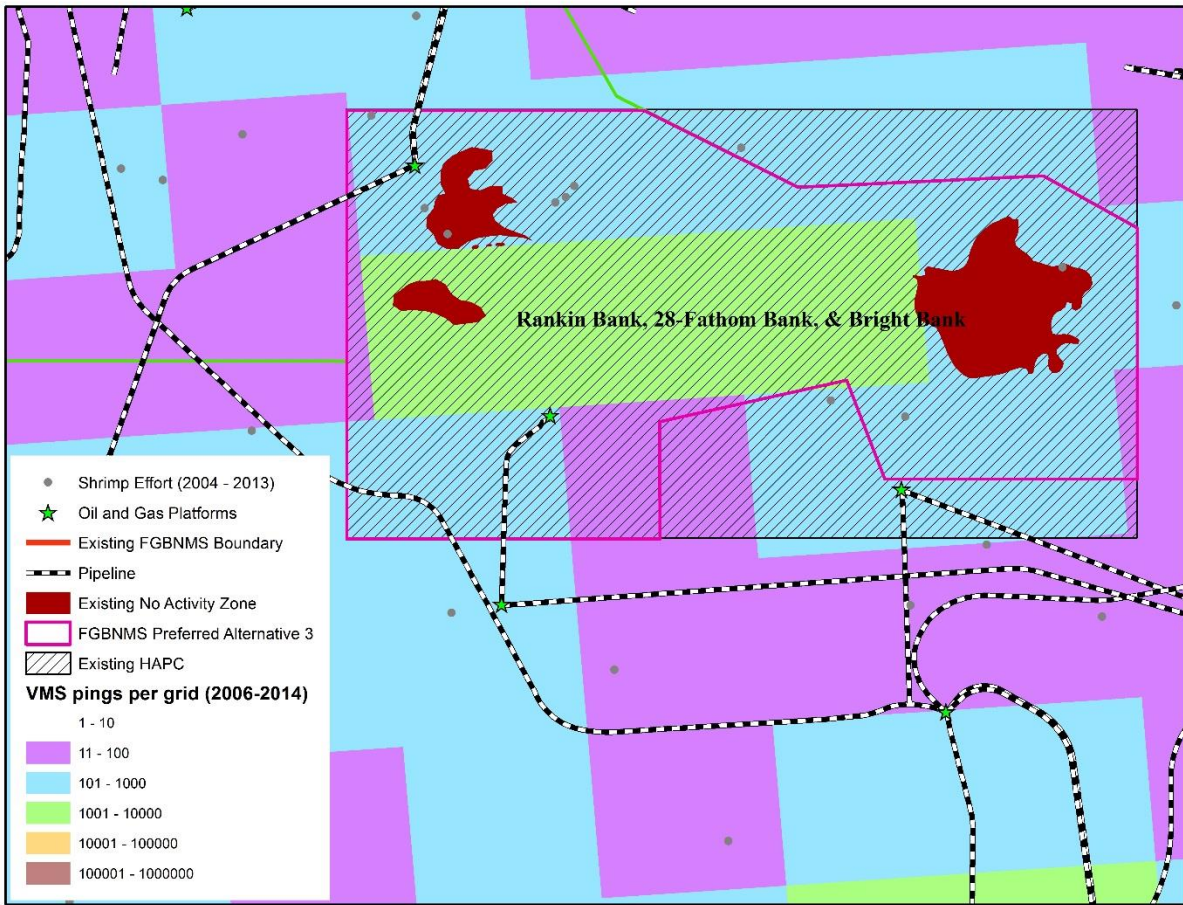
**Figure 9.** Gulf of Mexico Fishery Management Council suggested revision to the boundary of the proposed expansion in Preferred Alternative 3.

## **Rankin Bank, 28 Fathom Bank, and Bright Bank**

Rankin Bank and Bright Bank are already designated as a HAPC but have no fishing regulations (Figure 10). The green box in Figure 11 is an area of high usage by the reef fish fishery and this historic fishing practices should be incorporated into the regulations considered for the FGBNMS expansion. All recommendations are based on Figure 10.

### *Recommendations*

- Continue to allow historic fishing practices in the area highlighted in green in the southeast section by the following:
  - Establish a truncated “no bottom tending gear zone (including anchors)” for Rankin, Bright and 28 Fathom Banks that coincide with the established BOEM “no activity zone” established
  - Prohibit trawling within the boundaries of the proposed expansion of FGBNMS
  - Allow anchoring by fishing vessels over soft sediment (anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc) as long as this area is not in the “no bottom tending gear zone”
  - Allow historic fishing practices in the area to continue as long as they comply with the bottom tending gear regulations and have a FGBNMS endorsement (as describe above)



**Figure 10.** Rankin, Bright, and 28 Fathom Banks: existing HAPC (hatched lines) and proposed expansion (outlined in purple).

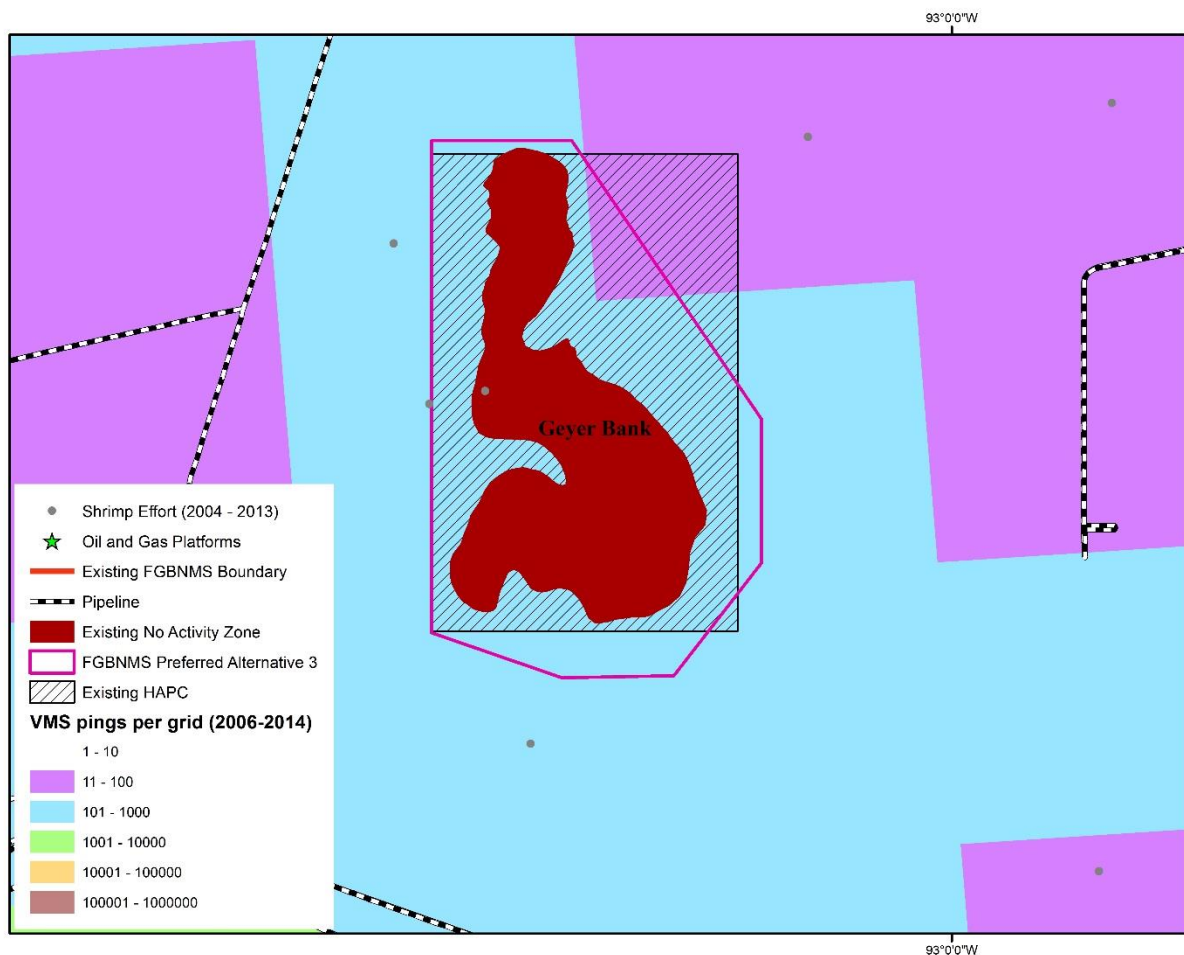


## Geyer Bank

Geyer Bank is already designated as a HAPC but has no fishing regulations (Figure 11). All recommendations are based on Figure 11.

### Recommendations

- Establish a truncated “no bottom tending gear zone (including anchors)” for Geyer Bank that coincides with the established BOEM “no activity zone” established
- Prohibit trawling within the boundaries of the proposed expansion of FGBNMS
- Allow anchoring by fishing vessels over soft sediment (anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc) as long as this area is not in the “no bottom tending gear zone”
- Allow historic fishing practices in the area to continue as long as they comply with the bottom tending gear regulations and have a FGBNMS endorsement (as described above)



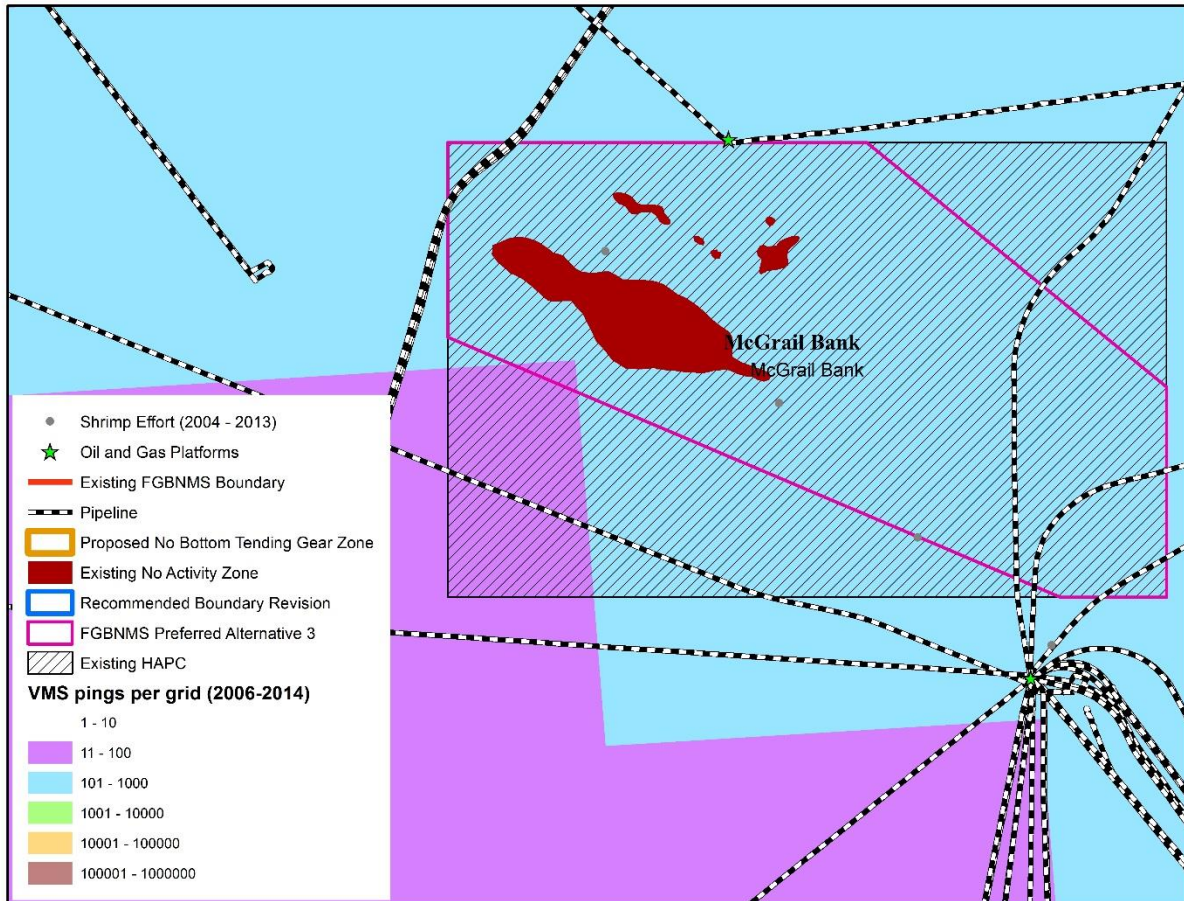
**Figure 11.** Geyer Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple).

## McGrail Bank

McGrail Bank is already designated as a HAPC with fishing regulations (Figure 12). All recommendations are based on Figure 12.

### Recommendations

- There are no regulatory recommendations for this area



**Figure 12.** McGrail Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple).

## Sonnier Bank

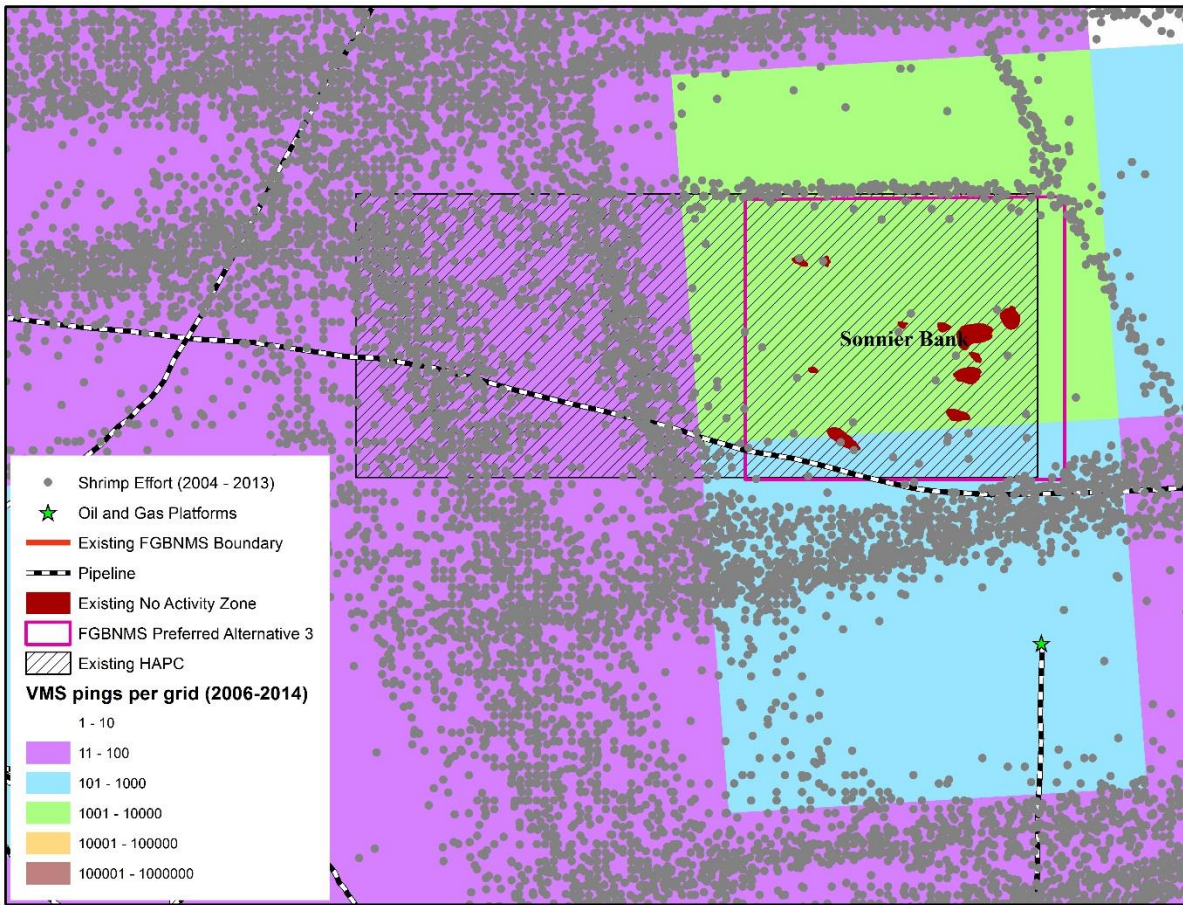
Sonnier Bank is designated as a HAPC but has no fishing regulations (Figure 13). The green box in Figure 15 is an area of high usage by the reef fish fishery and this historic fishing practices should be incorporated into the regulations considered for the FGBNMS expansion.

Additionally, the shrimp fishery heavily uses the northern portion of the proposed boundary; the Council has already made recommendations to the FGBNMS about revising the boundary to allow for historical usage (Figure 14). All recommendations are based on Figure 13.

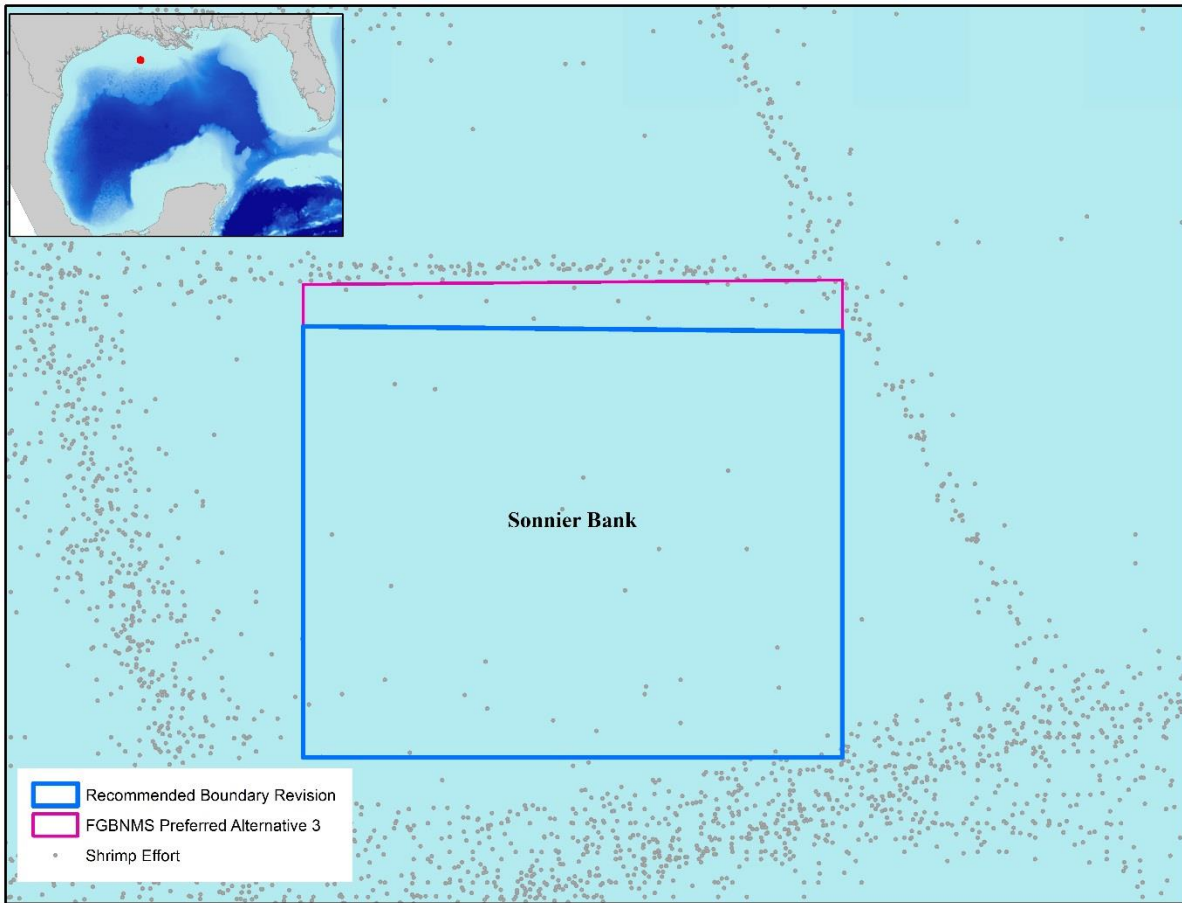
### *Recommendations*

- Continue to allow historic fishing practices in the area highlighted in green in the southeast section by the following:
  - Establish a truncated “no bottom tending gear zone (including anchors)” for Sonnier Bank that coincides with the established BOEM “no activity zone” established
  - Prohibit trawling within the boundaries of the proposed expansion of FGBNMS
  - Allow anchoring by fishing vessels over soft sediment (anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc) as long as this area is not in the “no bottom tending gear zone.”
  - Allow historic fishing practices in the area to continue as long as they comply with the bottom tending gear regulations and have a FGBNMS endorsement





**Figure 13.** Sonnier Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple).



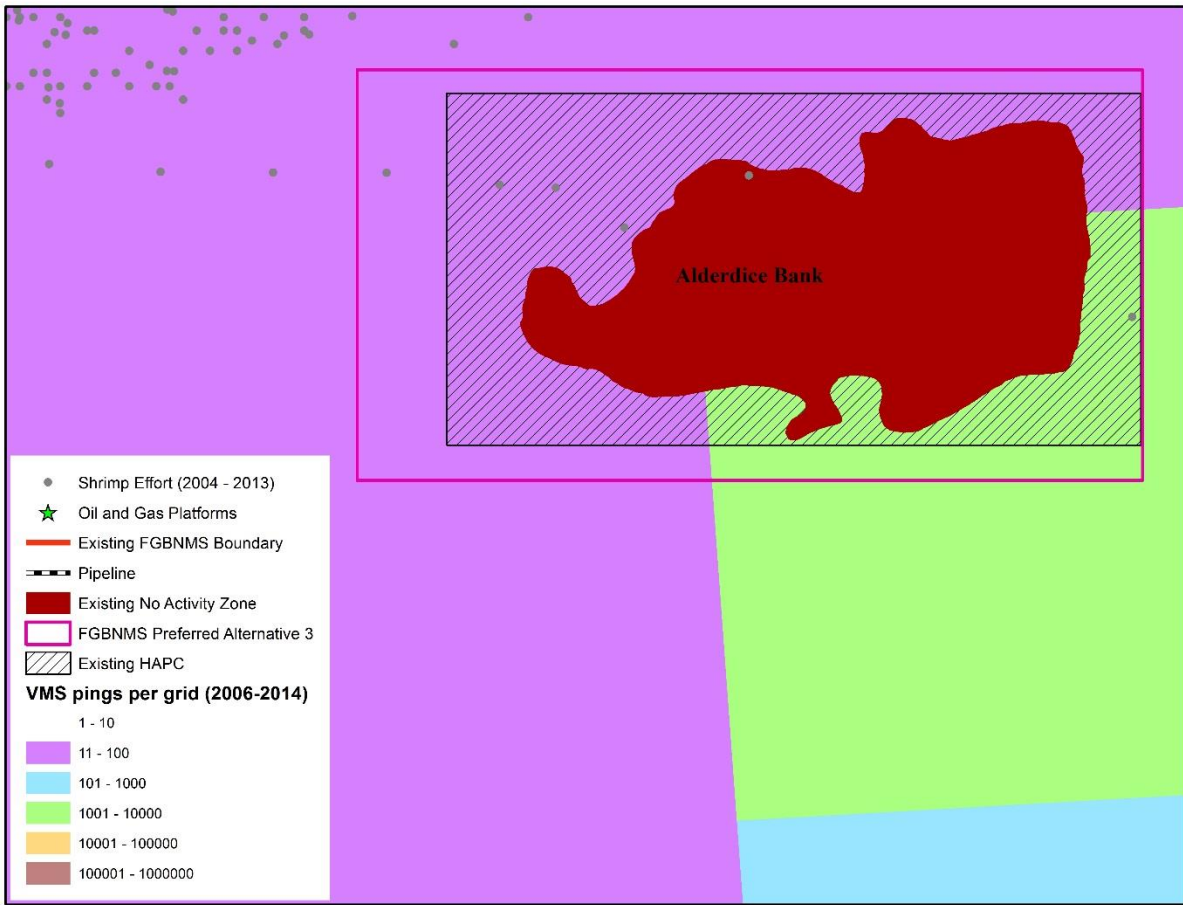
**Figure 14.** Gulf of Mexico Fishery Management Council suggested revision to the boundary of the proposed expansion of Sonnier Bank.

## Alderdice Bank

Alderdice Bank is designated as a HAPC but has no fishing regulations (Figure 15). The green box in Figure 15 is an area of high usage by the reef fish fishery and this historic fishing practices should be incorporated into the regulations considered for the FGBNMS expansion. All recommendations are based on Figure 15.

### *Recommendations*

- Continue to allow historic fishing practices in the area highlighted in green in the southeast section by the following:
  - Establish a truncated “no bottom tending gear zone (including anchors)” for Alderdice Bank that coincides with the established BOEM “no activity zone” established
  - Prohibit trawling within the boundaries of the proposed expansion of FGBNMS
  - Allow anchoring by fishing vessels over soft sediment (anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc) as long as this area is not in the “no bottom tending gear zone”
  - Allow historic fishing practices in the area to continue as long as they comply with the bottom tending gear regulations and have a FGBNMS endorsement



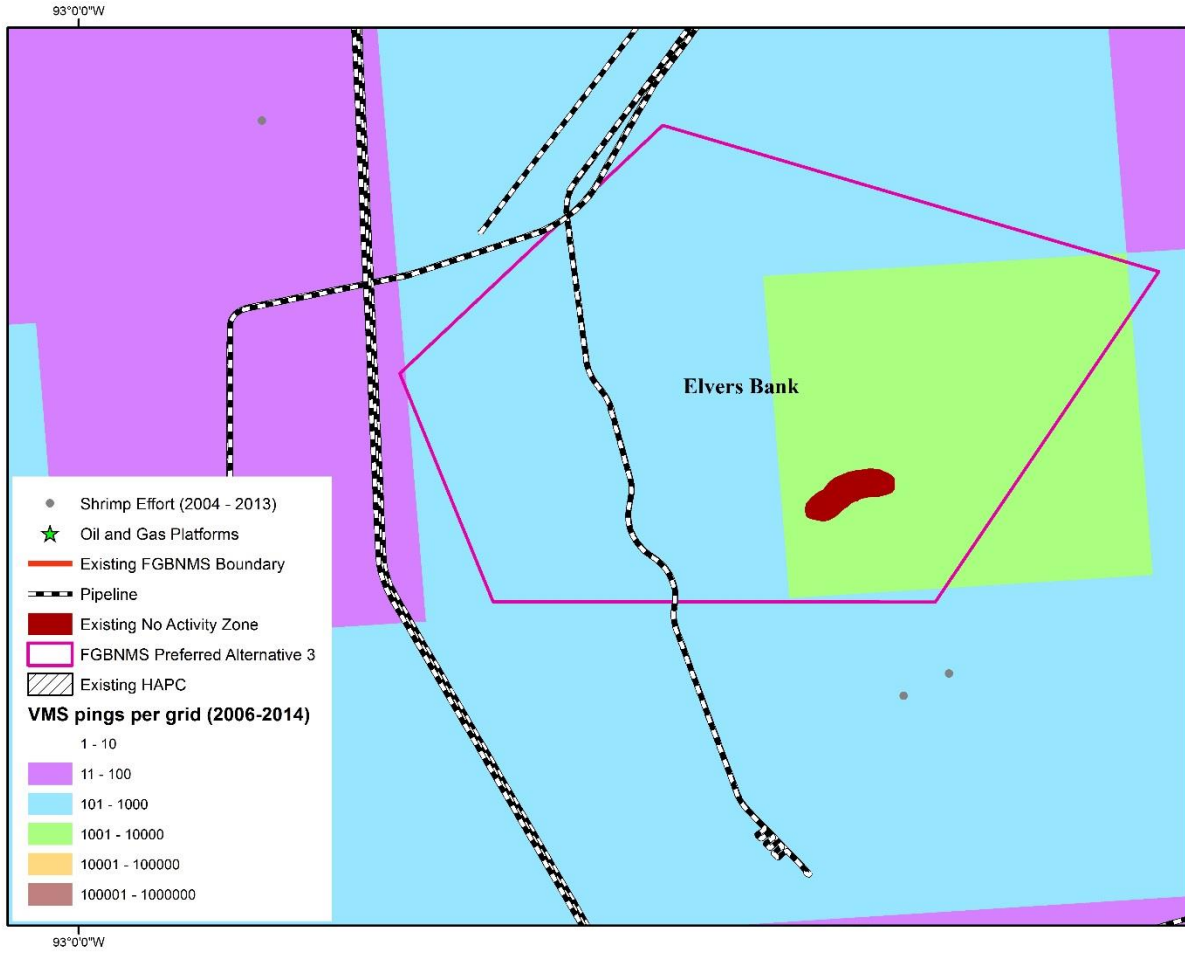
**Figure 15.** Alderdice Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple).

## Elvers Bank

Elvers Bank is not currently designated as an HAPC (Figure 16). The green box in Figure 16 is an area of high usage by the reef fish fishery and this historic fishing practices should be incorporated into the regulations considered for the FGBNMS expansion. All recommendations are based on Figure 16.

### *Recommendations*

- Continue to allow historic fishing practices in the area highlighted in green in the southeast section by the following:
  - Establish a truncated “no bottom tending gear zone (including anchors)” for Elvers Bank that coincides with the established BOEM “no activity zone” established
  - Prohibit trawling within the boundaries of the proposed expansion of FGBNMS
  - Allow anchoring by fishing vessels over soft sediment (anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc) as long as this area is not in the “no bottom tending gear zone”
  - Allow historic fishing practices in the area to continue as long as they comply with the bottom tending gear regulations and have a FGBNMS endorsement



**Figure 16.** Elvers Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple).

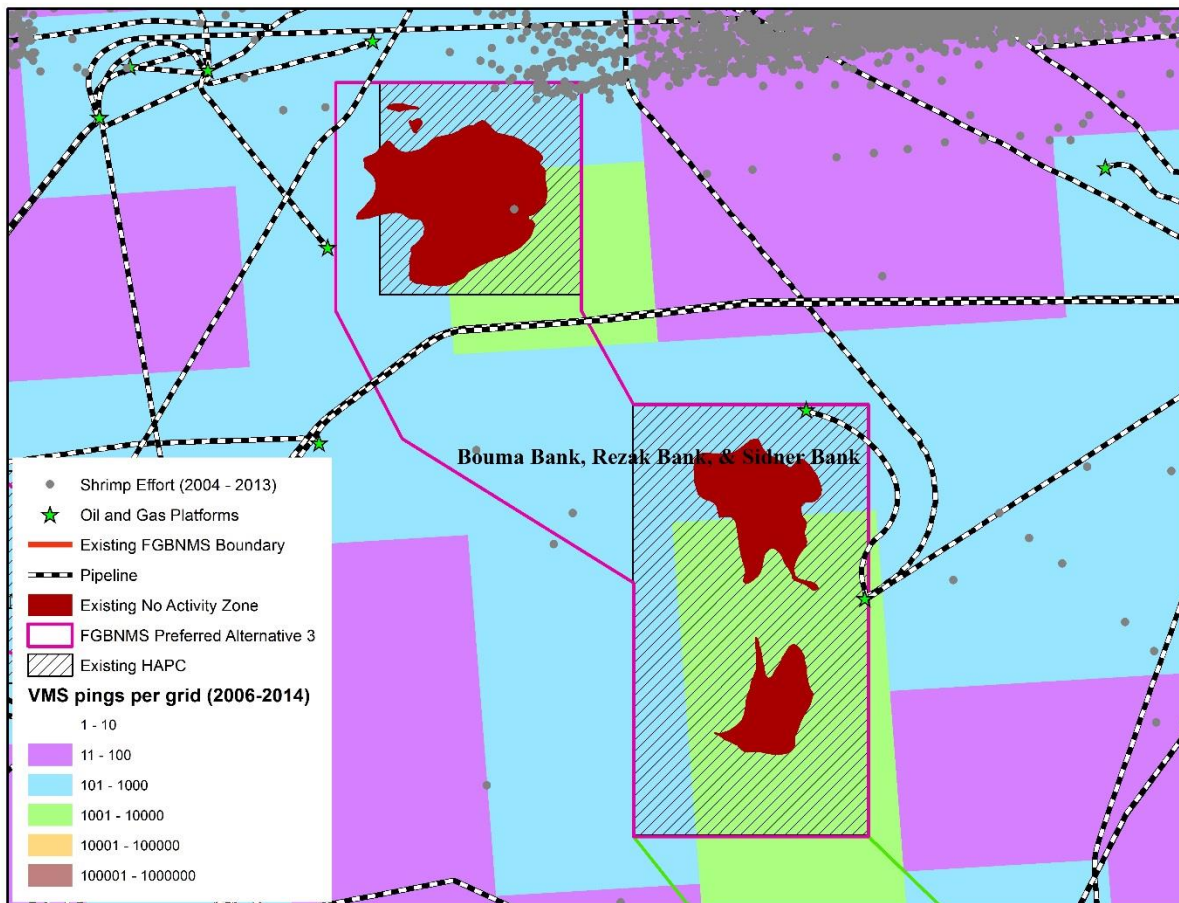


## **Bouma Bank, Bryant Bank, Rezak Bank and Sidner Bank**

Bouma, Bryant, Rezak and Sidner Banks (Bouma Bank Complex) are designated as HAPCs but have no fishing regulations (Figure 17). The green boxes in Figure 17 are areas of high usage by the reef fish fishery and this historical fishing should be incorporated into the regulations considered for the FGBNMS expansion. Additionally, the shrimp fishery heavily uses the northern portion of the proposed boundary; the Council has already made recommendations to the FGBNMS about revising the boundary to allow for historical usage (Figure 18). All recommendations are based on Figure 17.

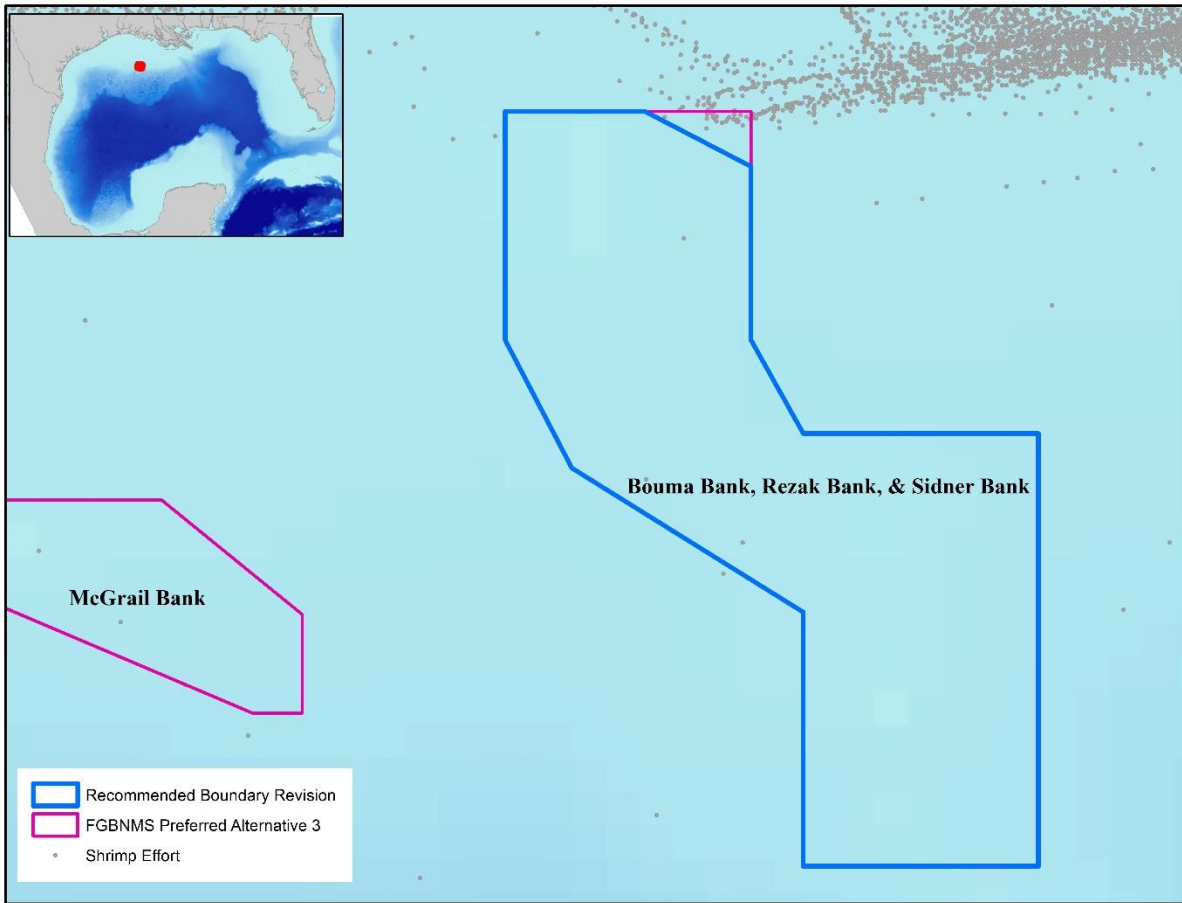
### *Recommendations*

- Continue to allow historic fishing practices in the area highlighted in green in the southeast section by the following:
  - Establish a truncated “no bottom tending gear zone (including anchors)” for the Bouma Bank Complex that coincides with the established BOEM “no activity zone” established
  - Prohibit trawling within the boundaries of the proposed expansion of FGBNMS
  - Allow anchoring by fishing vessels over soft sediment. Anchors used should be specific to anchoring in soft sediment (e.g. Danforth anchors, etc) as long as this area is not in the “no bottom tending gear zone”
  - Allow historic fishing practices in the area to continue as long as they comply with the bottom tending gear regulations and have a FGBNMS endorsement



**Figure 17.** Bouma Bank, Bryant Bank, Rezak Bank and Sidner Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple).





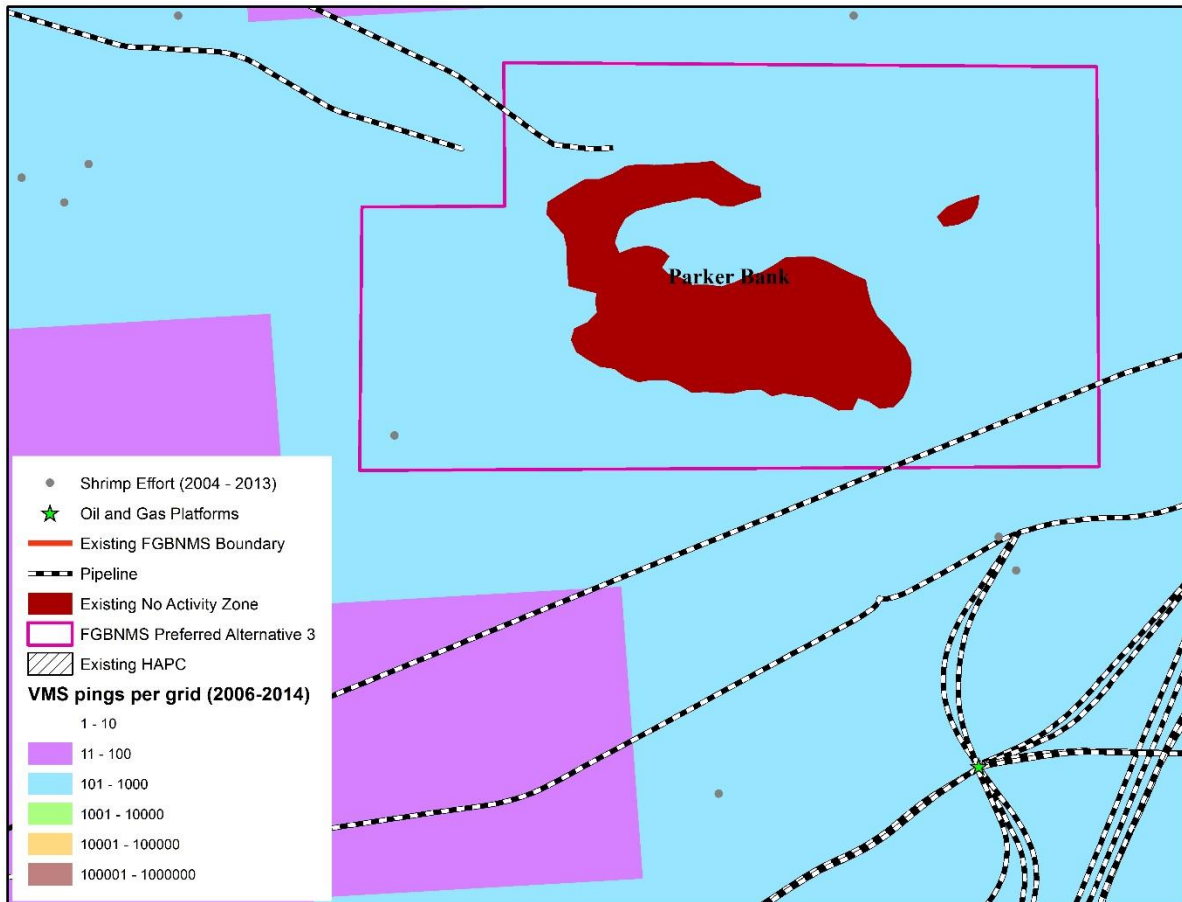
**Figure 18.** Gulf of Mexico Fishery Management Council suggested revision to the boundary of the proposed expansion of the Bouma Bank Complex.

## Parker Bank

Parker Bank is not a currently designated HAPC (Figure 19) though it was recommended for consideration based on new scientific information by the Council's Coral Working Group in 2014. All recommendations are based on Figure 19.

### Recommendations

- There are no regulatory recommendations for this area



**Figure 19.** Parker Bank: existing HAPC (hatched lines) and proposed expansion (outlined in purple).

## **Example of “No Bottom Tending Gear Zone”**

Many of the recommendations stem from having a “tiered” approach, or certain fishing activities allowed within the expansion of the FGBNMS. As it was suggested that the BOEM “no activity zones” coincide with the “no bottom tending gear zones” (Figure 20). Nearly the entirety of the proposed boundary of the Preferred Alternative 3 expansion of FGBNMS of MacNeil Bank is a heavily used area for reef fish (VMS data.) Thus, the closure of this area would greatly affect the fishermen in this region. Supporting a “no bottom tending gear zone” within the boundary while allowing anchoring in soft sediment or fishing with bottom tending gear outside of the no activity zone would minimally affect the fishermen that rely on these areas while maximizing protection for the hardbottom reef resources. Additionally, limiting the footprint of trawling outside of these areas will protect the reef from sediment plumes.

Tier 1- inside the “no bottom tending gear zones

Fishing only by hook and line, no anchoring

Requires a special endorsement from the FGBNMS

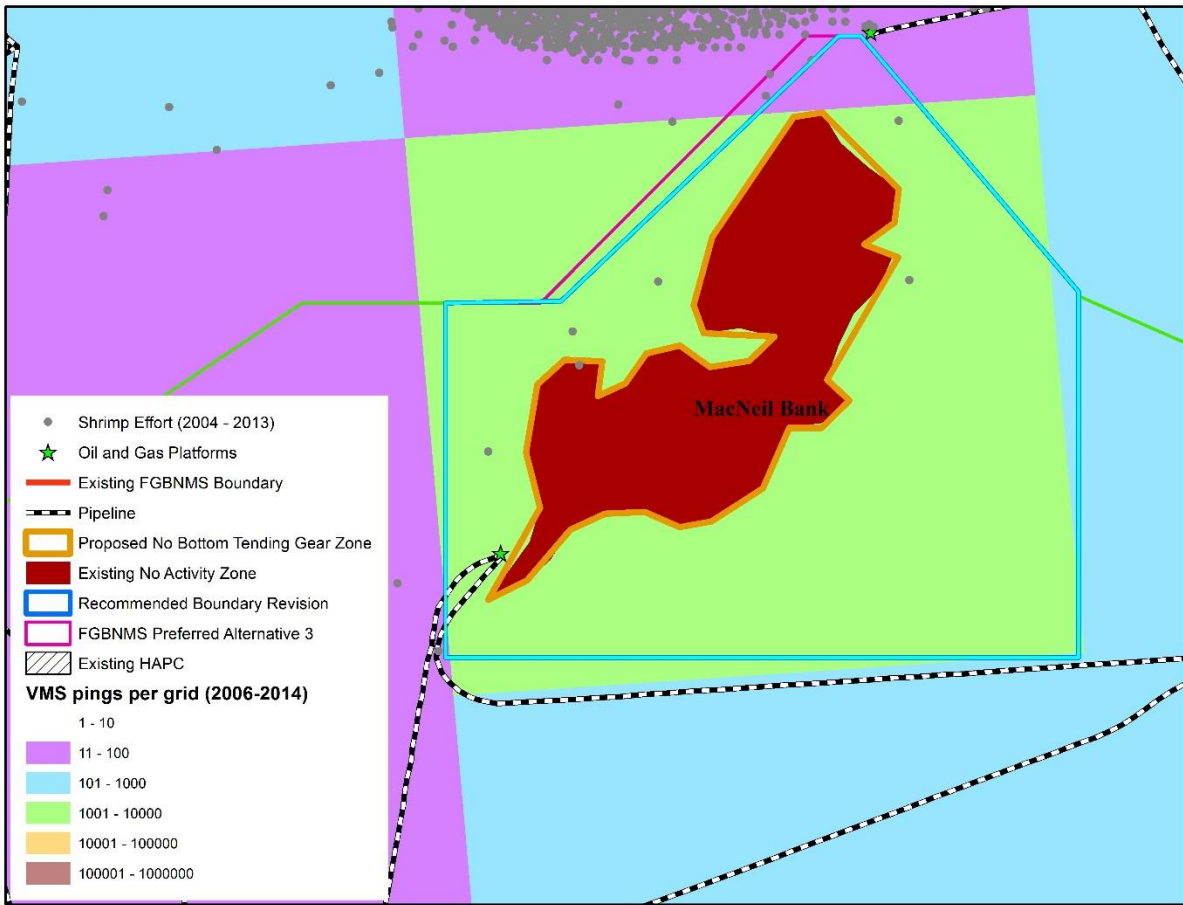
Tier 2- outside the “no bottom tending gear zone” and inside the Council recommended boundary of the expansion of FGBNMS for MacNeil Bank (Preferred Alternative 3)

Anchoring using a soft sediment specific anchor (e.g. Danforth anchors, etc)

No bottom trawling, traps, or dredges

Tier 3- outside of the proposed boundary

No FGBNMS imposed regulations (all regulations that currently exist are maintained)



**Figure 20.** Example of using the BOEM “no activity zone” to delineate a “no bottom tending gear zone.”

## Summary

Here, we have outlined specific regulatory recommendations for each of the areas outlined in the FGBNMS expansion DEIS Preferred Alternative 3. The same analyses should be applied to any of the areas that the FGBNMS chooses in its expansion (e.g. alternative 4, or alternative 5). The Council staff is available to assist with data analyses should the FGBNMS choose a different preferred alternative, but for the sake of brevity, the only analyses contained in this document referred to Preferred Alternative 3.

Additional steps that the FGBNMS should consider with regard to regulations

- Establish a certificate program or endorsement program that would allow for education of fishermen within the FGBNMS on the fishing restricted areas and appropriate gear types (i.e. anchor). This program could be a requirement for anyone that fishes in the FGBNMS proposed boundaries regardless of gear type.
- Establish a tiered approach to regulations. Hook-and-line gear only within the “no bottom tending zone,” anchoring by vessels outside the “no bottom tending gear zone,” longlines outside the “no bottom tending gear zone.”
- Historical fishing practices. Many of the areas that are proposed under Preferred Alternative 3, Alternative 4, and Alternative 5 are heavily fished areas. As oil and gas efforts are accommodated based on historical use, so should fishing activities. There need not be a broad sweep approach to regulations, but instead separate zones can be established within the expansion, and these zones are easily enforced with the use of VMS.

Here, we present a spatially explicit decision support tool that can be applied for fishing regulations of the proposed boundaries of the FGBNMS expansion. This analysis can be further refined by inclusion of fine scale bathymetry, shrinking the size of the cells used to consolidate VMS data, and incorporation of VMS data that is not restricted to bottom tending gear