

## Flower Garden Banks Expansion Fishing Activity Analysis

This document outlines the *potential* fishing activity occurring on banks under consideration for the expansion of the Flower Garden Banks National Marine Sanctuary (Figure 1 and Figure 2). The areas analyzed are what were recommended by the Flower Garden Banks National Marine Sanctuary Advisory Council (SAC), and the boundaries outlined differ from those included in the Draft Environmental Impact Statement (DEIS). While all areas recommended by the SAC are included in the original DEIS, the total area recommended by the SAC is much smaller, and the boundaries are polygons that are closer to the edges of the banks. The areas used here do not overlap with any of the areas that the Council considered in Coral Amendment 9. For analyses and discussion in this document for existing fishing pressure, two datasets were used: the shrimp electronic logbook (ELB) dataset, and the vessel monitoring system (VMS) dataset from federally-permitted reef fish vessels with bottom-tending gear. Each of these datasets are collected by different methods and have different caveats. Ultimately, the difference between the presented VMS data and ELB data is that VMS data include both fishing and non-fishing points and are on all commercially permitted reef fish boats, while the ELB data include only fishing points from approximately one third of the federal commercial shrimp fleet.

VMS are required on all vessels with commercial reef fish permits. VMS data from vessels with bottom-tending gear were used for analyses here. Gear types that were considered as bottom-tending were the following: bottom longlines, trawl nets, sea bass pots, traps, automatic reels, bandit rigs, spears, and diving. Primarily, VMS data came from allowable gear types in the Gulf and only the following gear types were observed in the proposed HAPCs (traps [from 2008-2010], bottom longlines, trawl nets, bandit rigs, and spears). Some gear types are directly bottom-contact gear while others use bottom anchoring. Additionally, date, time, latitude, and longitude were requested data. VMS send pings with vessel identification and location information to a centralized database maintained by NOAA's Office of Law Enforcement every hour, with increasing frequency of pings if a vessel nears a closed area. Because of the infrequency of pings (once an hour), it is very difficult to separate fishing activity from non-fishing activity. Thus, we used all ping data from VMS vessels with bottom-tending gear in analyses from 2007 through 2015.

Shrimp ELB data from vessels with federal shrimping permits from 2004 until 2013 were also used to describe fishing activity in the proposed areas. Shrimp ELBs are on vessels selected by NMFS to carry an ELB, but only approximately one third of all federally permitted shrimp vessels have an ELB. In 2004, the ELB program began, but it took several years for NMFS to place ELBs on approximately one-third (~500) of the Gulf federal commercial shrimp fleet; thus, early years in the program are not very representative of shrimping activity. Data points from Shrimp ELBs are collected every ten minutes. Because of the frequency of data points, NMFS is able to determine likely fishing activity from non-fishing activity based on vessel speed (derived from the distance between two points), among other factors, using a calibrated algorithm.

Overarching, there was little to no fishing activity by shrimping vessels (Table 1). Throughout 2004-2013, the maximum number of points in any one year at a single site was eight data points. VMS gear was summed for each bank for the year 2007-2015. For vessels with VMS, bandit rig

gear was the most prevalent type of gear, with banks having anywhere between 67 and 3,382 individual VMS points, and points occurring on every bank. Bright Bank had 138 spearfishing points; all other banks had between zero and two points. Bottom longline occurred at some banks, but no banks had more than 111 points for the entire time series.

**Table 1.** Vessel Monitoring Systems (VMS) and Electronic logbook (ELB) activity within each area recommended by the Flower Garden Banks Sanctuary Advisory Council. VMS data span 2007 through 2015. ELB data span the years 2004 until 2013.

<b>Bank</b>	<b>Total number of unique VMS vessels</b>	<b>Total number of points</b>	<b>Total number of bandit rig points</b>	<b>Total number of bottom longlines points</b>	<b>Total number of spear fishing points</b>	<b>Total number of trap points</b>	<b>Total number of unique ELB vessels</b>	<b>Total number of ELB points</b>
<b>Stetson**</b>	12	69	67	2	0	0	5	6
<b>WFGB**</b>	23	335	326	4	0	5	3	3
<b>Horseshoe</b>	23	3562	3382	96	0	84	1	3
<b>EFGB**</b>	25	381	310	49	0	22	2	2
<b>MacNeil*</b>	22	296	232	25	1	3	1	1
<b>Rankin*</b>	31	1382	1286	90	2	4	2	3
<b>Bright*</b>	24	764	603	16	138	7	1	1
<b>Geyer*</b>	22	465	403	62	0	0	1	1
<b>Elvers</b>	20	1161	1050	111	0	0	0	0
<b>McGrail**</b>	18	324	319	2	0	3	2	2
<b>Sonnier*</b>	13	1051	1051	0	0	0	6	17
<b>Bouma*</b>	15	1340	1268	7	0	0	1	1
<b>Rezak*</b>	17	470	455	14	0	1	0	0
<b>Sidner*</b>	13	317	309	8	0	0	0	0
<b>Alderdice*</b>	11	469	469	0	0	0	1	4
<b>Parker</b>	21	825	785	42	0	0	0	0

\*indicates an area that overlaps or is within an existing HAPC with no fishing regulations

\*\* indicates an area that overlaps or is within an existing HAPC or National Marine Sanctuary with fishing regulations

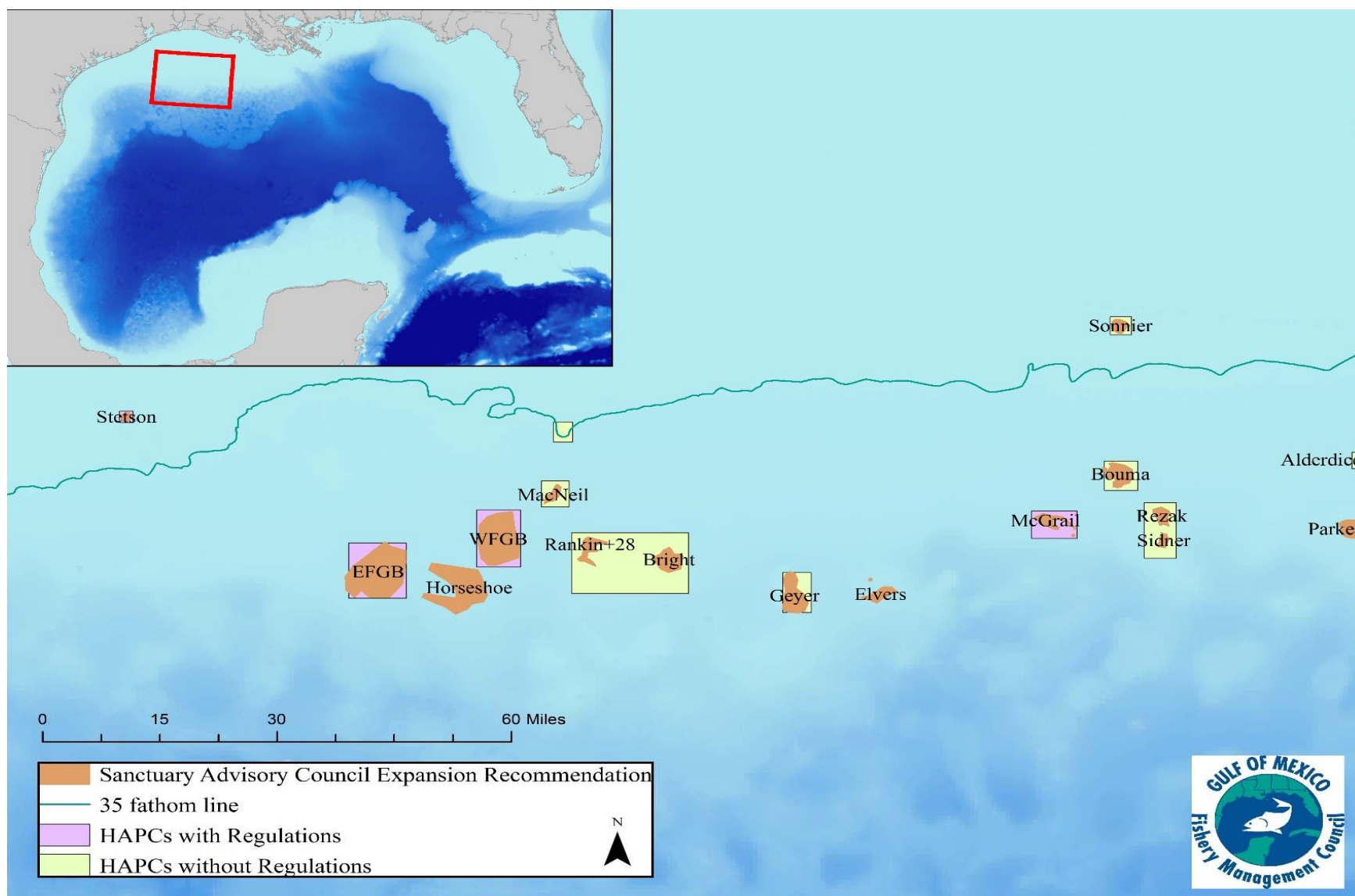


Figure 1. Location of existing HAPCs with and without regulations and the location of the Flower Garden Banks Sanctuary Advisory Council's recommendation for the expansion of the sanctuary.

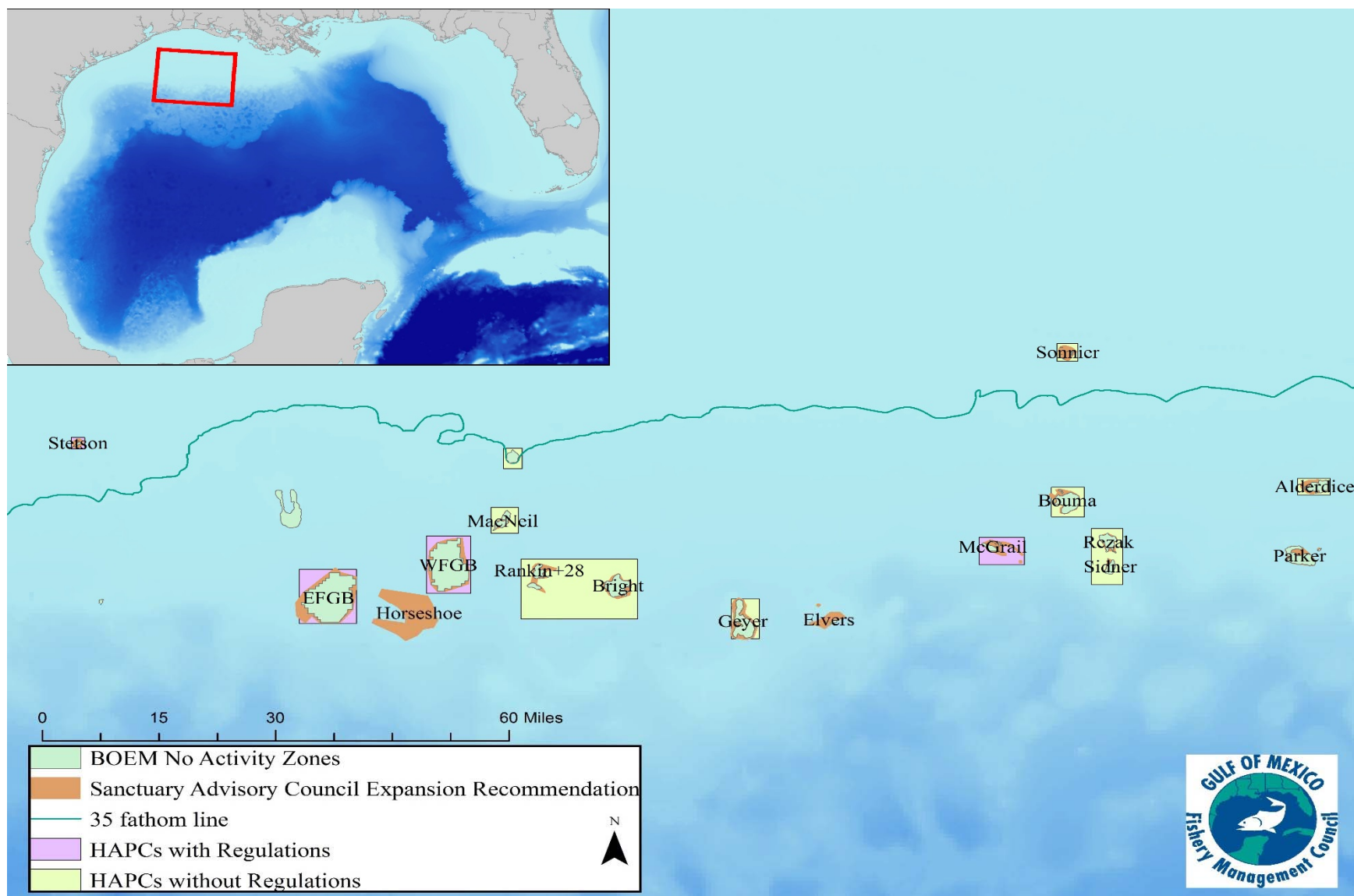


Figure 2. Location of existing HAPCs with and without regulations and the location of the Flower Garden Banks Sanctuary Advisory Council's recommendation for the expansion of the sanctuary and the BOEM No Activity Zones overlaid.