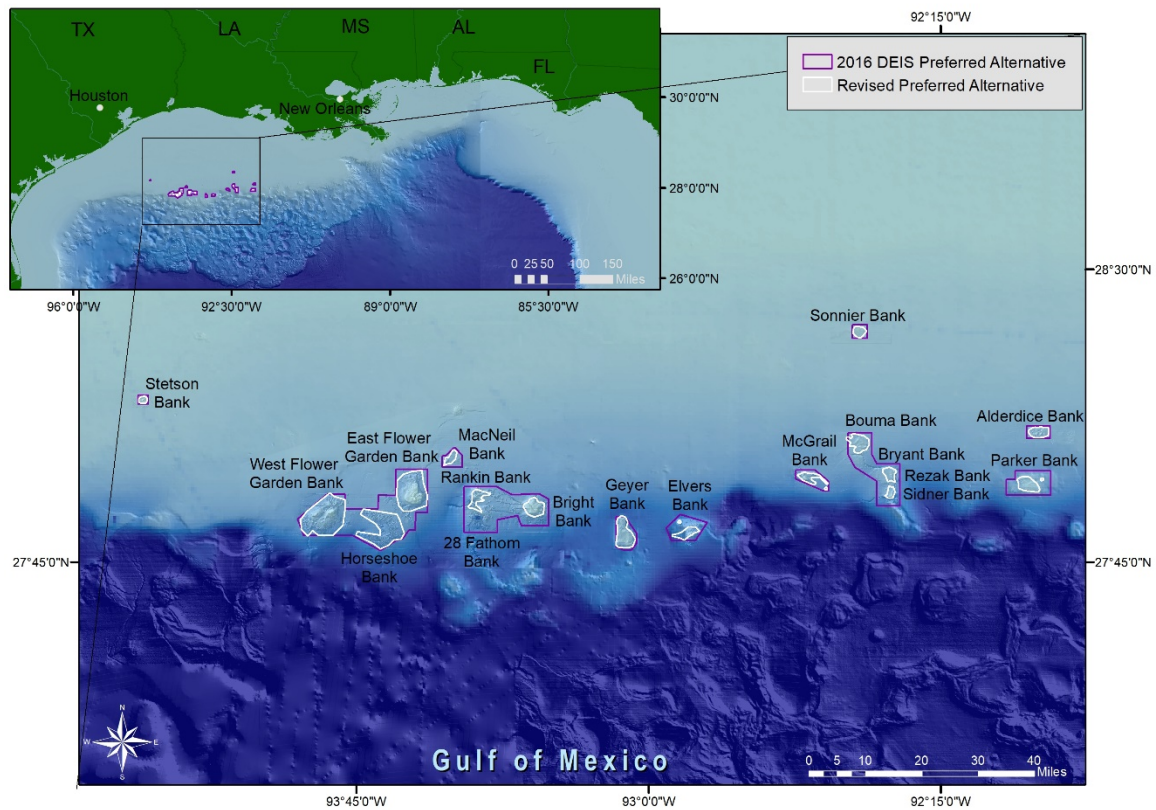


FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY EXPANSION NOTICE OF PROPOSED RULEMAKING PROPOSED ACTION SITE DESCRIPTIONS



May 2020

The purpose of this document is to give a brief overview of the reefs and banks included in the revised preferred alternative in the Notice of Proposed Rule released by Flower Garden Banks National Marine Sanctuary (FGBNMS) in April 2020.

The bathymetry presented in the maps was collected by Dr. Jim Gardner during his time with the U.S. Geological Survey (USGS). The maps have been adapted by FGBNMS to illustrate boundary options, infrastructure, shipping fairways, and management zones.

The underwater images were collected by FGBNMS during research cruises conducted with University of North Carolina Wilmington – Undersea Vehicle Program (UNCW-UVP) using a remotely operated vehicle (ROV), unless otherwise indicated. All of these images were taken at locations within the proposed sanctuary boundaries.

An online, interactive map showing the information in this document is available at <https://flowergarden.noaa.gov/management/expansionnpr.html>

For more information contact:

Kelly Drinnen
Sanctuary Outreach Specialist
Flower Garden Banks National Marine Sanctuary
4700 Avenue U, Bldg 216
Galveston, TX 77551
409-356-0388
<https://flowergarden.noaa.gov>
email: fgbexpansion@noaa.gov

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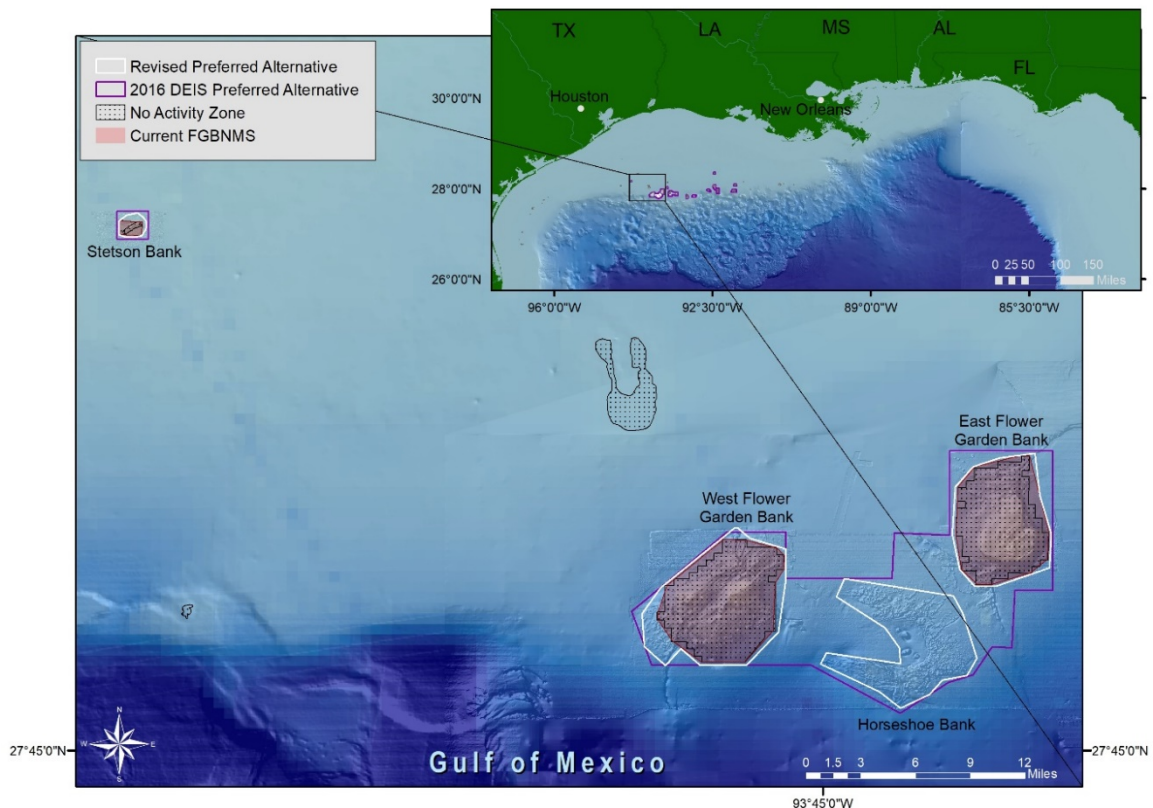
Background – Difference between 2016 DEIS Preferred Alternative and Revised Preferred Alternative

On June 10, 2016, NOAA released a draft environmental impact statement (DEIS), including a set of alternatives that would implement potential changes to Flower Garden Banks National Marine Sanctuary. The original 2016 DEIS preferred alternative would have added 15 banks to the sanctuary, for a total of 18 banks, resulting in an increase of the existing sanctuary area from approximately 56 square miles to approximately 383 square miles.

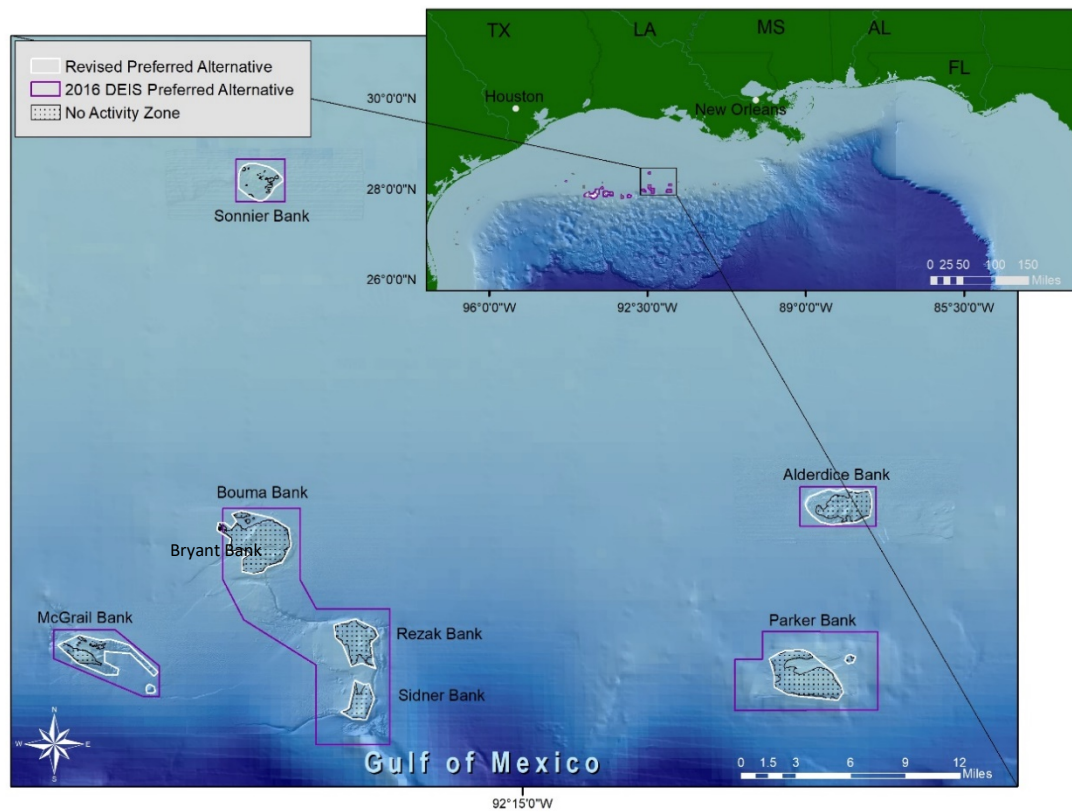
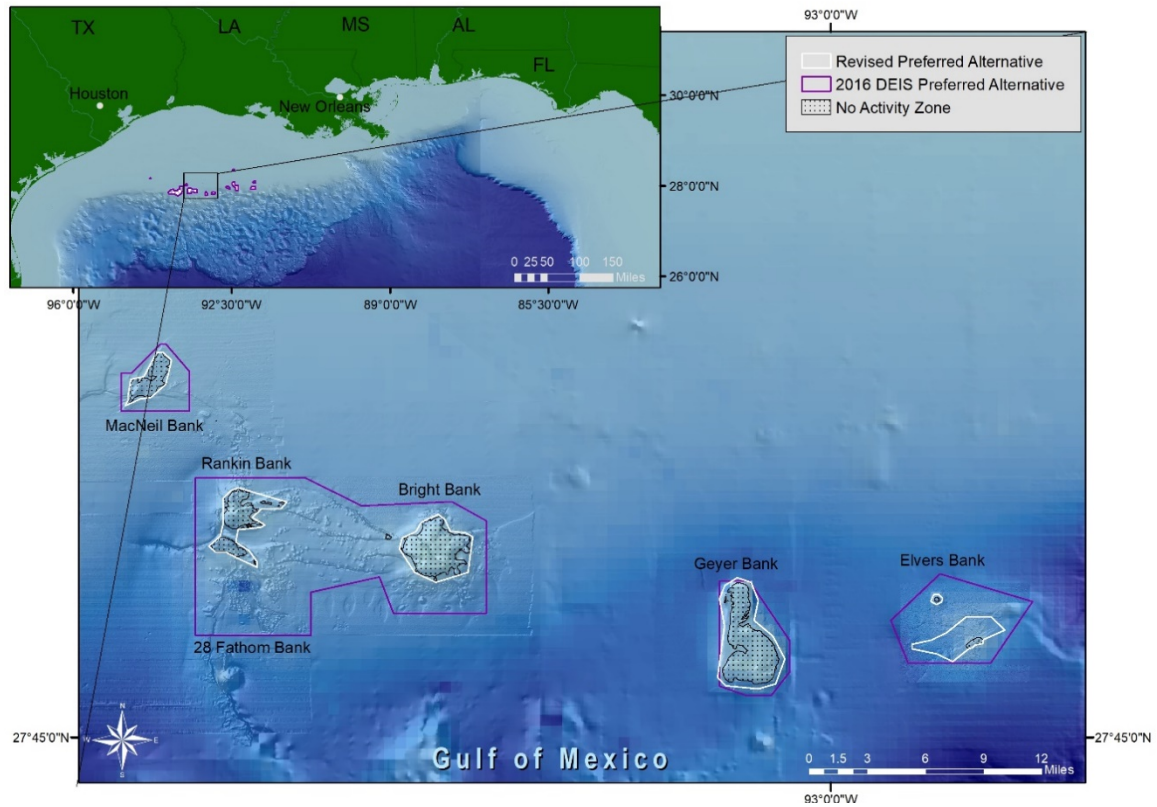
After a lengthy process, which included significant input from primary constituents, the Sanctuary Advisory Council developed a revised recommendation. This, along with public comments and interagency consultations, resulted in what is now NOAA’s revised preferred alternative for sanctuary expansion, upon which the Notice of Proposed Rulemaking (NPRM) is based. This revised preferred alternative will add 14 banks, for a total of 17 banks, which will increase the current sanctuary area from approximately 56 square miles to approximately 160 square miles.

NOAA has reduced the size of the expansion areas proposed in the 2016 DEIS preferred alternative to minimize user conflicts and potential economic impacts to the offshore energy industry.

The following series of maps shows the expansion locations from west to east, and identifies the current sanctuary (Stetson, East Flower Garden, and West Flower Garden Banks), the 2016 DEIS Preferred Alternative, and the Revised Preferred Alternative. The maps also show Bureau of Ocean Energy Management’s (BOEM’s) No Activity Zones (NAZs), which were influential in the development of the Revised Preferred Alternative boundaries.



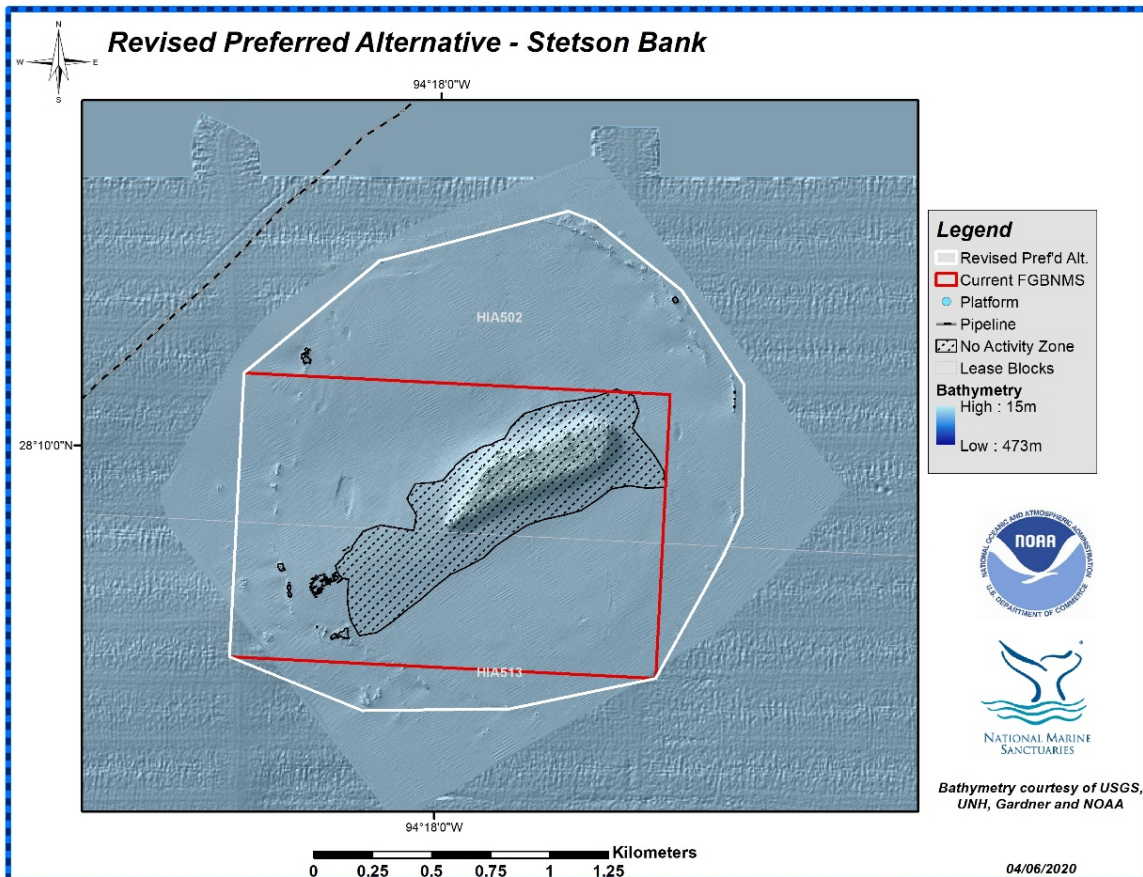
Flower Garden Banks National Marine Sanctuary 2020 Revised Preferred Alternative Site Descriptions



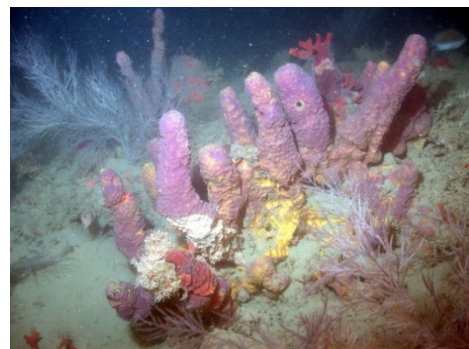
Stetson Bank – Amend current boundaries

Action will increase area from 0.84 sq. miles to 1.43 sq. miles
 Depth range: 56ft – 194ft (17m – 59m)

Stetson Bank was named after Henry C. Stetson, a Woods Hole Oceanographic Institute geological oceanographer. The ring around Stetson Bank was originally identified as an important associated feature when mapped in 1997, after the initial boundary designation. Additional mapping was conducted by FGBNMS to complete coverage of the Stetson Ring bathymetric dataset. Uplifted siltstone and claystone boulders comprise the features of the ring, which provide substrate and habitat for black corals, octocorals, sponges, invertebrates, and deep reef fish.



Sponge community around Stetson Ring.

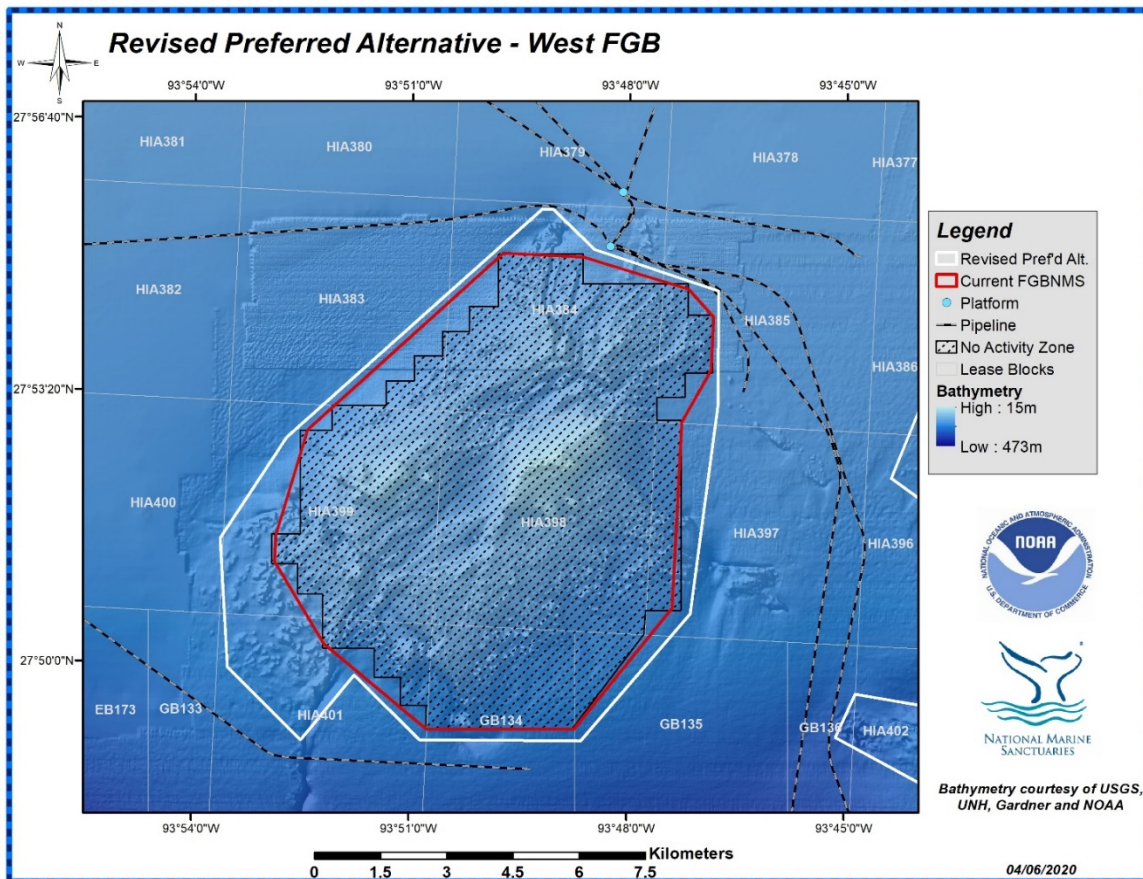


Sponges and black corals around Stetson Ring.

West Flower Garden Bank – Amend current boundaries

Action will increase area from 29.94 sq. miles to 37.15 sq. miles
 Depth range: 59ft – 545ft (18m – 166m)

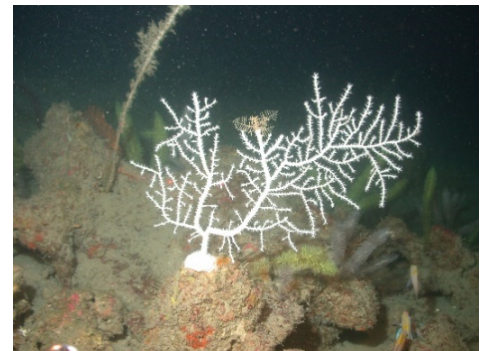
Multibeam mapping revealed hard bottom features not previously protected within the original sanctuary boundaries at West Flower Garden Bank. These features include populations of branching stony corals, black corals, and octocorals.



Branching stony coral and black coral at West Flower Garden Bank.



A crinoid, black corals, and longline at West Flower Garden Bank.

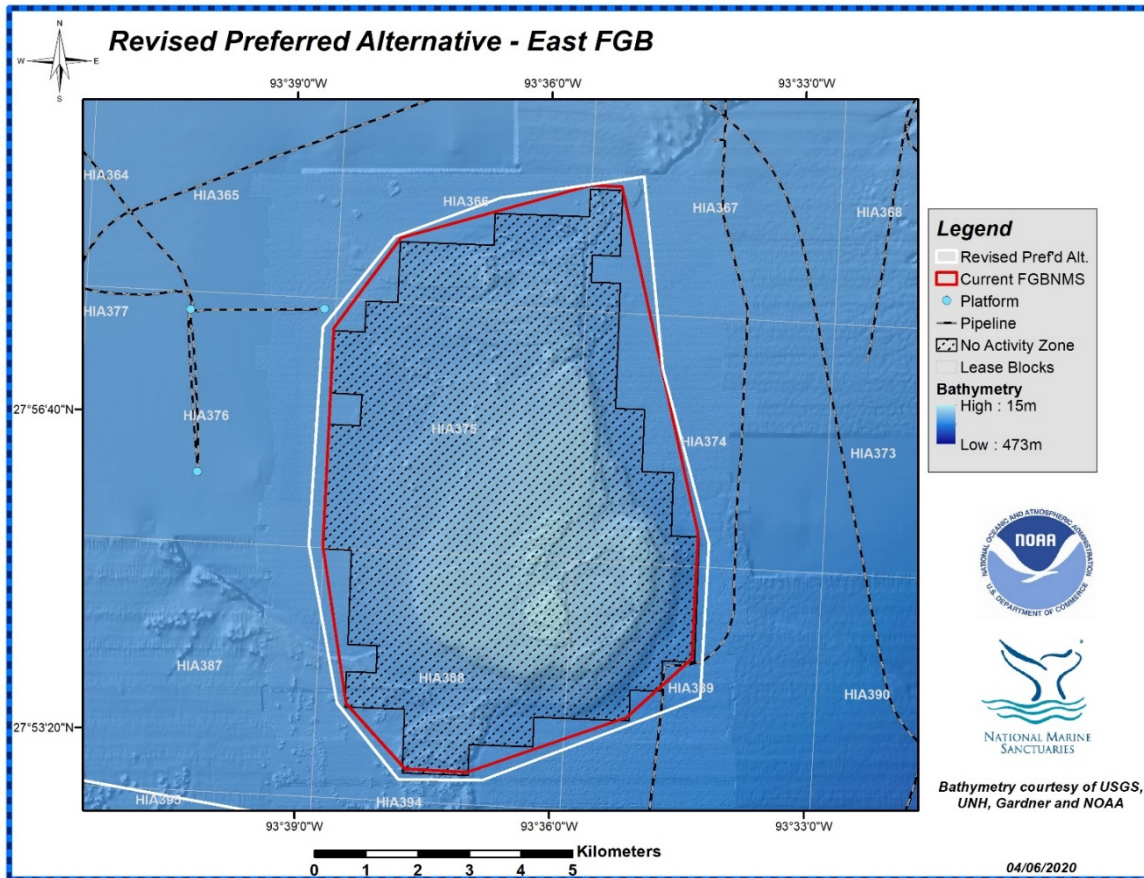


A gorgonian and black corals at West Flower Garden Bank.

East Flower Garden Bank – Amend current boundaries

Action will increase area from 25.43 sq. miles to 27.82 sq. miles
 Depth range: 52ft – 446ft (16m – 136m)

Multibeam mapping revealed hard bottom features not previously protected within the original sanctuary boundaries at East Flower Garden Bank. These features include populations of branching stony corals, black corals, and octocorals.



A crinoid perched on top of a black coral at East Flower Garden Bank.



Black corals at East Flower Garden Bank.

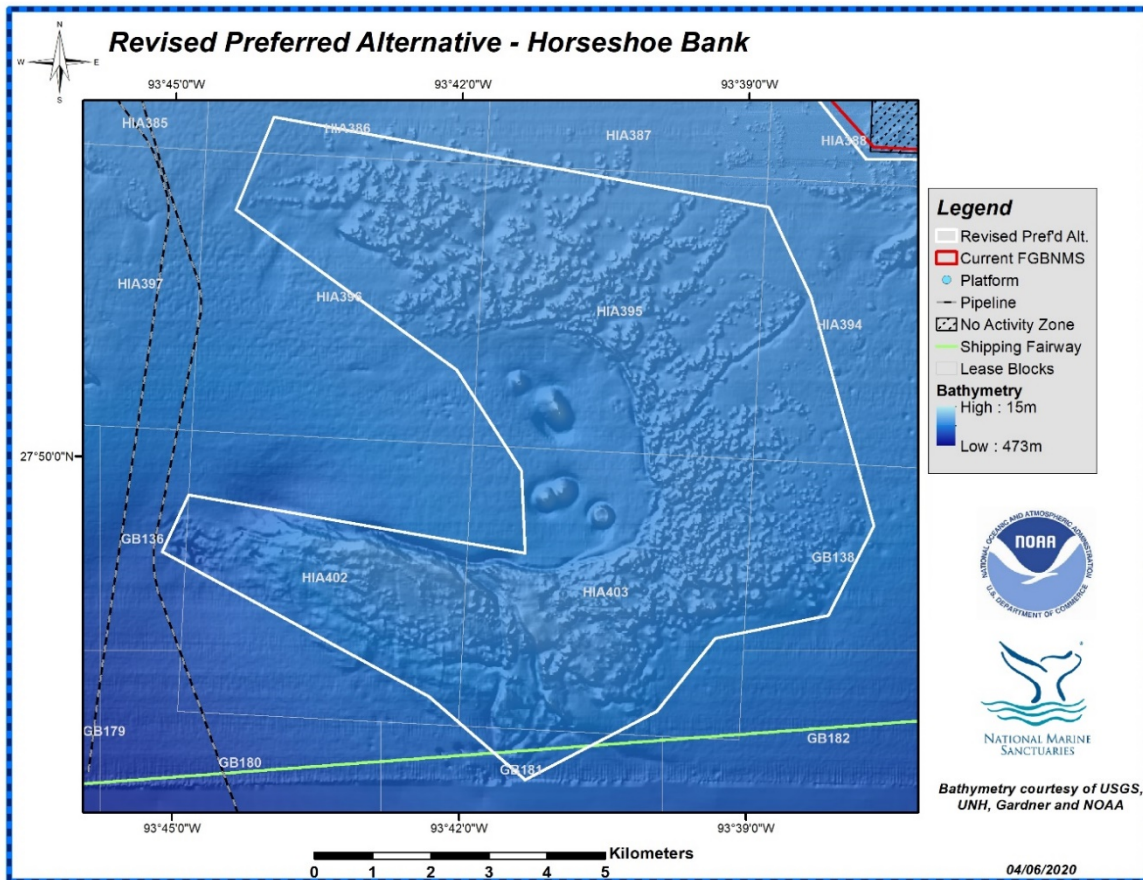


Stony cup corals, black corals, and a gorgonian at East Flower Garden Bank.

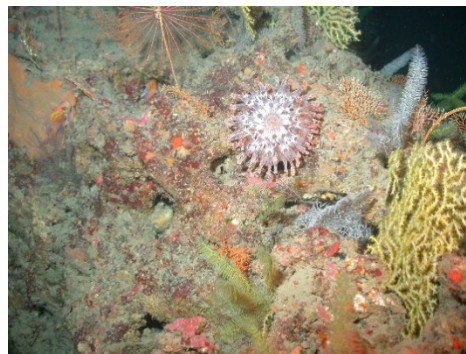
Horseshoe Bank

28.68 sq. miles, depth range: 243ft – 614ft (74m – 187m)

Horseshoe Bank was revealed through mapping by NOAA in 2004. This effort showed a feature made up of thousands of patch reefs providing habitat for mesophotic corals, sponges, algae, invertebrates, and fish. It also includes interesting mud volcano features. FGBNMS research staff named this feature after its shape.



A garden of black corals and octocorals on an outcropping at Horseshoe Bank.



A colorful anemone amid black corals and gorgonians at Horseshoe Bank.

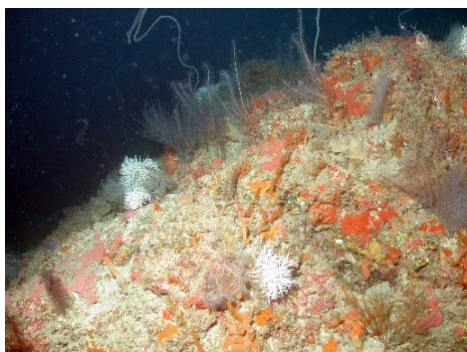
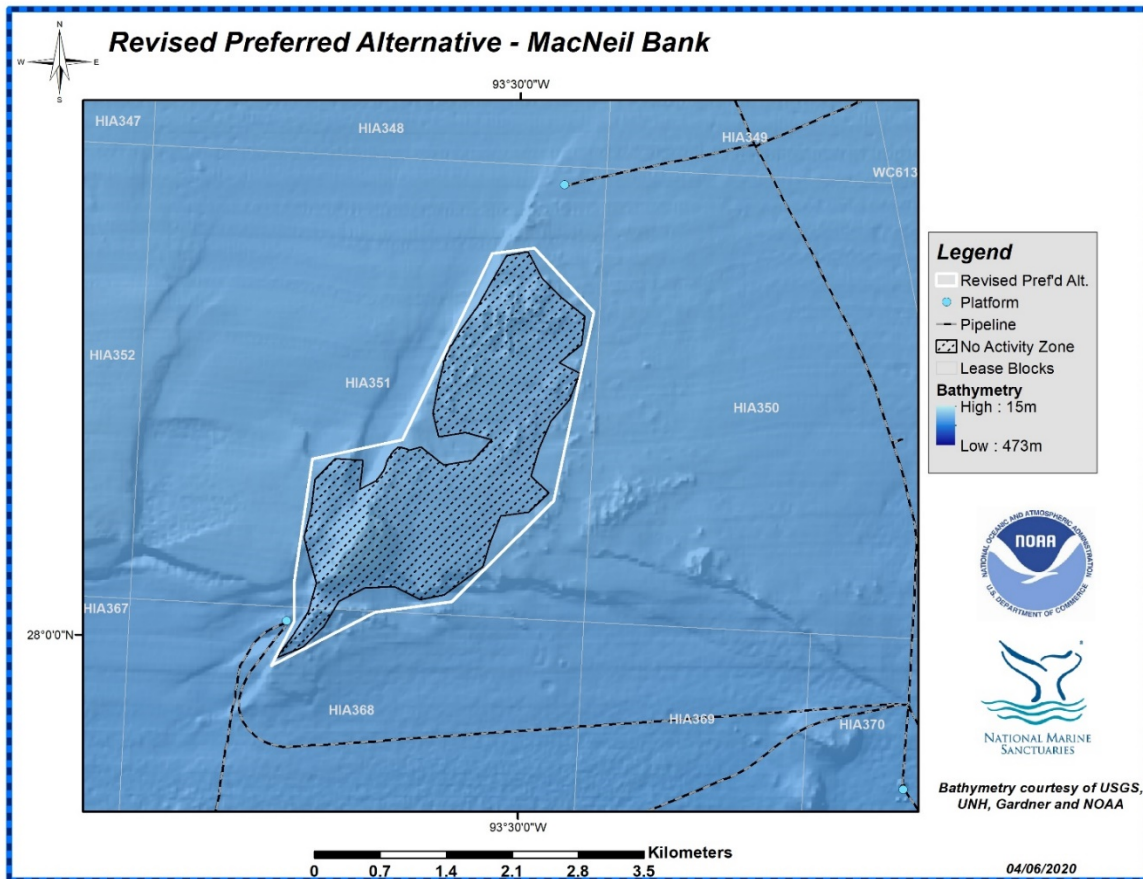


A scamp grouper in a field of black corals and gorgonians at Horseshoe Bank.

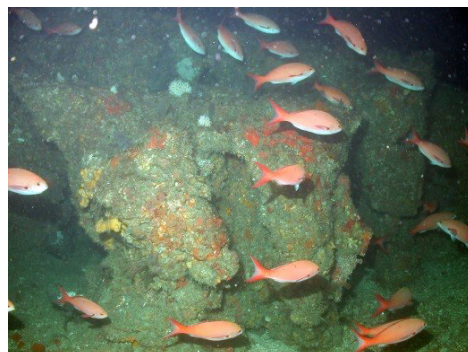
MacNeil Bank

2.72 sq. miles, depth range: 210ft – 315ft (64m – 96m)

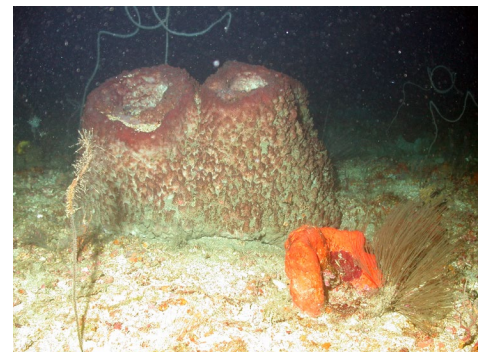
MacNeil Bank was named after F. Stearns MacNeil, a U.S. Geological Survey geologist. The bank is located northeast of East Flower Garden Bank and is structurally connected to East Flower Garden Bank by a ridge that runs between the two features. MacNeil Bank includes mesophotic habitat featuring black corals, gorgonians, sponges, and fish.



Colorful encrusting sponges, black corals, gorgonians, and crinoids at MacNeil Bank.



A school of creolefish swim around a 3 foot tall feature on MacNeil Bank.

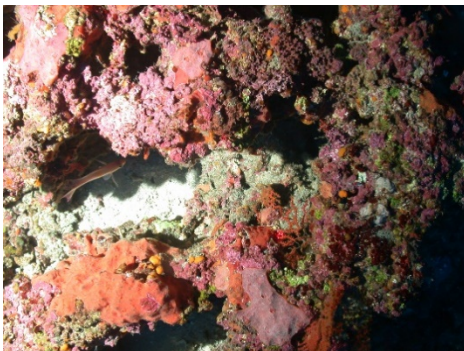
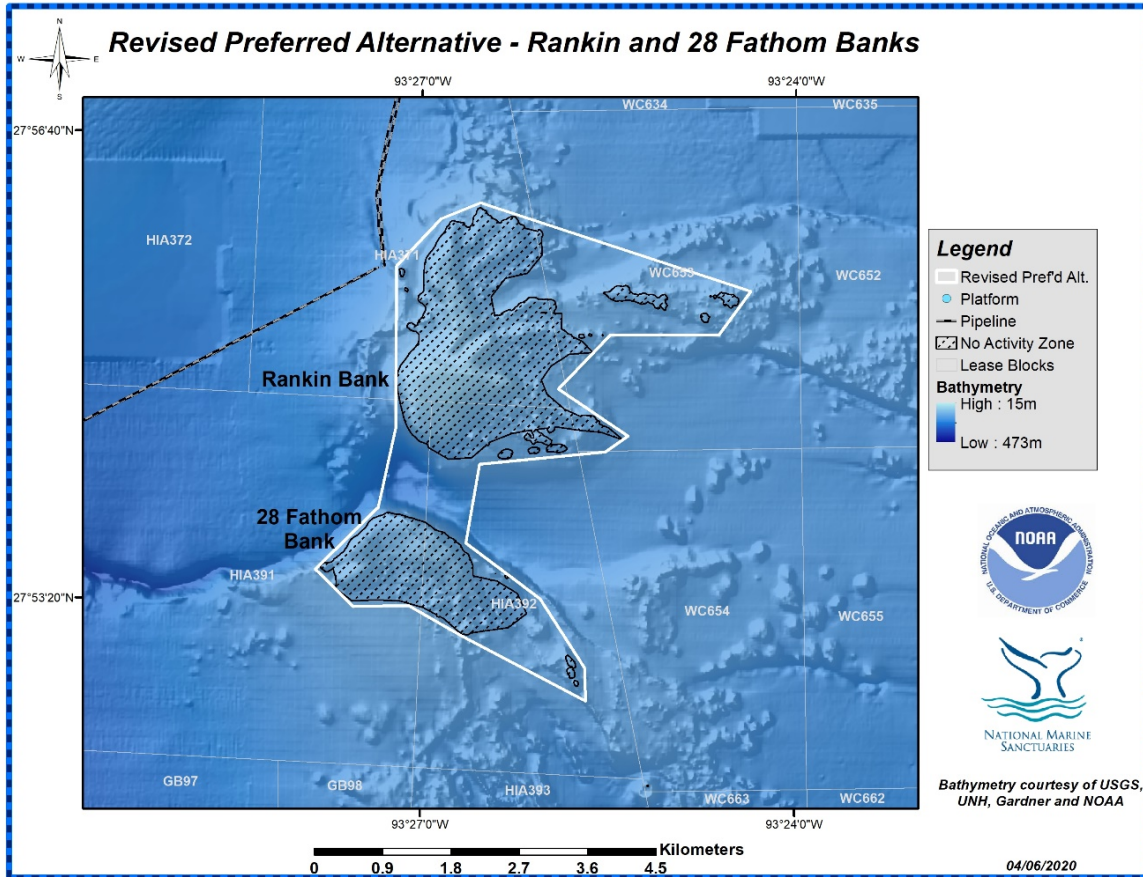


Sponges and black corals at MacNeil Bank.

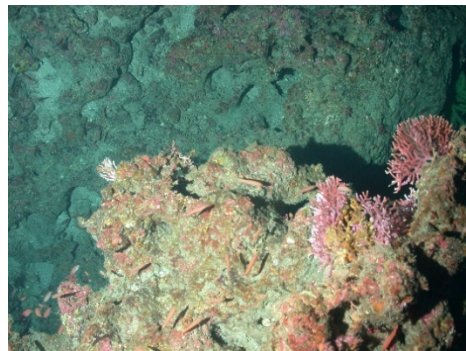
Rankin and 28 Fathom Banks

5.57 sq. miles, depth range: 164ft – 571ft (50m – 174m)

Rankin Bank was named after John L. Rankin, of the former Minerals Management Service. The bank is located 9.3 miles due east of East Flower Garden Bank. It is physically connected to MacNeil Bank to the north via the ridge feature that continues on to East Flower Garden Bank. Rankin Bank is just north of 28 Fathom Bank. The two features are split by a 3,281ft (1,000m) wide trough, reaching down about 505ft (154m). These banks include mesophotic habitat consisting of black corals, gorgonians, algae, sponges, stony corals, and a variety of invertebrates.



Colorful coralline algae, encrusting sponges, and gorgonians at 28 Fathom Bank.



Threadnose bass swim near stony corals and coralline algae at 28 Fathom Bank.

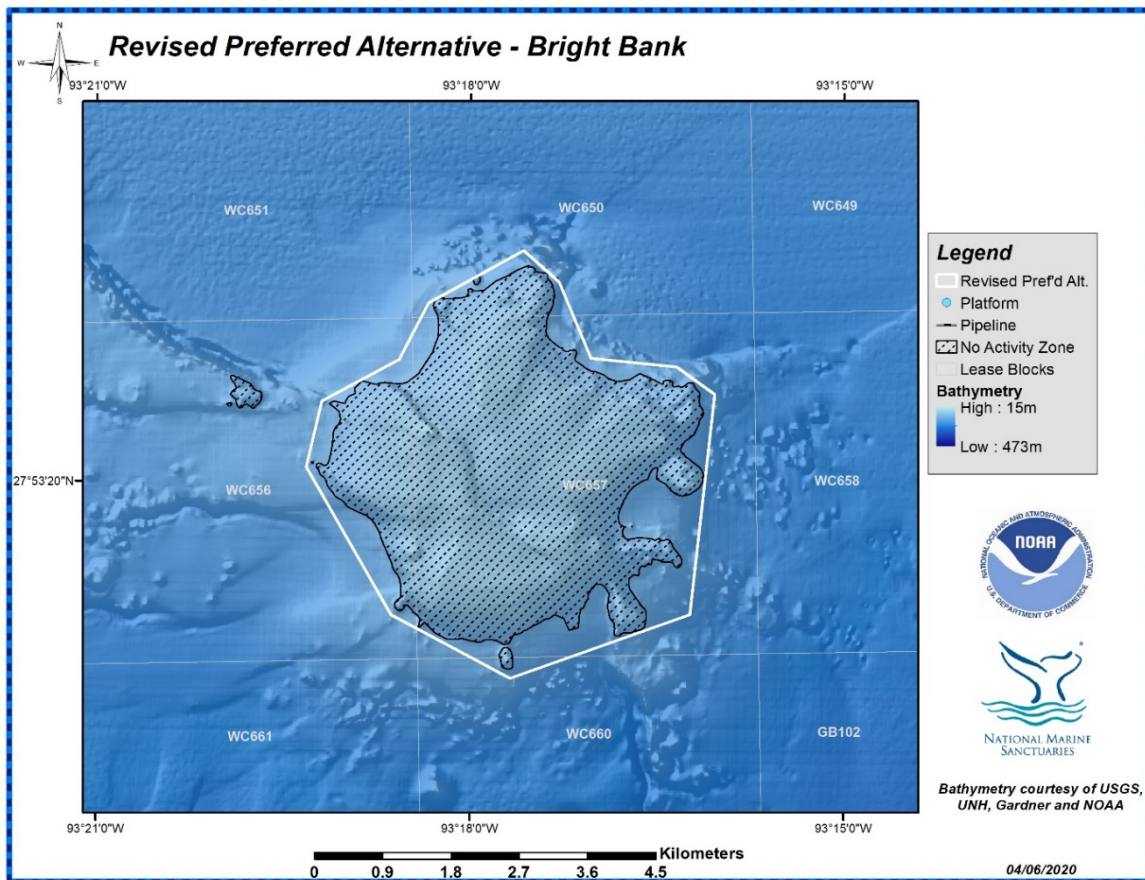


Coralline algae and gorgonians at Rankin Bank.

Bright Bank

7.65 sq. miles, depth range: 112ft – 384ft (34m – 117m)

Bright Bank was named after Thomas Bright, a marine biologist from Texas A&M University. The bank once included a coral reef. In the 1980s, treasure hunters used dynamite to excavate the top of the reef, damaging many of the coral features. This is an example of insufficient protection under current regulations.



Just remnants of coral reef habitat remain on the crest of Bright Bank.



Leafy algae, encrusting sponges, and tropical fish on the reef crest at Bright Bank.



An excavation pit and debris left over from treasure salvage activities at Bright Bank.

Geyer Bank

11.52 sq. miles, depth range: 105ft – 722ft (32m – 220m)

Geyer Bank was named after Richard A. Geyer, a Texas A&M University geophysicist. The bank lies on an active salt diapir on the upper continental slope. It supports a coral community, as well as mesophotic coral habitats including black corals, gorgonians, fish, sponges, algae, and invertebrates. Diver surveys have documented a *Sargassum* bloom on the reef crest, as well as enormous aggregations of reef butterflyfish. A shipping lane cuts directly across the top of the bank, raising concerns about the potential for anchoring incidents that would impact the resources. In 2011, a large tanker anchored on top of the feature, just outside of the shipping lane.

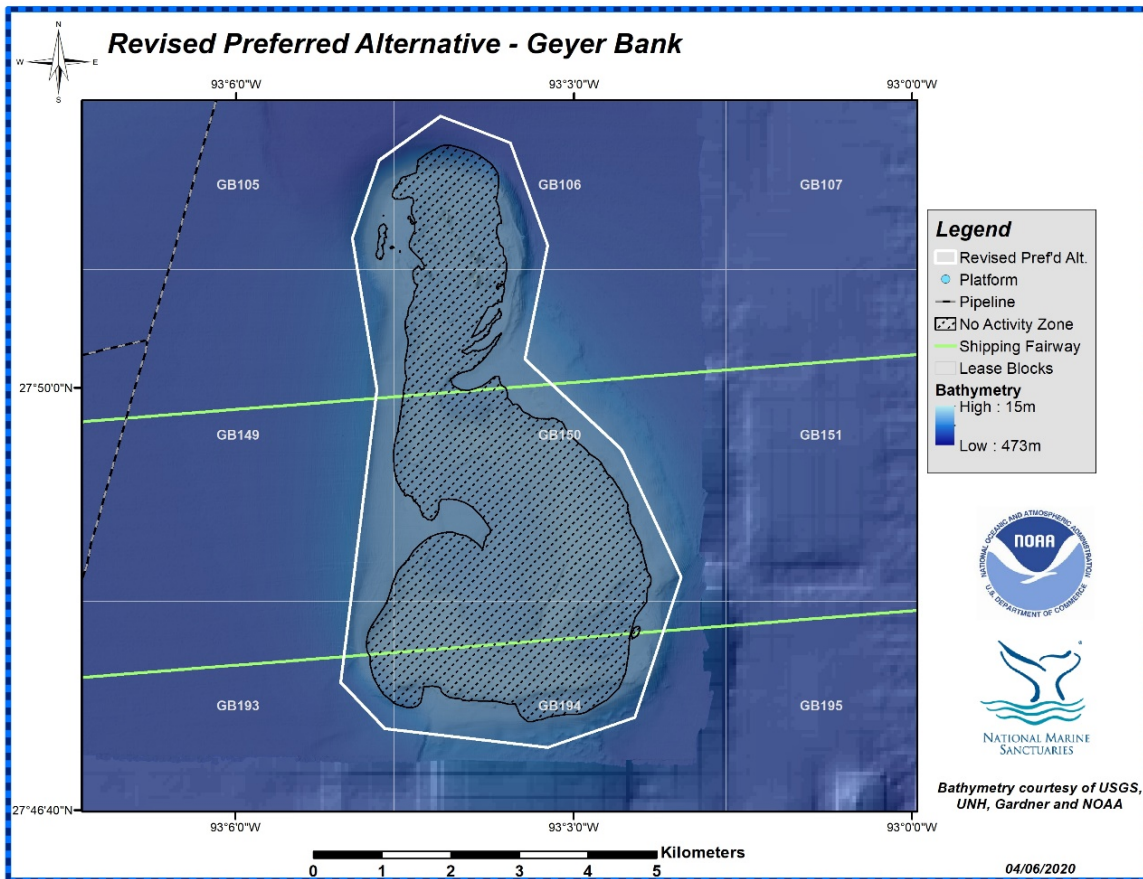


Photo: G.P. Schmahl/NOAA

Sponges, algae, and reef butterflyfish on the crest of Geyer Bank.



A large black coral bush providing cover for trumpetfish at Geyer Bank.

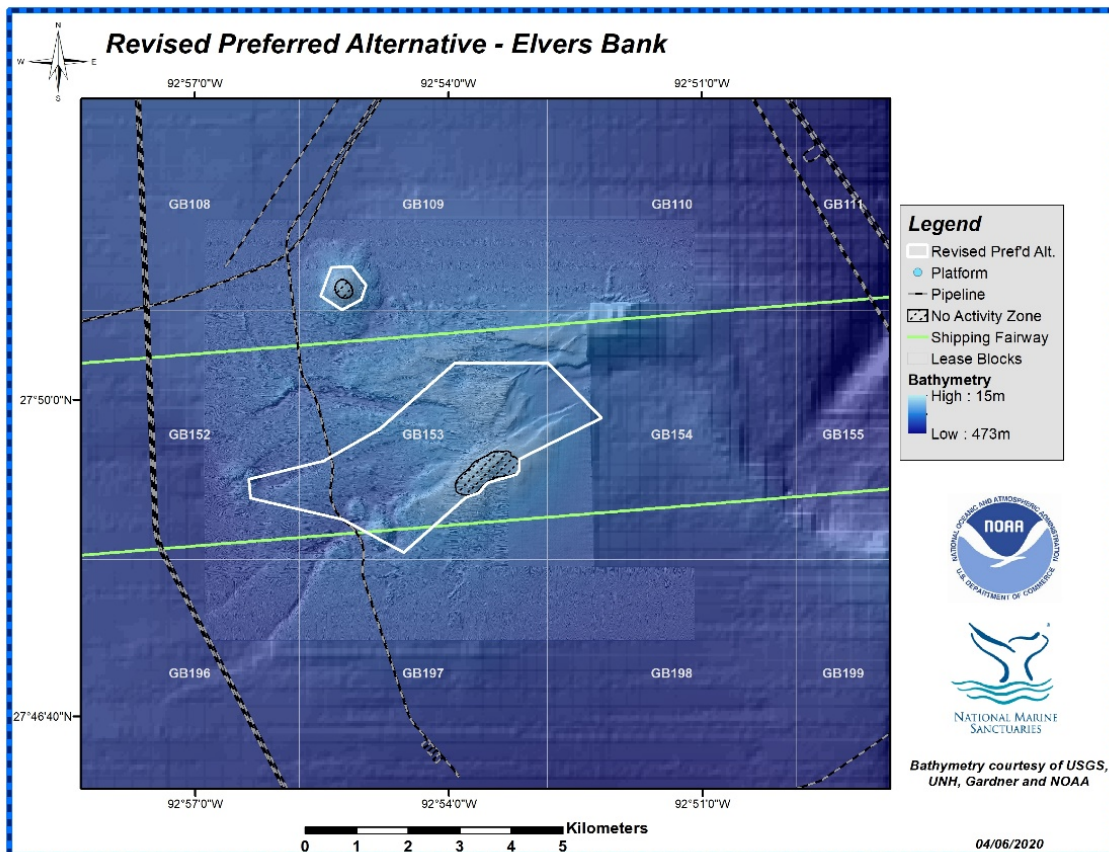


Giant anemone, sponges, and fire coral at Geyer Bank.

Elvers Bank

4.62 sq. miles, depth range: 213ft – 686ft (65m – 209m)

Elvers Bank was named after Douglas J. Elvers, a Minerals Management Service geophysicist. The bank is at the very edge of the continental shelf and reaches a depth of about 676ft (206m). This site includes mesophotic habitat dominated by black corals, gorgonians, fish, sponges, algae, and invertebrates. It also includes an algal nodule field dominated by a small orange/red sponge, which provides habitat for (at least one) dwarf frogfish – a species rarely seen in this part of the gulf. Interesting fields of sea pens and yellow stalked crinoids have been documented here, as well as outcroppings covered in glass sponges. These long-lived animals are rare throughout the region. A new species of black coral was recently identified at Elvers Bank; however, the proposed boundaries do not incorporate the area where the new species was documented.



Dense cover of crinoids, gorgonians, and sponges at Elvers. Bank.



Glass sponge fields at 525ft at Elvers Bank.



Colorful algal nodules and orange sponges at Elvers Bank.

McGrail Bank (formerly known as 18 Fathom Bank)

4.71 sq. miles, depth range: 144ft – 512ft (44m – 156m)

McGrail Bank was named after David W. McGrail, an oceanographer with Texas A&M University and the U.S. Coast Guard. The bank crests at about 148ft (45m), and features areas of coral reefs dominated by large colonies of blushing star coral (*Stephanocoenia intersepta*). This is unique in that no other coral reef is known to be dominated by this species, and in some areas, the coral cover is as high as 28%. The deeper portions of the bank include mesophotic coral communities featuring black corals, gorgonians, fish, sponges, algae, and invertebrates. Recent remotely operated vehicle surveys have documented a *Sargassum* bloom on the coral reef crest, potentially threatening the coral colonies.

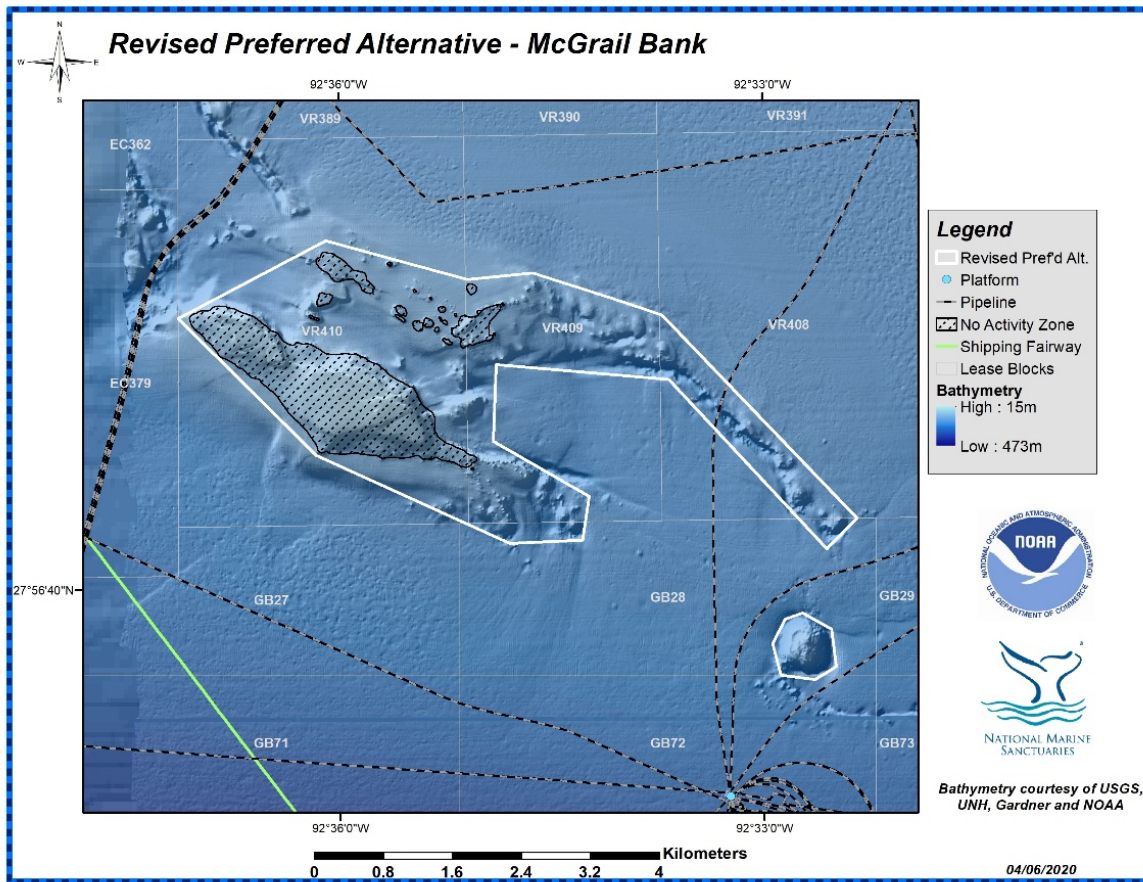
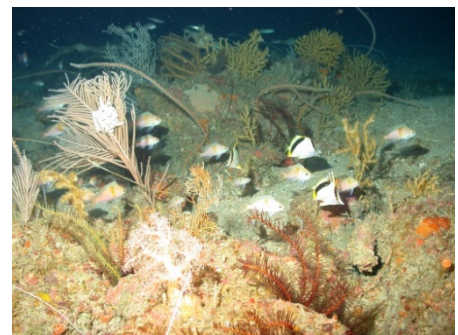


Photo: NOAA/Sustainable Seas Expedition 2002

Large colonies of blushing star coral on the crest of McGrail Bank.



A large gorgonian colony, in a forest of a dozen or more at McGrail Bank.

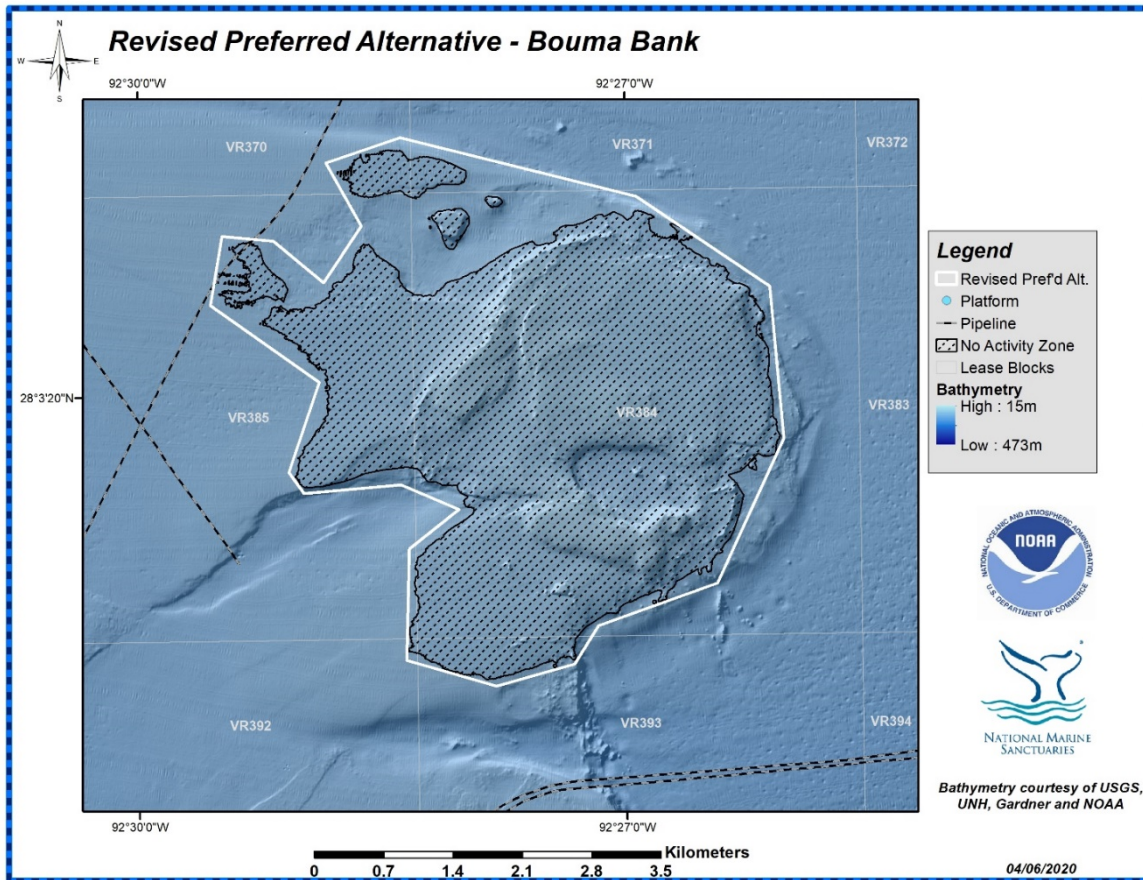


Bank butterflyfish and roughtongue bass swim amid black corals and gorgonians at McGrail Bank.

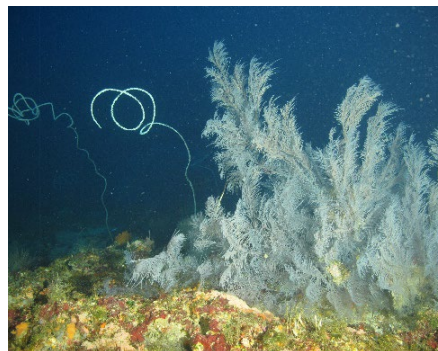
Bouma Bank

7.67 sq. miles, depth range: 187ft – 322ft (57m – 98m)

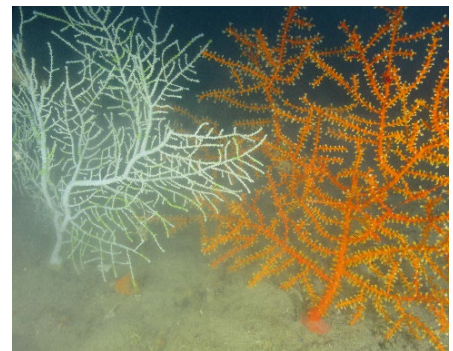
Bouma Bank is named for Arnold H. Bouma, a Louisiana State University geologist. Bouma Bank is on the northern side of a feature that includes several banks. Mesophotic habitat is prevalent throughout the complex, and is dominated by black corals, gorgonians, fish, sponges, algae, and invertebrates.



A lizardfish in a lush sponge/algae field at Bouma Bank.



A large black coral bush and black coral sea whips at Bouma Bank.

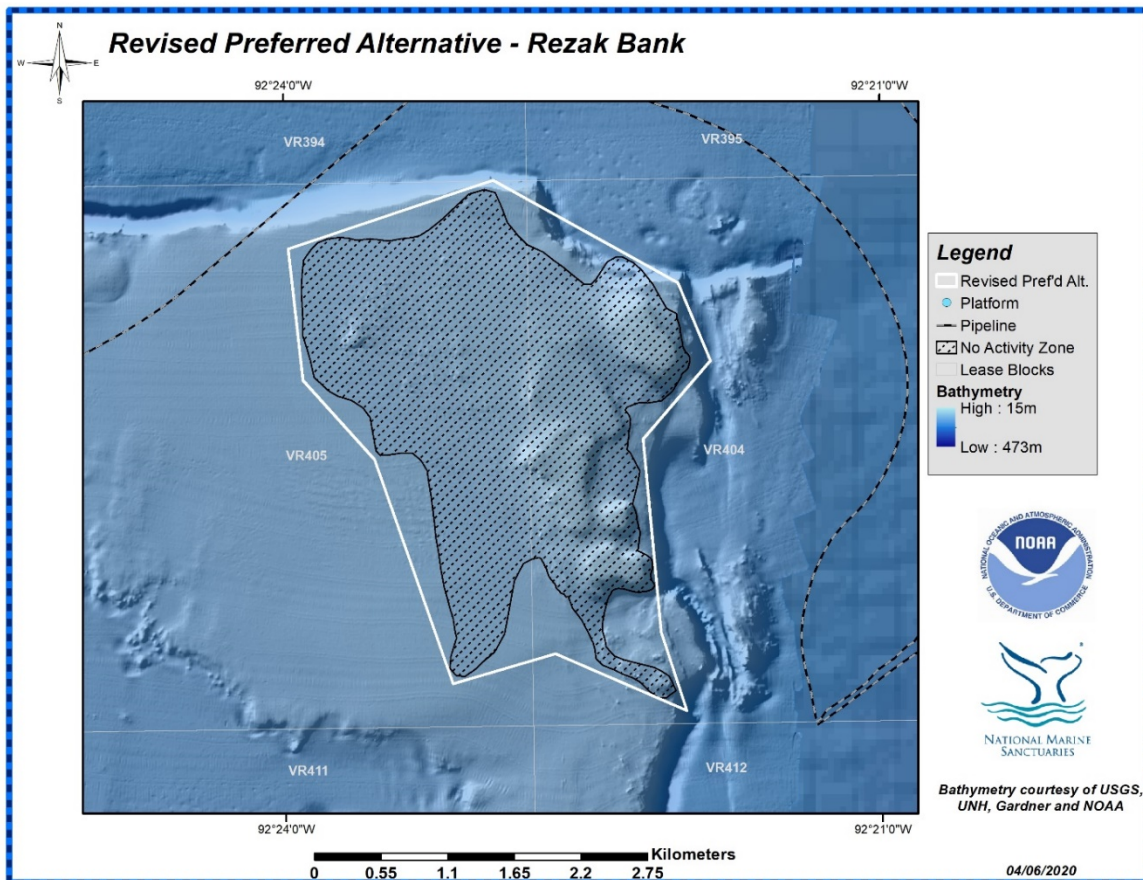


Large, brightly colored gorgonians at Bouma Bank.

Rezak Bank

3.68 sq. miles, depth range: 197ft – 430ft (60m – 131m)

Rezak Bank is named after Richard Rezak, a Texas A&M University oceanographer who co-authored *Reefs and Banks of the Northwestern Gulf of Mexico* – the original authoritative work on this region. Rezak Bank is on the southern side of a feature that includes several banks. Mesophotic habitat is prevalent throughout the complex, and is dominated by black corals, gorgonians, fish, sponges, algae, and invertebrates.



Aggregation of invasive lionfish in the algal nodule zone at Rezak Bank.



Giant anemone in colorful algal nodule habitat at Rezak Bank.

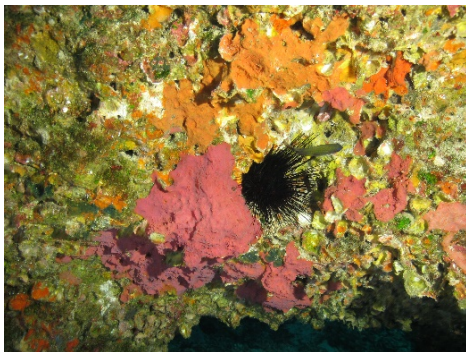
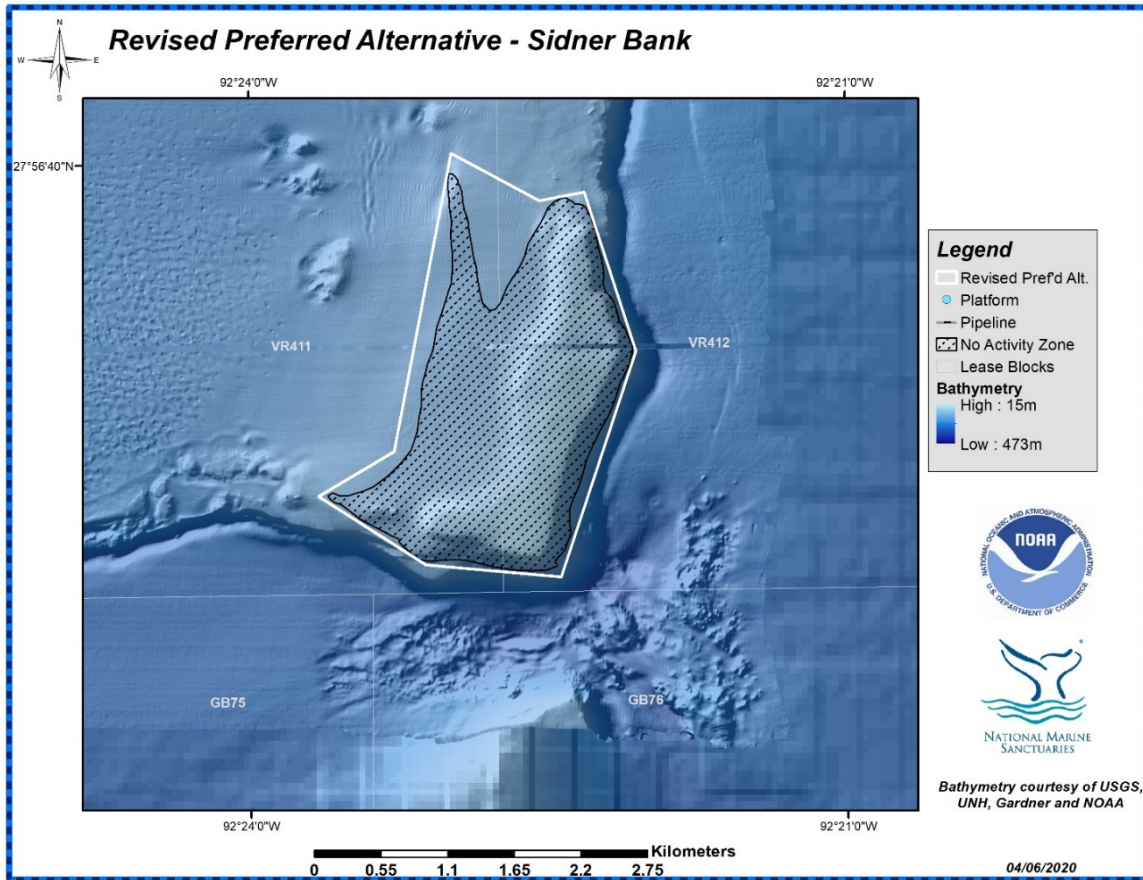


Red snapper in the algal nodule zone at Rezak Bank.

Sidner Bank

2.03 sq. miles, depth range: 190ft – 420ft (58m – 128m)

Sidner Bank is named after Bruce Sidner, a Texas A&M University geologist. Sidner Bank is on the southern side of a feature that includes several banks. Mesophotic habitat is prevalent throughout the complex, and is dominated by black corals, gorgonians, fish, sponges, algae, and invertebrates.



Colorful encrusting sponges and a sea urchin at Sidner Bank.



A yellowmouth grouper, a squirrelfish, and schooling bonnetmouth at Sidner Bank.



An Atlantic thorny oyster in coralline algae habitat at Sidner Bank.

Sonnier Bank (formerly known as Three Hickey Rock, Candy Mountain)

3.06 sq. miles, depth range: 62ft – 210ft (19m – 64m)

Sonnier Bank is named after Farley Sonnier, an offshore wildlife photographer. The area has two peaks that are accessible and popular with recreational scuba divers. Like Stetson Bank, it is located closer to the mid-shelf area of the continental shelf, has a substrate made of uplifted siltstone and claystone, and is dominated by coral communities featuring fire coral, sponges, and algae. The deeper portions include mesophotic communities. Over the years, this fragile substrate has been impacted by anchoring and hurricanes.

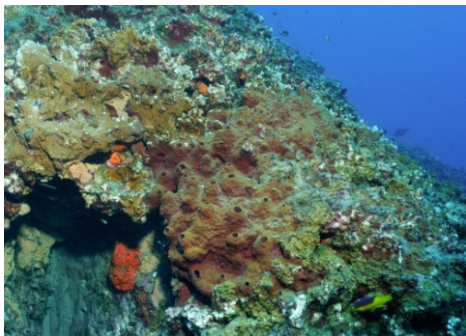
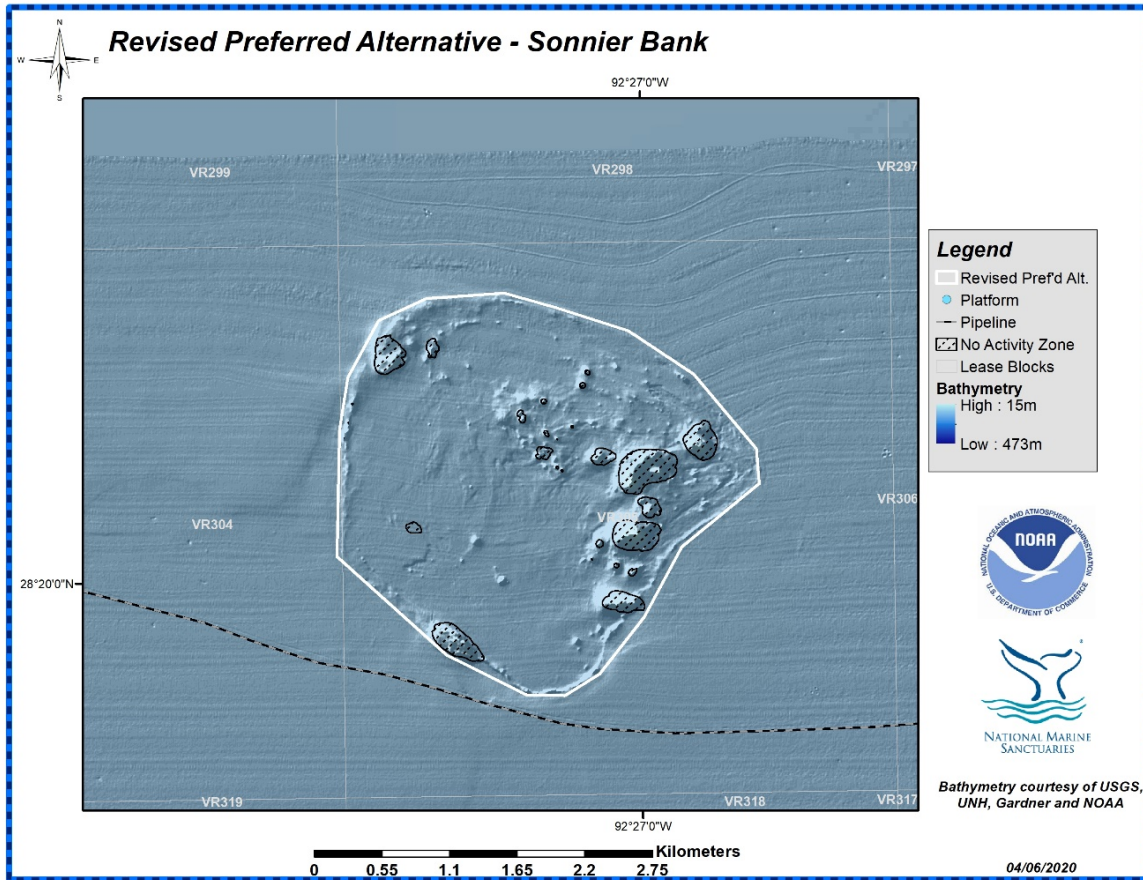
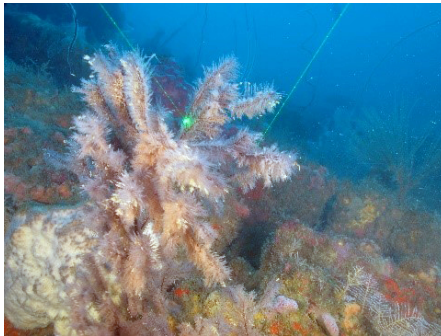


Photo: G.P. Schmah/NOAA

Sponge and fire coral dominated habitat on the crest of Sonnier Bank.



A black coral bush and sponges at Sonnier Bank.

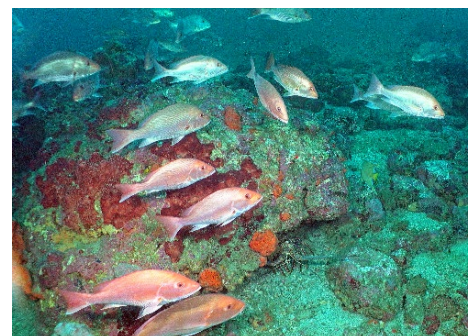


Photo: GFOE/NOAA

Red snapper swimming through algae/sponge habitat at Sonnier Bank.

Alderdice Bank

5.03 sq. miles, depth range: 187ft – 322ft (57m – 98m)

Alderdice Bank was named after Robert Alderdice, founder of the Flower Garden Ocean Research Center. This bank features spectacular basalt outcrops, cresting at about 187ft (57m) with a base at about 240ft (73m). Analysis of the basalt indicates a Late Cretaceous origin – approximately 77 million years ago. This is the oldest known rock exposed on the continental shelf off Louisiana and Texas. The most notable marine life on the peaks are sea whips, sponges, and bryozoan colonies, along with swarms of reef fish. The habitat below the basalt spires is dominated by black corals, gorgonians, fish, sponges, algae, and invertebrates.

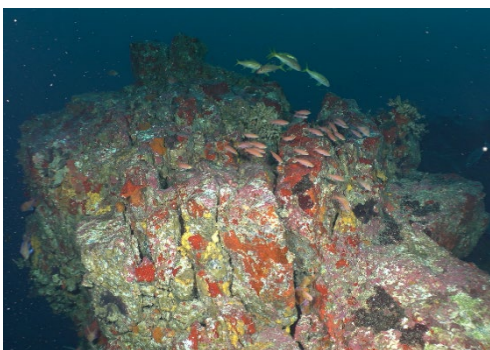
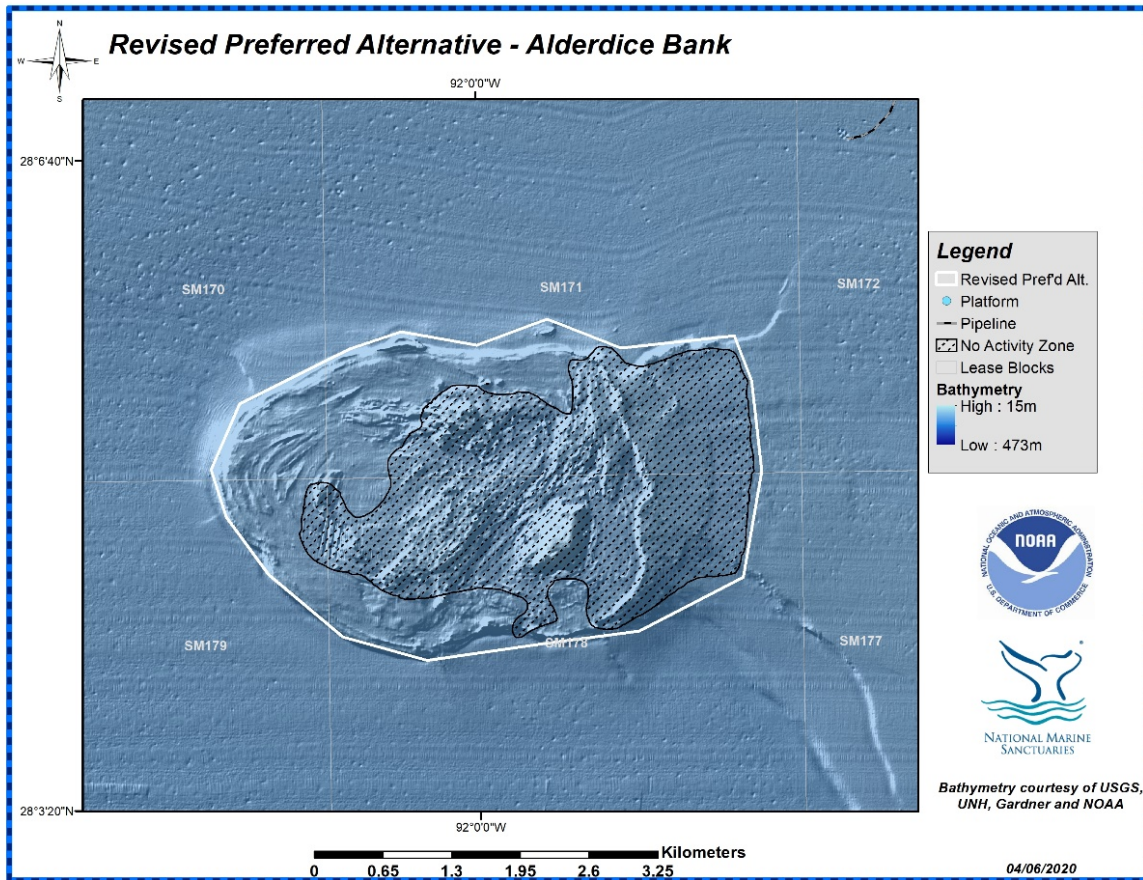
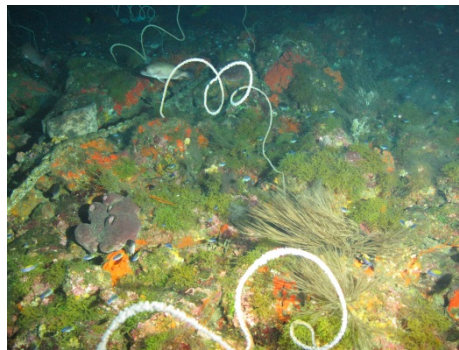
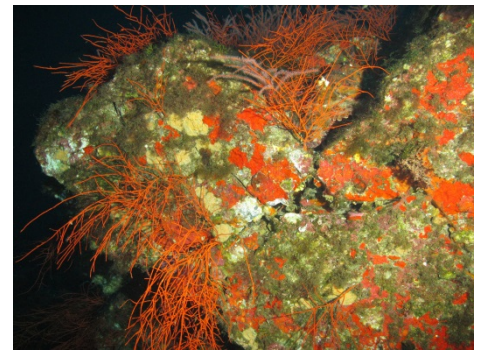


Photo: GFOE/NOAA

Basalt spire at Alderdice Bank, covered in colorful encrusting sponges.



Anchor chain draped through a lush algae/sponge field at Alderdice Bank.

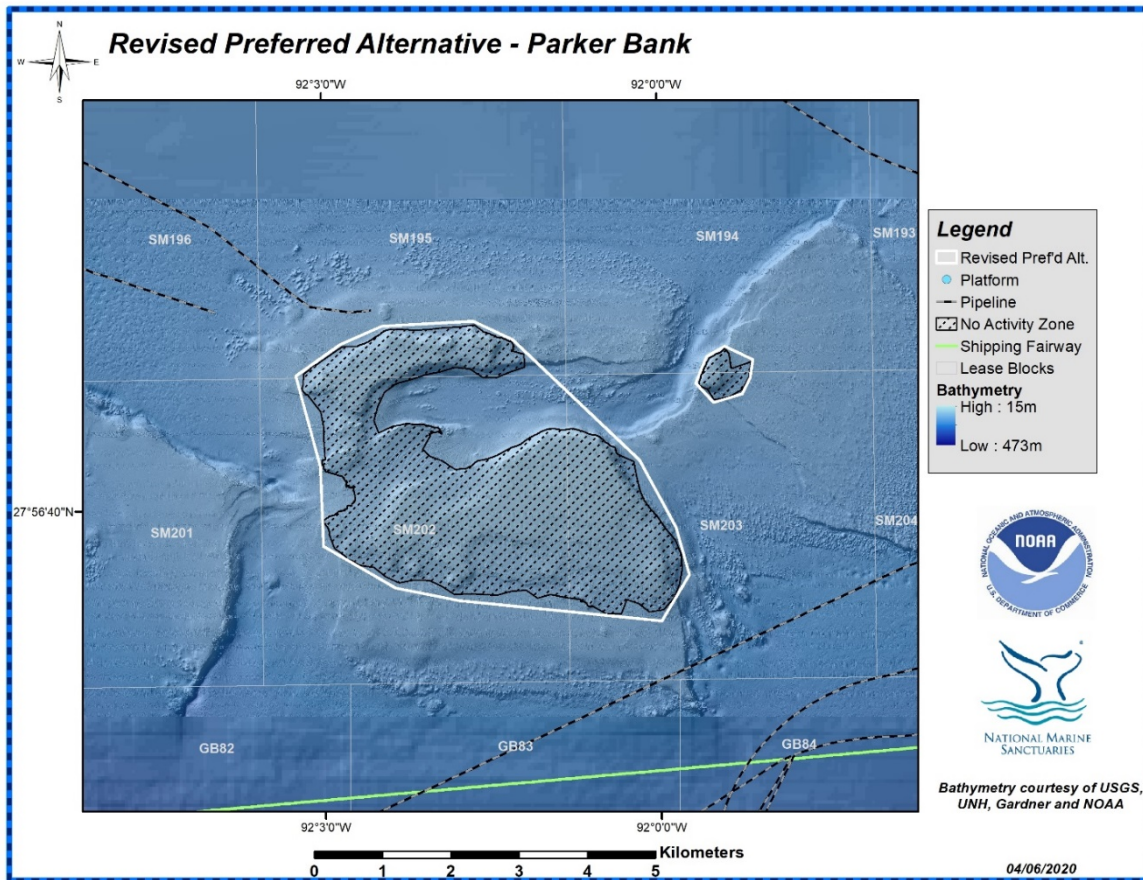


Basalt blocks covered in gorgonians and encrusting sponges at Alderdice Bank.

Parker Bank

7 sq. miles, depth range: 187ft – 387ft (57m – 118m)

Parker Bank is named after Frances L. Parker, an oceanographer from Scripps Institution of Oceanography. The bank includes significant mesophotic habitat that is dominated by black corals, gorgonians, fish, sponges, algae, and invertebrates. A large field of abundant *Hypnogorgia/Muricea* gorgonians was encountered during remotely operated vehicle surveys, as well as high relief ridges providing plenty of habitat for fish and invertebrates.



A black coral sea fan, leafy red algae, and sponges in algal nodule habitat at Parker Bank.



A pair of marbled grouper at Parker Bank.



A ledge encrusted with colorful sponges, Atlantic thorny oysters, and sea urchins at Parker Bank.