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National Parks — But Underwater!



The Flower Garden Banks National Marine Sanctuary provides refuge for a plethora of marine species, including coral reefs, algal-sponge communities, and reef fish. Photo by Emma Hickerson.

When envisioning iconic national landscapes, most people think of distinctive or rare terrestrial landmarks. For instance, destinations such as the Grand Canyon, the Great Smoky Mountains, the Appalachian Trail, or Yellowstone National Park are all household names we grow up hearing about, and, if we're fortunate, get to visit. However, the United States also boasts a network of protected areas in the waters off its coastline called *marine sanctuaries*. Like national parks on land, [marine sanctuaries](#) are designated zones within U.S. waters that are protected to conserve areas with unique recreational, ecological, historical, or cultural properties. Marine sanctuaries may provide havens for endangered species or conserve economically important fisheries. These regions may also preserve shipwrecks or other historic artifacts and serve as exceptional educational tools for students and scientists interested in understanding the marine environment.

The first national marine sanctuary was implemented with the establishment of the [Marine Protection, Research, and Sanctuaries Act](#) in 1972, and since that time, the [National Marine Sanctuary System](#) has grown into a nationwide network of 15 marine sanctuaries and two marine national monuments. Managed by the National Oceanic and Atmospheric Administration (NOAA), these areas span over 620,000 square miles and include waters off California down to the Florida Keys and even locations around Hawaii, the Pacific Islands, and American Samoa. Although designation as a national marine sanctuary always affords some protection to a given area, it does not necessarily prohibit recreational activities. Some sanctuaries permit a variety of leisurely activities such as swimming, diving, surfing, and boating, while others also allow recreational and commercial fishing. The degree of protection is unique to each sanctuary, but consistently aims to support coastal communities and promote economic prosperity while ensuring long-term conservation and enjoyment of important habitats.

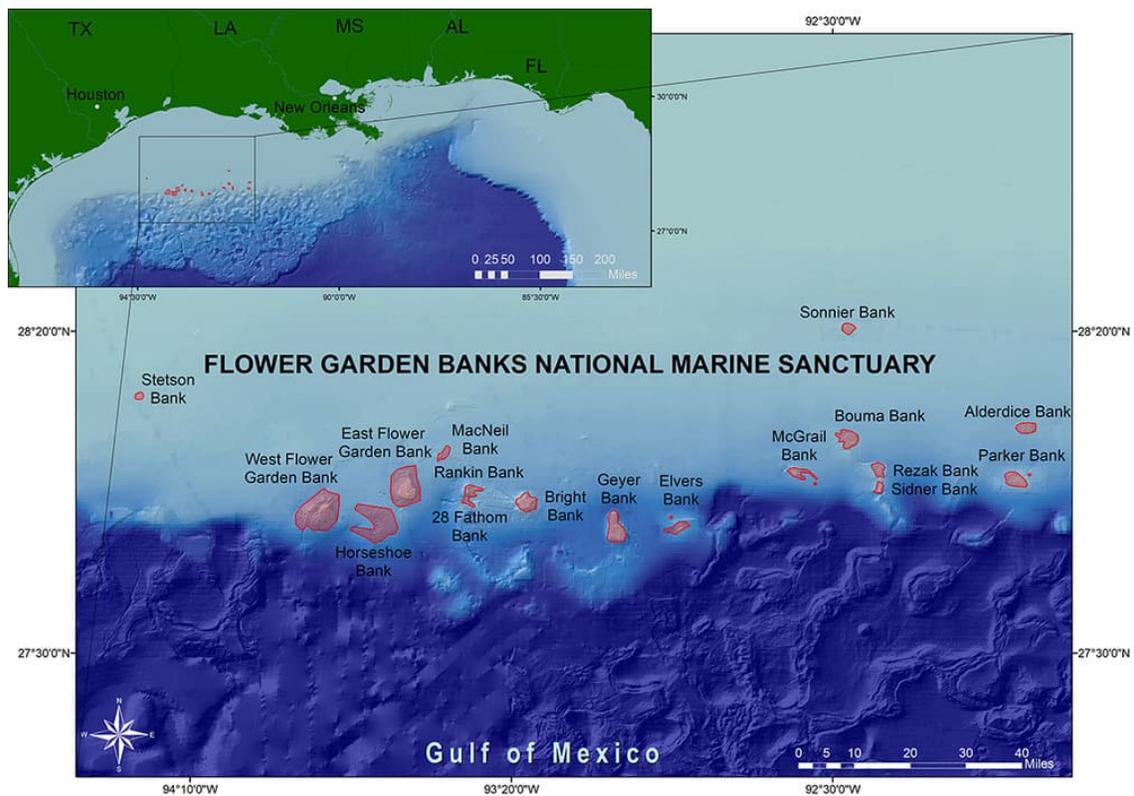
The 50th Anniversary



Divers getting ready to explore the Flower Garden Banks in 1967. Photo from World Book Science Series, courtesy of Robert Woods and NOAA Fisheries.

In 2022, the National Marine Sanctuary System celebrated its [50th anniversary](#) by showcasing the history and success of U.S. marine sanctuaries. A variety of [events](#) and [educational materials](#) were conducted and developed to share information about the sanctuaries and make them more accessible to the public. For instance, even if people are unable to visit marine sanctuaries in person, they can view NOAA's "[Sanctuaries 360: Explore the Blue](#)" video series, which allows anyone to discover the sanctuaries through virtual reality.

Flower Garden Banks National Marine Sanctuary



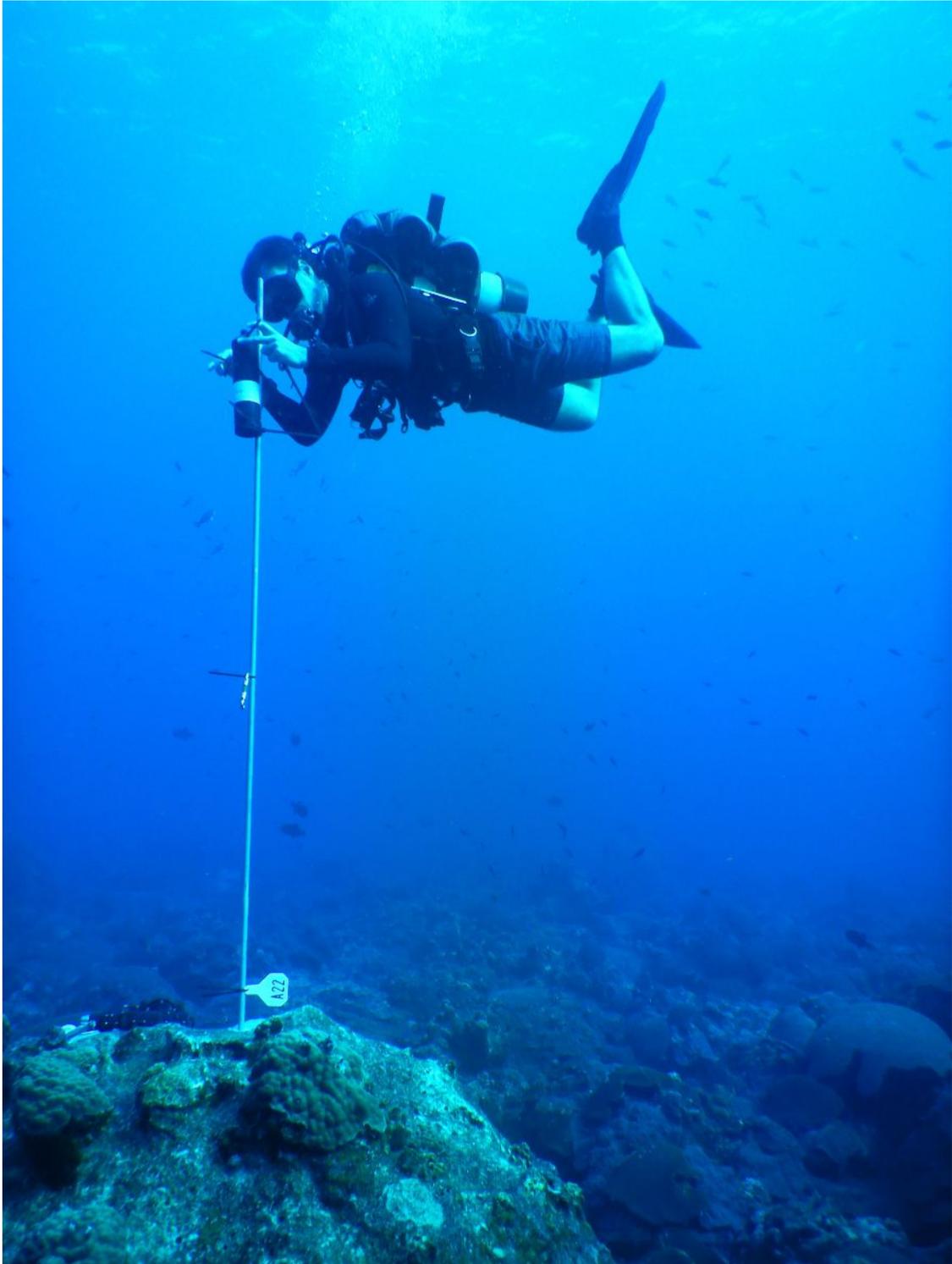
Map of the expanded Flower Garden Banks National Marine Sanctuary. Image from NOAA Fisheries.

The Flower Garden Banks National Marine Sanctuary is the only national marine sanctuary in the Gulf of Mexico (GOM). Located more than 100 miles offshore of Texas and Louisiana, its status as a national marine sanctuary was enacted in the 1990s. The Flower Garden Banks National Marine Sanctuary initially included three separate areas: East Flower Garden Bank, West Flower Garden Bank, and Stetson Bank. These banks are a combination of ridges, troughs, and underwater mountains along the continental shelf that were formed by underlying [salt domes](#) more than 100 million years ago. Today, these structures support a highly complex and diverse ecosystem composed of shallow coral reefs, algal-sponge communities, and deep-sea reefs full of stony and black corals, invertebrates, reef fish, sea turtles, and sharks.

In 2021, NOAA supported an expansion of the Flower Garden Banks National Marine Sanctuary. This expansion was the culmination of over 30 years of research on the importance of the Flower Garden Banks National Marine Sanctuary to the greater GOM ecosystem. The expansion added more than 100 square miles of essential, or important, habitat (encompassing a total of 17 reef banks) to further protect deep-sea coral communities and unique geological features. Together, these areas promote species abundance and

diversity and represent some of the healthiest coral reefs in the world.

Connecting the Dots

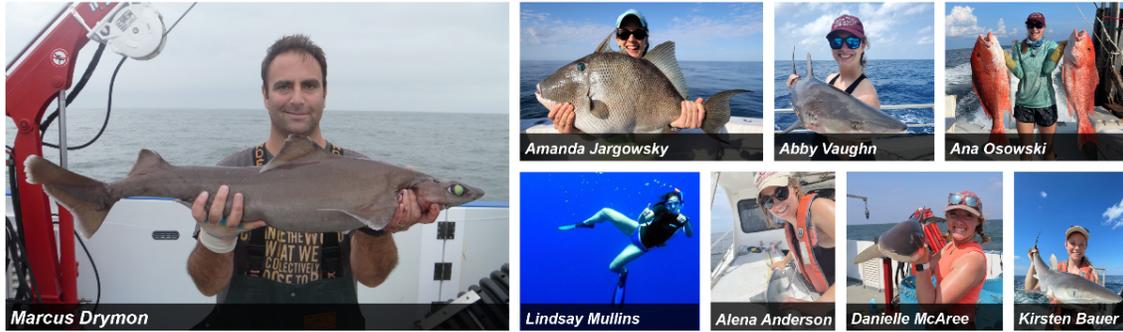


A scientist installs a hydrophone in the Flower Garden Banks National Marine Sanctuary to track movements of tagged fishes within and outside the sanctuary boundaries. Photo by Marissa Nuttall.

To evaluate the effectiveness of this expansion, [Dr. Jay Rooker](#) at Texas A&M University at Galveston is leading efforts to understand how fishes use these habitats and how different species are connected within and across the sanctuary. Funded by [NOAA's National Centers for Coastal Ocean Science](#), the [four-year project](#) is a collaboration among 13 researchers from five different universities who will work together to [track fish movements using acoustic and satellite telemetry](#). Acoustic telemetry involves tagging fishes with internal acoustic transmitters. These transmitters emit signals that are picked up by nearby hydrophones, which document location information at a single habitat. Broad movements of tagged fishes are evaluated from an extensive array composed of many hydrophones that are deployed within and outside the Flower Garden Banks National Marine Sanctuary. To supplement this information, some fishes are also fitted with satellite tags to track their horizontal and vertical movements. A plethora of apex predators, reef-dependent mesopredators, and foundational finfish species have been tagged, including snappers, groupers, wahoo, greater amberjack, sandbar sharks, scalloped hammerheads, damselfish, parrotfish, and invasive lionfish. Together, the resulting tag and hydrophone data will enable scientists to determine if the new boundaries established for the Flower Garden Banks National Marine Sanctuary are sufficient to protect vulnerable species and habitats and ensure their long-term conservation.

Through these research efforts, scientists and fisheries managers will gain a better understanding of the ways to best manage sanctuary resources while also promoting their recreational use. Visitors to the sanctuary can participate in activities such as diving, snorkeling, boating, and even recreational hook-and-line fishing. There are also opportunities to coordinate their visit to align with [uncommon or unique natural processes](#), such as coral spawning, schooling eagle rays, or congregating scalloped hammerheads. While the Flower Garden Banks National Marine Sanctuary may be logistically challenging to visit, there are [several options](#) available (some land-based!) to allow everyone to experience – and appreciate – this diverse underwater habitat.

For more information on the Flower Garden Banks National Marine Sanctuary, please visit the [NOAA website](#).



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