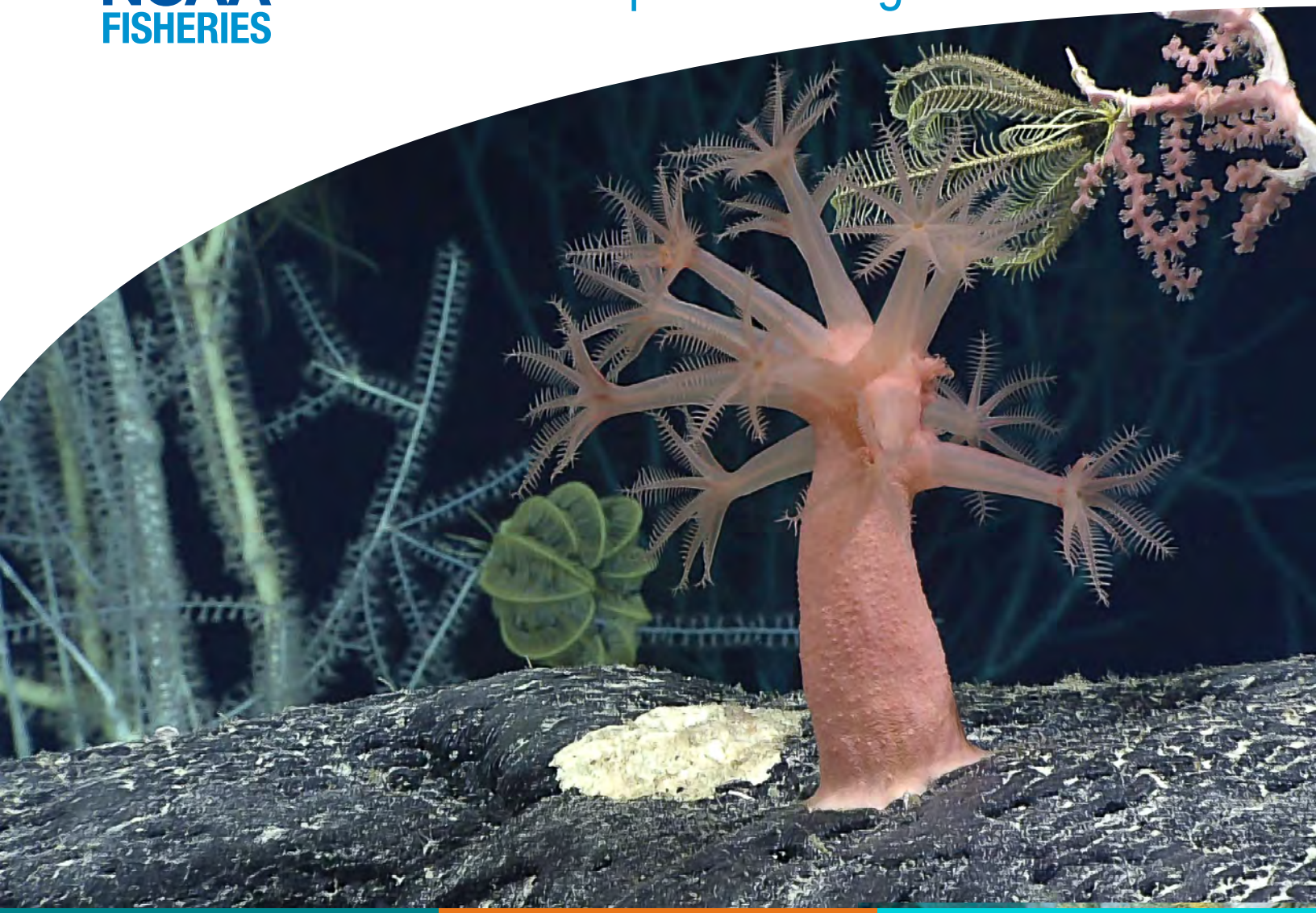
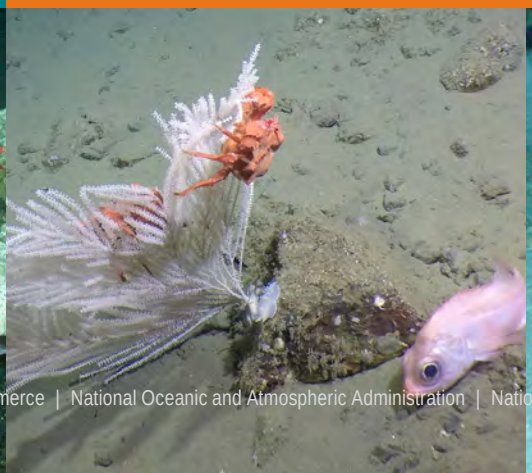
NOAA FISHERIES

Deep Sea Coral Research and Technology Program

2022 Report to Congress





U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Major Groups of Structure-Forming Deep-Sea Corals

Along with sponges, corals form the most important living habitats in the deep sea. Several groups of deep-sea corals form structures that support other forms of marine life. Most deep-sea corals grow extremely slowly. Once damaged, corals and the communities they support may take centuries to recover, if they recover at all.

Black corals often resemble bushes or trees. Some black corals are among the world's oldest living marine creatures. This black coral off Hawaii was estimated to be more than 4,000 years old.

Deep-sea *stony corals* range from small individual cups to large branching species. A few branching species, like this colony off eastern Florida, can form extensive deep-water reefs growing up to 300 feet tall over millennia.

Gold corals, some of which have been harvested for jewelry, are unique in that they grow on the skeletons of other deep-sea corals and can live for thousands of years.

Gorgonians, like this fan-shaped colony of red coral on a California seamount, are the most diverse type of deep-sea corals.

Lace corals are only distantly related to other corals. They live predominantly in deep water, and in U.S. waters are particularly abundant and diverse off Florida and the Aleutian Islands.

Sea pens are related to gorgonians but, unlike most other deep-sea corals, they predominantly live in soft sediments where some species can form large fields.

FRONT COVER—Main image: Several different vibrantly colored animals, including a mushroom coral (center), precious pink coral (right), bamboo coral (left), and feather stars (center) near Jarvis Island in **the U.S. Pacific Islands. Credit: NOAA Ocean Exploration. Bottom banner images: Left: Northern rockfish associated with a sponge near Kodiak Island, Alaska. Credit: NOAA Fisheries. Center: Fan-shaped coral with crabs and a rockfish in the Channel Islands National Marine Sanctuary off the coast of southern California. Credit: NOAA, Global Foundation for Ocean Exploration. Right: Two of a school of more than** 20 Randall's snappers gather under an overhang covered in coral and sponges near Jarvis Island. Credit: **NOAA Ocean Exploration.**

BACK COVER—The beautiful and characteristic spiral shape of the appropriately named coral, *Iridogorgia magnispiralis*, **near Wake Island in the U.S. Pacific Islands. Credit: NOAA Ocean Exploration.**

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Developed Pursuant to Section 408 of the Magnuson-Stevens Fishery Conservation and Management Act, as Amended by Public Law 109-479

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Remotely operated vehicle *Deep Discoverer* hovers above several large boulders covered in bamboo corals during a dive on a seamount within the New England Seamount Chain. Four seamounts in the chain lie within the Northeast Canyons and Seamounts National Monument, where deep-sea coral habitat protections were **reinstated in 2021. Credit: NOAA Ocean Exploration.**

Overview

Deep-sea corals and sponges create habitat for countless species off every coastal state in the country, offering significant ecological value and supporting U.S.-managed fisheries. Known deep-sea coral species outnumber shallow coral species, with new ones discovered every year. These productive habitats provide spawning grounds, sustenance, and shelter for commercially important fish and invertebrates. They also harbor an unknown number of species that are new to science, many of which could be useful in ways we do not yet understand.

NOAA's Deep Sea Coral Research and Technology Program is the nation's only federal research entity dedicated to increasing our scientific understanding of deep-sea coral ecosystems. The Program works closely with the eight U.S. regional fishery management councils to address key fishery management needs and inform decision-making. The Program provides information on deep-sea coral locations to mitigate damage to these valuable and vulnerable habitats from a variety of ocean activities, including aquaculture, renewable energy, and prospective activities such as deep-sea mining.

This report summarizes fiscal year 2020 and 2021 activities that supported management decisions, improved our understanding of deep-sea coral and sponge communities, and leveraged partnerships to enhance operational efficiency and effectiveness. Operating through NOAA Fisheries' Office of Habitat Conservation, and funded at approximately $2.3 million annually to support national-scale research, the Program collaborates widely and leverages substantial funding to study the role of corals in support of deep-sea ecosystems.

"The data and map products from the NOAA Deep Sea Coral Research and Technology Program proved extremely useful during our ***Amendment 28 groundfish essential fish habitat revision process. We're*** *leaning on the Program again as we analyze major potential changes to* ***the groundfish non-trawl fishery."***

— Marc Gorelnik, Pacific Fishery *Management Council Chair*

Scientists observed this unusual purple soft coral during an expedition in U.S. Northeast waters. During the dive, the expedition team also saw at least five species of black corals, a bamboo coral, and two other species of soft coral. Credit: NOAA Ocean Exploration.

Timeline of Regional Initiatives

The Program operates by rotating through regional research initiatives. Currently, each region receives approximately $2.4 million over 4 combined years to improve our knowledge of deep-sea corals and the ecosystems they support. The Program is funded annually at approximately $2.3 million. This report covers activities and management results in 2020 and 2021 (highlighted in gray).

Regional Initiative	2009	2010	2011	2012	2013	**2014**	2015	2016	2017	2018	2019	2020	2021	2022	2023
South Atlantic															
West Coast															
Alaska															
Northeast															
U.S. Pacific Islands															
Southeast (South Atlantic, Gulf of Mexico, U.S. Caribbean)															

Supporting Management Decisions

Over its 13 years of operations, the Program has supported research that enables resource managers to refine seafloor protections while allowing fisheries to thrive. Program data informed recent habitat conservation in the Pacific, New England, and Gulf of Mexico fishery management council regions. NOAA implemented the Councils' proposed regulations in 2020 and 2021, resulting in more than 160,000 mi^2 (larger than the size of California) of new seafloor protections and the reopening of 3,000 mi^2 of less vulnerable habitat for fishing. Program data substantially informed these decisions and operational aspects of seven proposed or existing national marine sanctuaries. Ultimately, the Program provides information that helps managers in every region of the United States enhance the sustainability of deep-sea fisheries and other ocean uses, while conserving vulnerable and biologically diverse habitats.

Improving Understanding of Deep-Sea Coral Communities

The Program supports exploration and research to improve scientific understanding of deep-sea coral ecosystems. Although 2020 and 2021 were challenging years for fieldwork due to the COVID-19 pandemic, NOAA and partners were still able to map more than 50,000 mi^2 (approximately the size of Louisiana) of previously poorly understood deep seafloor. This valuable first step informs discovery of rich and diverse coral habitats. With maps and models as a guide, researchers described 12 new deep-sea coral and sponge species from U.S. waters during the reporting timeframe.

Building Partnerships to Enhance Efficiency and Effectiveness

With new challenges on the horizon—such as from climate change, including ocean acidification and warming temperatures, and expanding human activities in the deep sea—partnerships are more valuable than ever before. These alliances enable us to pursue joint priorities efficiently and effectively by leveraging complementary areas of expertise and resources. Working together makes the difference between simply locating unknown deep-sea corals and understanding and applying their ecosystem benefits to resource management issues. With this information, we can advance the state of deep-sea science and carry out NOAA's mission to understand our ocean, share knowledge and information, and conserve and manage ecosystems and resources.

The Program has many partners, including NOAA's National Centers for Environmental Information, National Centers for Coastal Ocean Science, Office of Ocean Exploration, Office of National Marine Sanctuaries, fisheries science centers, and fisheries regional offices. Our external partners include U.S. regional fishery management councils, the Bureau of Ocean Energy Management (BOEM), United States Geological Survey (USGS), Fisheries and Oceans Canada, Ocean Exploration Trust, and numerous universities, tribes, industry groups, and non-governmental organizations.

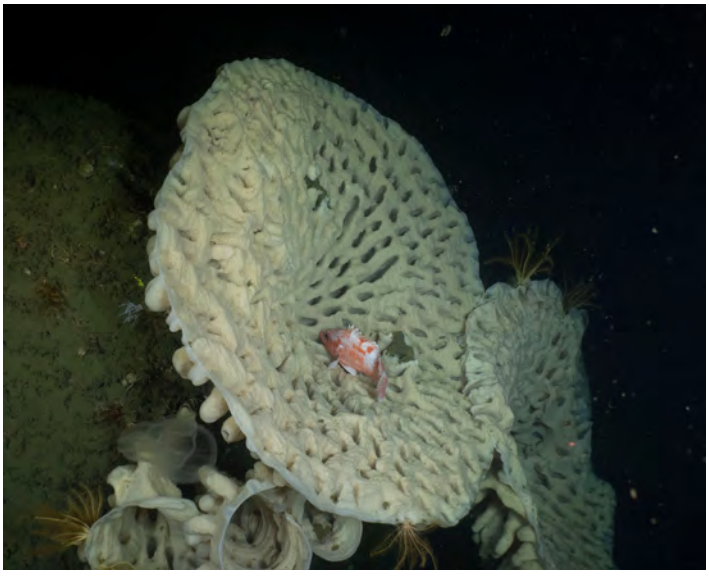
Focus on the West Coast

In 2021, the Program concluded a collaborative 4-year research initiative in U.S. West Coast waters. This initiative was co-led by the Northwest Fisheries Science Center and Channel Islands National Marine Sanctuary. Collaborators prioritized initiative research, and decided to focus on 1) areas that were under consideration for reopening to fishing or for new fishing restrictions, 2) areas with relatively high coral bycatch, and 3) areas within the five West Coast national marine sanctuaries.

Initiative accomplishments include the following:

- NOAA promulgated regulations to implement the Pacific Fishery Management Council's recommendation to reopen more than 3,000 mi^2 of historically important fishing grounds, and protect more than 10,000 mi^2 of important seafloor habitat for hundreds of commercial species. As a precautionary measure, an additional 123,000 mi^2 of unfished deep habitats were closed to seafloor-contact gear to protect deep-sea corals (an area larger than New Mexico). These landmark 2020 actions, informed by Program data and fishing and conservation group input, present a unique opportunity to study deep-sea coral damage, recovery potential, and habitat management implications.
- Prior to implementation of the 2020 regulations, NOAA Fisheries Science Center and Sanctuary researchers surveyed 21 sites to be reopened or kept closed. Observed rockfish densities were five times greater, corals were 15 times denser, and sponges were 30 times denser in closed areas than in reopened areas. These findings strongly supported management decisions.
- Initiative researchers conducted eight major collaborative expeditions with more than 100 remotely operated vehicle (ROV) dives, and participated in an additional eight expeditions led by the Ocean Exploration Trust. NOAA scientists narrated many livestreamed ROV dives and identified the visible fauna to audiences around the world.
- One initiative expedition, co-supported by the National Oceanographic Partnership Program, captured video of at least 143 unique fish, coral, and sponge species.

The brown underlying structure in this image is composed of **mostly dead framework sponges. If confirmed as a globally rare glass sponge reef, this discovery would be the first of its kind off the U.S. West Coast. Credit: Ocean Exploration Trust.**



A rockfish shelters amid several large deep-sea sponges found growing along the steep canyon walls of Gray's Canyon, an **Essential Fish Habitat Conservation Area just south of the Olympic** Coast National Marine Sanctuary. Sponges, like corals, provide **structurally complex habitat for many types of rockfish and other commercially important species. Credit: Ocean Exploration Trust.**

Partnerships Lead to New Discovery

NOAA's partnership with the Ocean Exploration Trust, and our analysis of their 2020–2021 ROV surveys, allowed the Program to share in exciting discoveries despite many COVID-19-related expedition cancellations. For example, researchers found a potential glass sponge reef in the Channel Islands National Marine Sanctuary "hidden" between some of the most surveyed areas in southern California. More research is needed to determine whether these features are true glass sponge reefs, which have so far only been observed in British Columbia and southeast Alaska waters. The most ancient extant multicellular animals, sponges provide important services like habitat, shelter, nutrient cycling, and pharmaceutical materials. Sponge reefs can be many thousands of years old and have the potential to teach us about past oceanographic conditions.

The EXPRESS Campaign

The Program also partnered with other NOAA offices and federal agencies through the Expanding Pacific Research and Exploration of Submerged Systems (EXPRESS) campaign. EXPRESS continues to accomplish shared goals such as surveying potential sites to inform offshore wind energy development, and collecting data to validate habitat suitability models. Using Program data, NOAA and BOEM collaborated to develop the most detailed habitat suitability models to date for West Coast deep-sea corals and sponges.

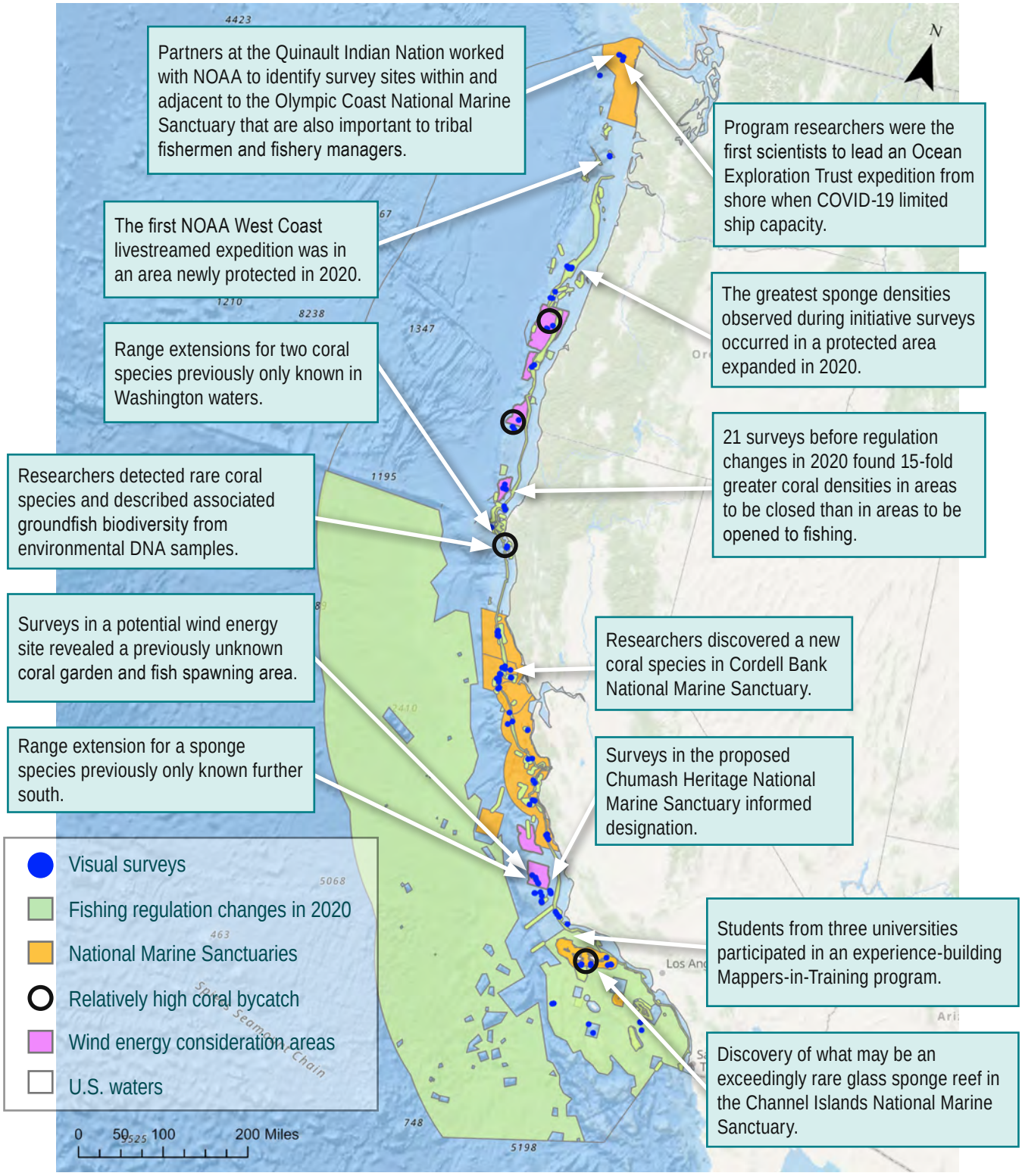
Emerging Technologies

In addition, researchers are developing and refining new techniques to improve identification of coral and sponge taxa. During the initiative, expedition teams collected hundreds of water samples, coincident with ROV visual surveys, to analyze the presence of environmental DNA (eDNA). Most coral species detections made by eDNA confirmed visual identifications, but some eDNA detections indicated the presence of species that had been hidden from view. We will soon learn much more from the samples remaining to be sequenced.

Initiative scientists also worked across NOAA offices to develop the first open-source automated image recognition software for the marine environment that uses advanced computer vision and machine learning technology. Researchers received a Department of Commerce Gold Medal for substantially reducing costs and the degree to which image analysis presents a bottleneck to obtaining valuable information on deep-sea habitats.

Large bubblegum corals and California king crabs on Santa **Lucia Bank, part of the proposed** Chumash Heritage National Marine Sanctuary. Deep-sea coral and sponge data collected with Program support informed proposed sanctuary boundaries. **Credit: Ocean Exploration Trust.**

Highlights from the West Coast Deep-Sea Coral Initiative



Highlights from Program-sponsored and partner-led research activities during the West Coast Deep-Sea Coral Initiative, targeted **in areas that were under consideration for reopening to, or restrictions from, seafloor-contact fishing (green shading), areas within** national marine sanctuaries (orange shading), areas with relatively high coral bycatch (black circles), and areas under consideration **for wind energy siting (pink shading). Blue dots indicate remotely operated vehicle and autonomous underwater vehicle surveys operated by NOAA or Expanding Pacific Research and Exploration of Submerged Systems (EXPRESS) partners where deep-sea coral research was at least one expedition goal.**

New Research in Alaska Waters

Some of the world's most diverse and abundant coral and sponge communities are found in cold Alaska waters between 20 and 3,000 feet deep. These communities provide crucial habitat and refuge for many commercially important fish. In 2020, the Program launched a collaborative multi-year research initiative led by the Alaska Fisheries Science Center. Sixty scientists and resource managers came together to prioritize research and inform a science plan. Planned studies include identifying coral and sponge species; mapping habitat; modeling coral populations, habitat suitability, and risk; and investigating coral and sponge susceptibility to and recovery from fishing activities. Although most field activities planned for 2020 and 2021 were postponed due to COVID-19, the Alaska Deep-Sea Coral Initiative has already begun addressing the following priorities of the North Pacific Fishery Management Council:

- Researchers assessed the condition of commercially important fish that are known to associate with deep-sea corals by examining fish fat content associated with reproductive success. These samples help establish a practical way to measure fish productivity in different habitats across Alaska, and to evaluate the importance of coral and sponge habitats to commercially managed fish species.
- Researchers published findings associating rockfish larvae and coral habitat using an innovative field sampling approach. Relatively little is known about rockfish larvae. Therefore, this first-ever documented discovery of larvae using coral as a nursery in Alaska underscores the importance of deep-sea habitat.
- Working with Canadian colleagues, researchers developed a field guide to corals of Alaska and British Columbia to aid species identification throughout Alaska waters. The guide will be available to scientists on all Science Center seafloor trawl surveys and other expeditions.
- Approximately 350 species of corals and sponges have been identified in the region so far, with hundreds of sponges waiting to be described. The Science Center has brought together traditional taxonomic expertise and newer genetic approaches to develop sponge identification materials and novel molecular tools. Providing such information is essential for sustainable management in the face of climate change.

Improved knowledge on these fronts can inform the Council's decisions to support healthy habitat and stocks.

A high-density coral and sponge garden in the Aleutian Islands. The Alaska Fisheries Science Center story map on these ecosystems compares habitats across Alaska waters and describes researchers' methods of learning about deep-sea corals and sponges. Credit: NOAA Fisheries.

"These survey and modeling efforts ***will support more deliberate and strategic management actions.*** *Knowing what areas truly need protection and what areas can recover* ***from various types of disturbance provides a critical basis for living resource management decisions."***

— Robert Foy, Alaska Fisheries *Science Center Director*

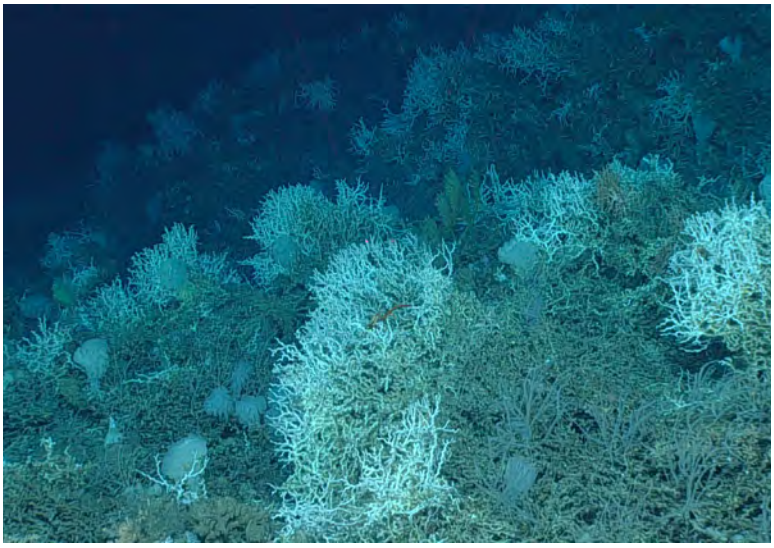
After conducting system calibrations, NOAA researchers deployed a stereo drop camera system to observe deep-sea ecosystems in the Gulf of Alaska. The stereo-image capability enables accurate measurements of the size of both deep-sea corals and sponges and the size of fish observed within these habitats. Credit: Sean Rooney/NOAA.

Outcomes from the Southeast U.S. Initiative

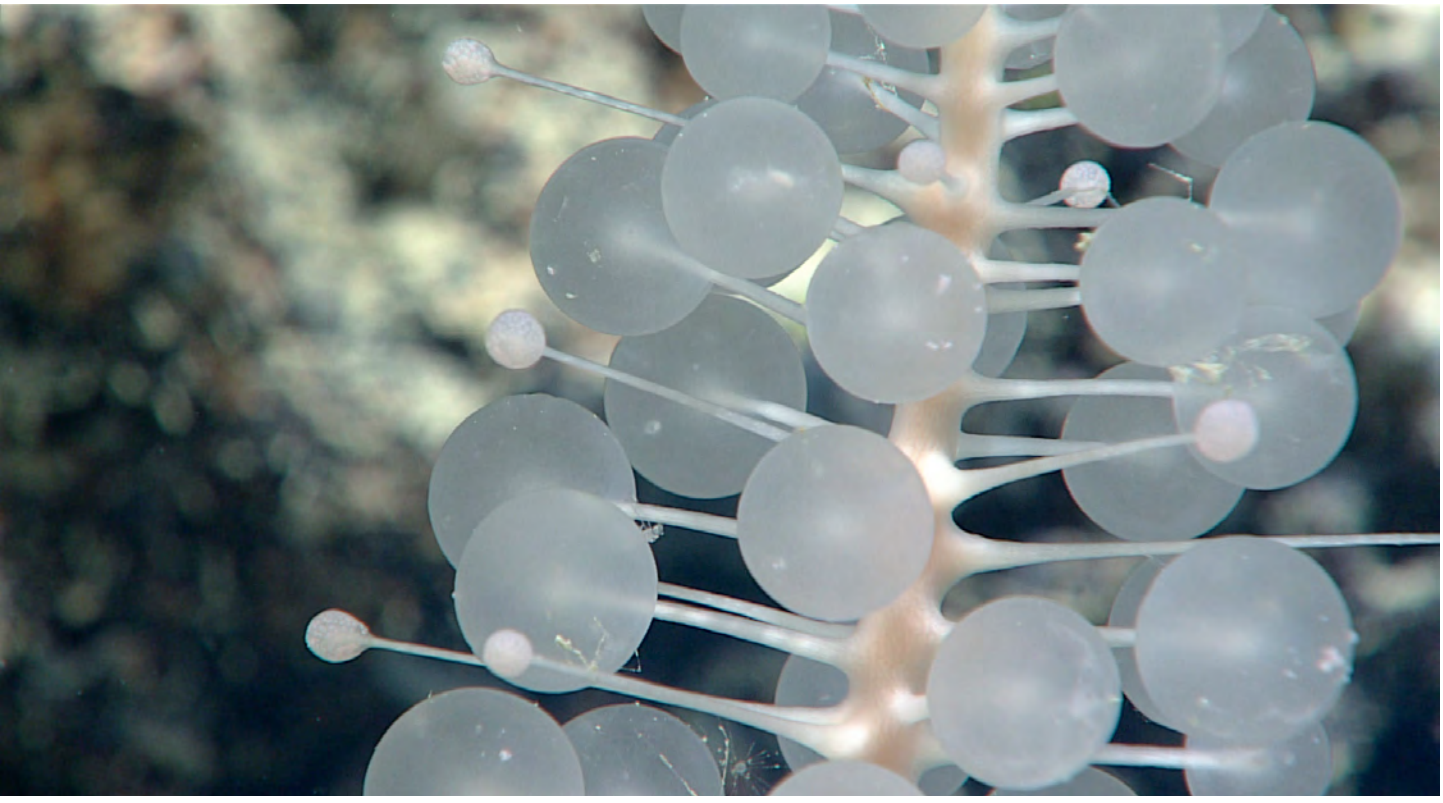
In 2020 and 2021, resource managers used results from the Program's 2016–2019 Southeast Deep Coral Initiative to inform management decisions. NOAA's National Centers for Coastal Ocean Science led the recent initiative, with outcomes including the following:

- **Twenty-one new Habitat Areas of Particular Concern** were established in the Gulf of Mexico in 2020. For 13 of these areas, NOAA promulgated regulations to protect deep-sea corals from damaging fishing gear. Program-sponsored data collection and analysis informed decisions on where to establish protected area boundaries, which include the first coral habitats deeper than 650 feet to be protected in the Gulf.
- Resource managers used Program data in 2021 to exclude known and predicted deep-sea coral locations, where possible, from a **planned fiber optic cable path** stretching from Florida to Spain.
- Using Program data, researchers assessed and identified likely impacts to deep-sea corals and sponges from the South Atlantic Fishery Management Council's 2021 decision to **reopen rock shrimp fishing** in a section of the Oculina Bank Habitat Area of Particular Concern.
- Also in 2021, the Flower Garden Banks National Marine Sanctuary was **expanded to protect 14 new reefs and banks**. Additionally, boundaries of its original three banks were adjusted to encompass more than another 100 mi^2 of protections.
- NOAA Ocean Exploration led a set of expeditions, culminating in 2021, off the U.S. Southeast coast. The expeditions revealed the **most expansive areas of deep-sea coral reefs yet discovered** in U.S. waters. These and other discoveries are available to inform upcoming management decisions by the South Atlantic Fishery Management Council.

- The NOAA Southeast Fisheries Science Center is working with Puerto Rican fishermen to **study the relationship between commercially important queen snapper and coral habitat**, addressing the highest deep-sea priority for the Caribbean Fishery Management Council.
- Researchers documented more than **40,000 coral and sponge observations** between 2020 and 2021.
- Researchers produced **two identification guides** for deep-sea corals and sponges. The guides show many animals alive in their habitat for the first time in U.S. waters of the Southeast, Gulf of Mexico, and Caribbean regions.



Reefs of deep-sea stony coral, like these off the east coast of Florida, take millennia to grow and can reach hundreds of feet in height. This **region of coral reefs extends more than 200 miles with a width of 35 miles in some areas. New coral mounds are discovered each year and collectively create a globally unique ecosystem in Southeast U.S. waters. Credit: NOAA Ocean Exploration.**



A close look at a large carnivorous sponge (nicknamed the "ping-pong" sponge) south of the Florida Keys. While most sponges are filter feeders, scientists discovered the first carnivorous sponge less than 30 years ago. Deep-sea research has now discovered over 150 species of carnivorous sponges, adapted to survive in harsh environments with little food available. Credit: **NOAA Ocean Exploration.**

Northeast and Mid-Atlantic Protections

Based on Program-collected information, the New England Fishery Management Council recommended, and NOAA implemented through regulations, the Georges Bank Deep-Sea Coral Protection Area. This Area, which protects the entire Northeast region deeper than ~2,000 feet from most seafloor-contact gear and covers more than 25,000 mi^2 (about the size of Connecticut), includes an estimated 75 percent of known and predicted coral locations in and around deep-sea canyons. It also protects 40 mi^2 containing particularly rich coral habitats in the Gulf of Maine. The NOAA regulations that established this Area complement existing NOAA regulations that provide deep-sea coral protections in the Mid-Atlantic region and the protective measures under the 2021 reinstatement of the Northeast Canyons and Seamounts Marine National Monument.

In 2020, researchers published the first results of Northeast U.S. habitat suitability modeling from a Program-funded study to estimate the extent of coral habitat in unexplored areas. These powerful science-based results support conservation efforts, provide information for effective management of offshore activities, and inform future exploration and research.

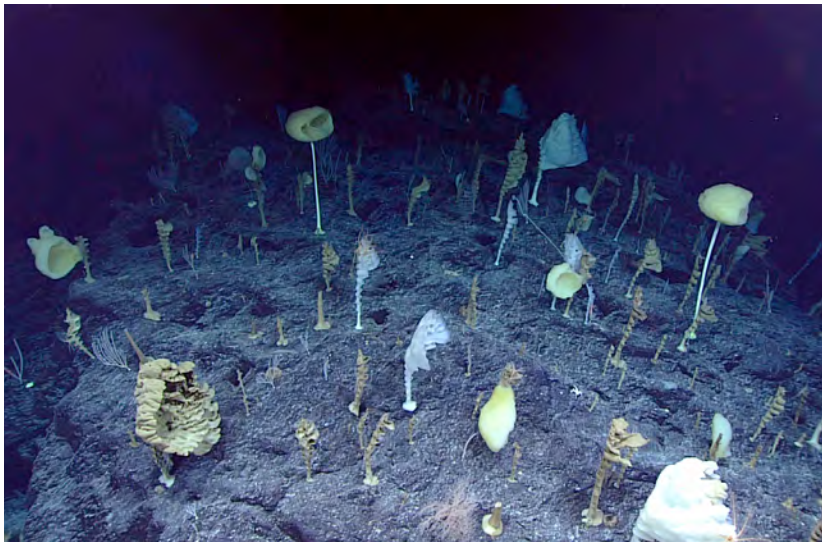
The Program has also recently supported analysis of data collected to validate model results. This work was done in preparation for the next Northeast Deep-Sea Coral Initiative, beginning in 2023.

A red crab on a deep-sea bubblegum coral in Norfolk Canyon, located on the outer continental shelf of the U.S. East Coast, east of the southernmost portion of Virginia. The geology of this portion **of the canyon is characterized by soft sedimented seafloor with** thin layered hard rock outcrops. The outcrops are often heavily **colonized with living organisms, particularly underneath ledges. Credit: NOAA Ocean Exploration.**

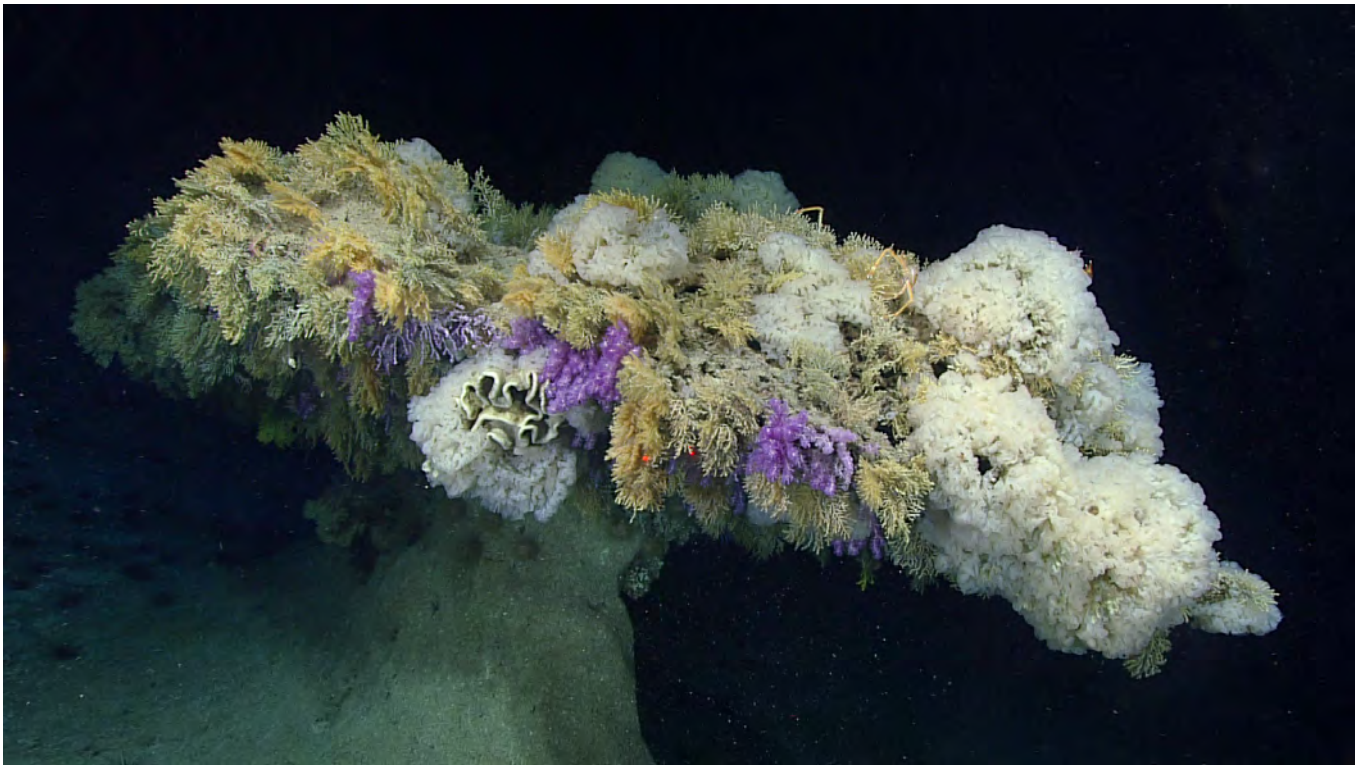
Acadian redfish swimming among deep-sea corals on Outer Schoodic Ridge in the Gulf of Maine. Results from a **recent joint expedition between** the United States and Canada indicate that these commercially **important fish are usually** found in close association with **corals. Credit: NOAA Fisheries,** Fisheries and Oceans Canada.

Discoveries in the U.S. Pacific Islands

Deep-sea coral and sponge ecosystems are found throughout the U.S. Pacific Islands, where they are associated with many commercial and protected species, including Hawaiian monk seals. In 2021, the Program released its Pacific Islands Deep-Sea Coral and Sponge Initiative Final Report, which details findings from projects conducted in the region from 2015 to 2017. Project results include discoveries from 187 remotely operated vehicle surveys between 800 and 20,000 feet deep. These livestreamed surveys actively engaged more than 250 scientists and had 16 million public views. Also during the initiative, expedition teams mapped a previously unexplored area twice the size of New Jersey. These advances and discoveries are helping identify vulnerable marine habitats, particularly high-density deep-sea coral and sponge communities.



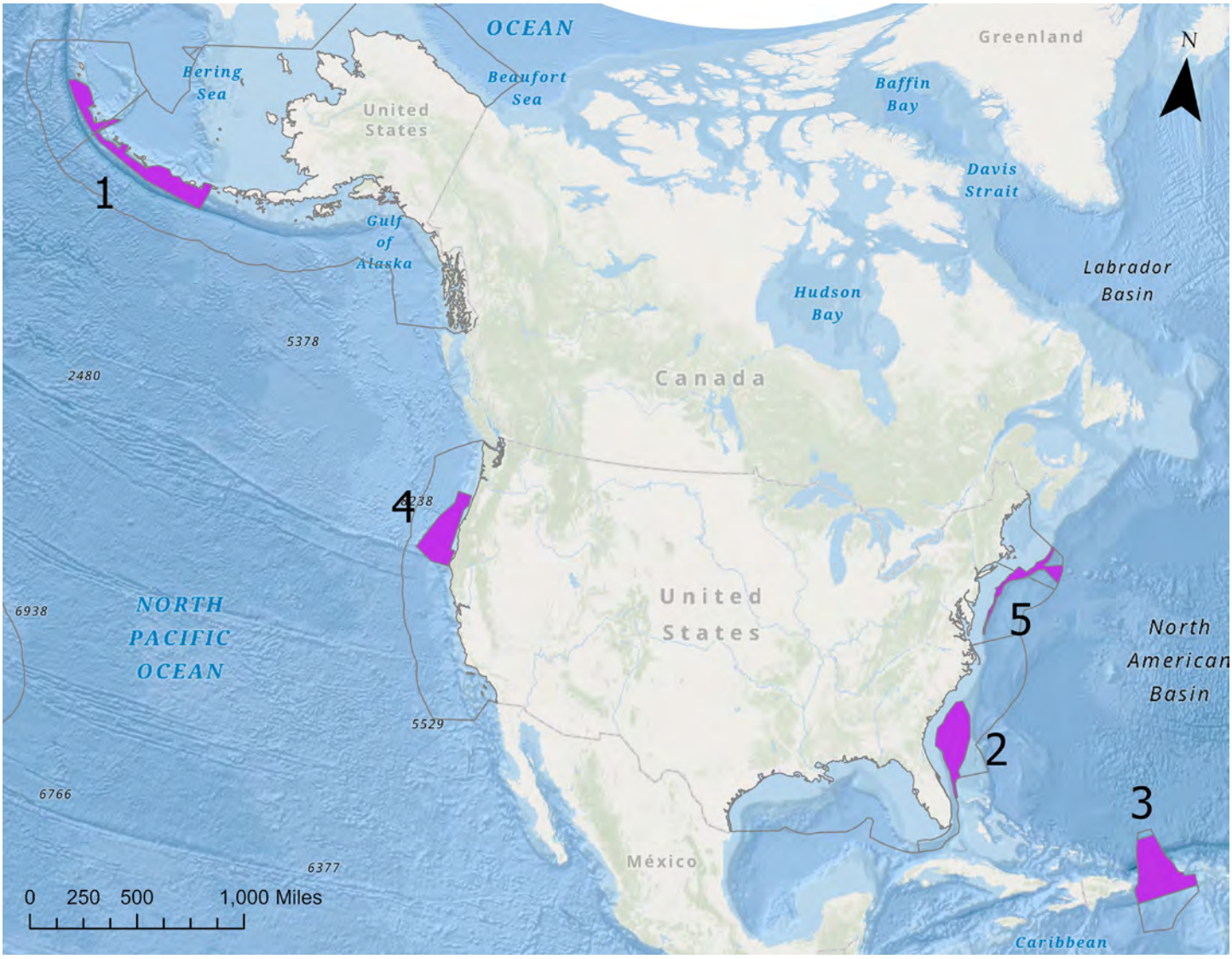
While exploring Ridge Seamount in the U.S. Pacific Islands, an expedition team's remotely operated vehicle encountered an alien-like community **composed almost exclusively of glass sponges with their concave sides directed toward the current. Credit: NOAA Ocean Exploration.**



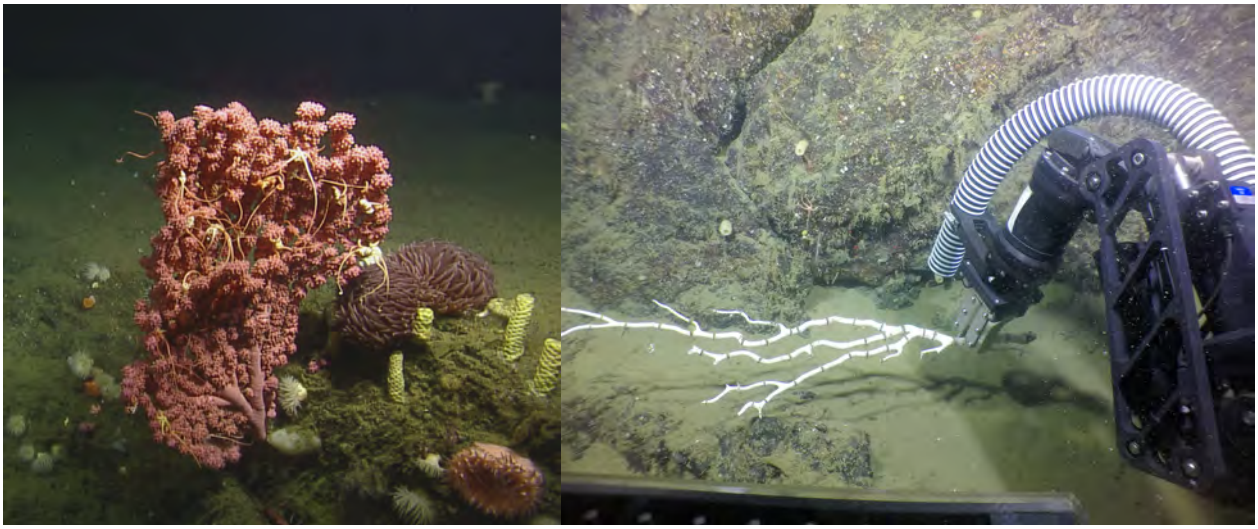
An unusual umbrella-shaped pillar feature near Jarvis Island was densely covered in corals and sponges, with a large school of Randall's snappers nearby. The pillar housed shrimp, crabs, brittle stars, and fish. Credit: NOAA Ocean Exploration.

Habitats Prioritized Nationally for Exploration and Characterization

As part of the National Strategy for Ocean Mapping, Exploration, and Characterization, the Program co-led a group of deep-sea ecology experts in prioritizing five areas of U.S. waters. Some priority areas are considered in urgent need of exploratory initial assessments, while others require comprehensive characterization in support of specific research, resource management, and policymaking objectives. Since deep-sea corals and sponges create complex structural habitats that can significantly boost seafloor and water column biodiversity, each priority area contains important known and predicted locations of these organisms.



Representatives from 12 federal agencies chose the following areas as priorities for exploration and characterization of the deep seafloor: 1) Alaska's Aleutian Islands, 2) the South Atlantic region's Blake Plateau, 3) U.S. Caribbean deep reefs, 4) the West Coast's Cascadia Margin and Gorda Ridge, and 5) the Northeast region's canyons and seamounts. While many factors were considered in their selection, each area contains sensitive ecosystems in which deep-sea corals act as foundation species, enhancing biodiversity and productivity.



LEFT: Bubblegum coral next to snail egg case columns in Pioneer Canyon, Monterey Bay National Marine Sanctuary. In 2020, researchers sampled corals and the surrounding water in this area for taxonomic information, coral ageing studies, ocean acidification state, and the presence of microplastics. Credit: Ocean Exploration Trust. RIGHT: The manipulator arm of a remotely operated vehicle collecting **the skeleton of a dead bamboo coral in Monterey Bay National Marine Sanctuary. The canyons of Monterey Bay are some of the most extensively surveyed deep-sea coral and sponge habitats in U.S. waters. Credit: NOAA, Global Foundation for Ocean Exploration.**

Website Relaunch

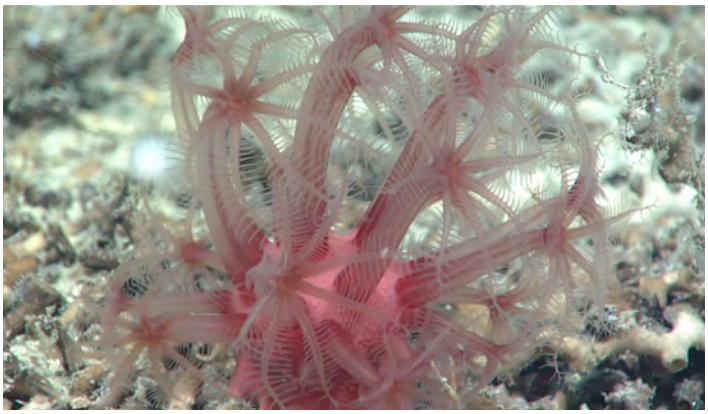
NOAA's Deep Sea Coral Research and Technology Program has just relaunched its website, with significant updates and ease-of-use improvements. New pages now summarize highlights from major research initiatives, greatly improving the availability of deep-sea coral ecosystem knowledge. Users can also explore a streamlined publication database with expanded search capabilities that houses results from Program-supported work. The website also features a recent news section that links to deep-sea coral and sponge–related articles from NOAA Fisheries.

Securing the Future of Deep-Sea Coral Habitats

For more than a decade, this Program has made significant progress in locating and understanding deep-sea corals and sponges, and their importance as habitat for fisheries species. These advances inform management decisions that may affect vulnerable and valuable coral habitat, while allowing for activities such as fishing in areas where damage is less likely or impactful. New research by the Program and its partners is identifying benefits of these management actions, as well as previously unknown but important deep-sea coral habitat that may be at risk from interactions with seafloor-contact fishing gear.

We have yet to explore the majority of the nation's deep seafloor or assess its habitat potential. Most deep-sea corals grow extremely slowly, and some build reefs over hundreds of thousands of years. Once damaged, corals and the communities they support may take centuries to recover, if they recover at all. The Program and its partners are committed to continuing research activities that improve our understanding of deep-sea coral communities, and aid resource managers in developing and evaluating management options for these valuable habitats—on which U.S. fisheries and communities depend.

A variety of coral and sponge species captured during the Alaska Fisheries Science Center's seafloor trawl survey in the eastern Aleutian Islands. The survey targets commercially important fisheries species to assess their stocks, but also collects deep-sea coral and sponge bycatch. Credit: NOAA Fisheries.



Researchers found this mushroom coral living on dead coral **rubble off the east coast of Florida in 2021. Credit: NOAA Ocean Exploration.**

The Deep Sea Coral Research and Technology Program relies on collaborations to make the activities and resulting information described in this report possible. In 2020 and 2021, the Program leveraged hundreds of thousands of dollars from other NOAA offices to support deep-sea coral and sponge exploration and research. The EXPRESS partnership on the West Coast also relies upon substantial contributions from BOEM, USGS, and the Monterey Bay Aquarium Research Institute.

Budget Component	Region	2020 Funding	2021 Funding
West Coast fieldwork initiative	Pacific	$1,000,000	$200,000
Alaska fieldwork initiative	North Pacific	$200,000	$1,000,000
Southeast fieldwork initiative	South Atlantic, Gulf of Mexico, Caribbean	$100,000	-
National database management and data analysis software development	National	$281,000	$371,000
Genetic identification and data analysis	North Pacific, Pacific, Western Pacific, New England, Mid-Atlantic	$268,200	$193,007
Regional targeted research projects	North Pacific, Western Pacific, Pacific, Gulf of Mexico, Caribbean	$117,500	$154,855
Program coordination	National	$353,238	$357,260
Total		**$2,319,938**	**$2,276,122**

Magnuson-Stevens Fishery Conservation and Management Act Section 408: Deep Sea Coral Research and Technology Program

(a) IN GENERAL—The Secretary, in consultation with appropriate regional fishery management Councils and in coordination with other Federal agencies and educational institutions, shall, subject to the availability of appropriations, establish a program

(1) to identify existing research on, and known locations of, deep-sea corals and submit such information to the appropriate Councils;

(2) to locate and map locations of deep-sea corals and submit such information to the Councils;

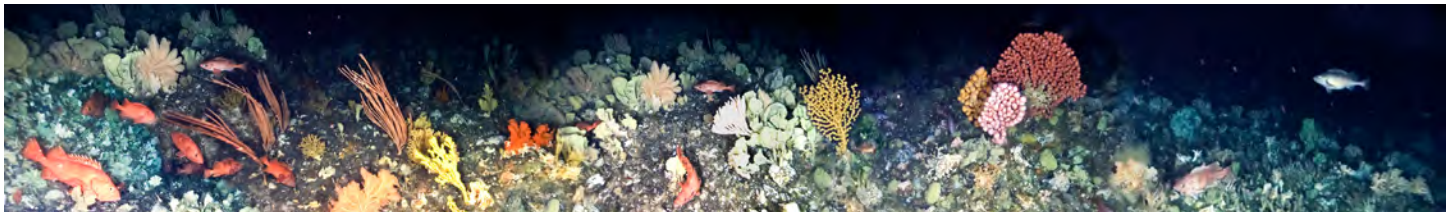
(3) to monitor activity in locations where deep-sea corals are known or likely to occur, based on best scientific information available, including through underwater or remote sensing technologies and submit such information to the appropriate Councils;

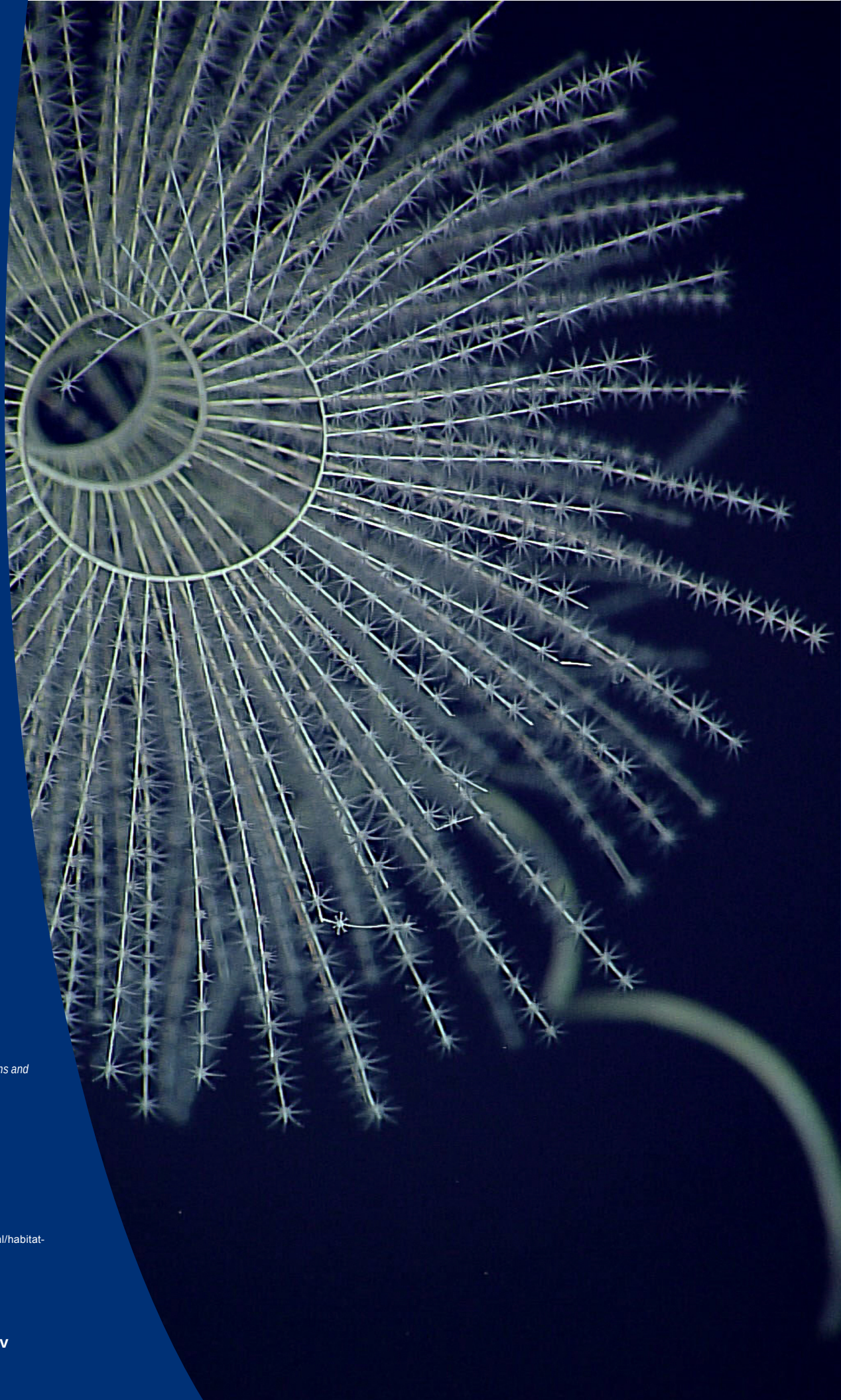
(4) to conduct research, including cooperative research with fishing industry participants, on deep-sea corals and related species, and on survey methods;

(5) to develop technologies or methods designed to assist fishing industry participants in reducing interactions between fishing gear and deep-sea corals; and

(6) to prioritize program activities in areas where deep-sea corals are known to occur, and in areas where scientific modeling or other methods predict deep-sea corals are likely to be present.

(b) REPORTING—Beginning 1 year after the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, the Secretary, in consultation with the Councils, shall submit biennial reports to Congress and the public on steps taken by the Secretary to identify, monitor, and protect deep-sea coral areas, including summaries of the results of mapping, research, and data collection performed under the program.





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Janet Coit
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January 2023

https://www.fisheries.noaa.gov/national/habitat-conservation/deep-sea-coral-habitat
https://deepseacoraldata.noaa.gov/

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