

## Monterey Bay National Marine Sanctuary Accomplishments

Fiscal Year 2020

Designated in 1992, Monterey Bay National Marine Sanctuary protects pristine beaches, jewel-like tide pools, lush kelp forests, steep canyons and an offshore seamount teeming with life. Known as the "Serengeti of the Sea," the sanctuary is home to at least 36 species of marine mammals, more than 180 species of seabirds and shorebirds, 525 species of fish, an abundance of invertebrates and algae, and 26 threatened or endangered species. Off the coast of California, the sanctuary stretches 276 miles of shoreline and encompasses a total of 4,601 square nautical miles. At its deepest point, the sanctuary reaches 12,743 feet (over 2 miles).



Visit [montereybay.noaa.gov](http://montereybay.noaa.gov) for more information.

### Guide to deep-sea coral restoration published

The sanctuary and Monterey Bay Aquarium Research Institute scientists compared different methods to restore deep-sea coral by transplanting live coral fragments and measuring their survival rates. This is researchers' first attempt to develop and test restoration methods for multiple deep-sea coral species in the Pacific Ocean. The "*Guide to Translocating Coral Fragments for Deep-sea Restoration*" provides a detailed guide for fabricating coral translocation modules and for processing coral fragments. Ultimately, the sustainability of deep-sea corals may be enhanced not only by protecting existing communities but also by repopulating disturbed areas using these restoration methods.



Scientists conducted a bamboo coral (*Keratoisis* sp.) restoration experiment at Sur Ridge. Photo: MBARI/NOAA

### 20 years of citizen science sampling

A milestone in water quality monitoring was achieved with the 20<sup>th</sup> annual First Flush, a citizen science program that utilizes trained volunteers to collect water samples at storm drain outfalls during the first major rainstorm of the winter season. In November 2019, 40 volunteers collected samples at 14 storm drain outfalls throughout Monterey County. Twenty years of water quality data is used to inform sanctuary management, as well as local municipalities' stormwater managers about the quality of water flowing into the sanctuary, which helps prioritize pollution prevention efforts.



First Flush volunteers collect water quality samples at storm drain outfalls during the first major rainstorm. Photo: NOAA

## Draft management plan released

Following a multi-year review process involving input from public stakeholders, advisory council working groups, and agency partners, the sanctuary's draft management plan, draft environmental assessment, and proposed rule were released for public comment. A series of virtual outreach events were held to provide information on the proposed strategies and 14 action plans during a 60-day public comment period. This process will culminate in an updated management plan and potential modifications to regulations that will guide NOAA in understanding and protecting the sanctuary's resources over the coming decade.



Monterey Bay National Marine Sanctuary released a draft management plan. Photo: Sam Bailey

## Whale fall discovered during live-streamed mission

During a live broadcast of the deep-sea research mission aboard the *E/V Nautilus* to revisit the "octopus garden," discovered in 2018, sanctuary scientists came across a whale fall on the seafloor at a depth of 3,200 meters near Davidson Seamount. Later identified as a minke whale, the five-meter-long carcass was covered in scavengers, including cusk eels, grenadiers, octopuses, and bone-eating *Osedax* worms. Surrounding water and specimen samples were collected to characterize the species associated with the whale fall. After lab analysis, scientists determined that a new species of *Osedax* worm was discovered.



Octopus, eels, and other scavengers feed off of a whale fall near Davidson Seamount at 3200 meters. Photo: Ocean Exploration Trust/NOAA

## Looking Ahead

- A 22-foot NOAA vessel is being built to support sanctuary dive operations and to carry out resource protection activities on the water and will be operated by West Coast Region boat captains and sanctuary staff.
- A series of distance learning programs and live virtual interactions for teachers and students will be developed to offer additional online resources and curriculum to support education partnerships.
- Underwater hydrophones deployed by NOAA and the U.S. Navy as part of acoustic monitoring in the sanctuary will provide standardized baseline acoustic conditions to support better understanding of the long-term changes to sound levels in several national marine sanctuaries.

## NATIONAL MARINE SANCTUARY SYSTEM



The National Marine Sanctuary System is a network of underwater parks encompassing more than 600,000 square miles of marine and Great Lakes waters. The network includes a system of 14 national marine sanctuaries and Papahānaumokuākea and Rose Atoll marine national monuments.