



## 2021 Accomplishments



Robert Schwemmer/NOAA

### Final Management Plan, Regulations, and Environmental Documents Released

On November 15, 2021, NOAA released the [final management plan](#), final environmental assessment, and a final rule, which includes minor changes to sanctuary regulations. The new management plan includes strategies and action plans for conservation and management of the sanctuary's resources over the coming decade. The regulatory changes reflect input from the sanctuary advisory council and the public, and will allow additional options for protection or restoration of beaches and other coastal areas. NOAA has also made changes to improve access for motorized personal watercraft users and to reduce disturbances of sensitive resources.

### Monitoring Large Vessels Close to the Coast

From February to April, due to equipment and labor shortages at the Port of Oakland, more than a dozen large vessels such as container ships and oil tankers awaited entry into the port in sanctuary waters. We worked with the U.S. Coast Guard to issue a Marine Safety Information Bulletin to bring attention to all mariners to stay well offshore and away from sensitive sanctuary resources, including sea otters and sea turtles. With cooperation and coordination, the shipping industry moved the large vessels offshore from the shoreline while awaiting port entry.

### Featured Web Stories

Our research, conservation, and maritime heritage work with partners was highlighted in several web stories published in 2021: [Lost But Not Forgotten: New Shipwreck Profiles](#); [Understanding Underwater Noise](#); and [Shedding Light: Saving Deep-sea Coral Communities](#).

### Endangered Black Abalone Recovery

Endangered black abalone in Big Sur were rescued in the winter months of February to March, after rain-induced debris flows buried hundreds of meters of critical habitat in multiple watersheds along the rocky coast. We partnered with a team of researchers from U.C. Santa Cruz and the Multi-Agency Rocky Intertidal Network (MARINe) to rescue nearly 200 in the spring and then tag and return them in July to new intertidal areas unaffected by debris flows. The translocated black abalone are tagged and will be monitored throughout 2022.

### Team OCEAN Program

Our Team OCEAN interpretive enforcement volunteers engaged with 6,159 kayakers in Elkhorn Slough and Monterey. Of those interactions, approximately 92% were strictly for informational purposes, with just 3% due to an observed wildlife disturbance. Team OCEAN works to prevent disturbances by alerting ocean users to nearby animals and educating paddlers and boaters of federal protections for marine wildlife and their responsibility to keep a minimum distance.



Amity Wood/NOAA



### Vessel Grounding and Sinking Incidents

In order to protect sensitive habitats and wildlife, we responded to 18 incidents for vessel groundings, sinkings, adrift, and discharges; threats that could have lasting impacts from the release of pollution and debris. We worked to assess damage caused by these incidents and thoughtfully planned the appropriate response and cleanup effort, including the coordination of vessel salvage with partners such as NOAA Office of Law Enforcement, U.S. Coast Guard, and state and local agencies to significantly reduce the potential for serious environmental damage.

### Live Distance Learning Programs

Continuing the virtual programs developed in 2020, our team delivered live interactions to a total of 3,329 students from 31 K-12 grade schools, 65% of students were from Title 1 eligible schools. Program themes included Protect Your Watershed, Dive into Kelp Forests, Plankton Exploration, Deep-sea Discovery, and Sounds in the Sanctuary. As the demand for distance learning grew, we expanded partnerships with One Cool Earth and Coastal Watershed Council to deliver more than 50 programs to individual classes.

### 11th Annual Whalefest Monterey

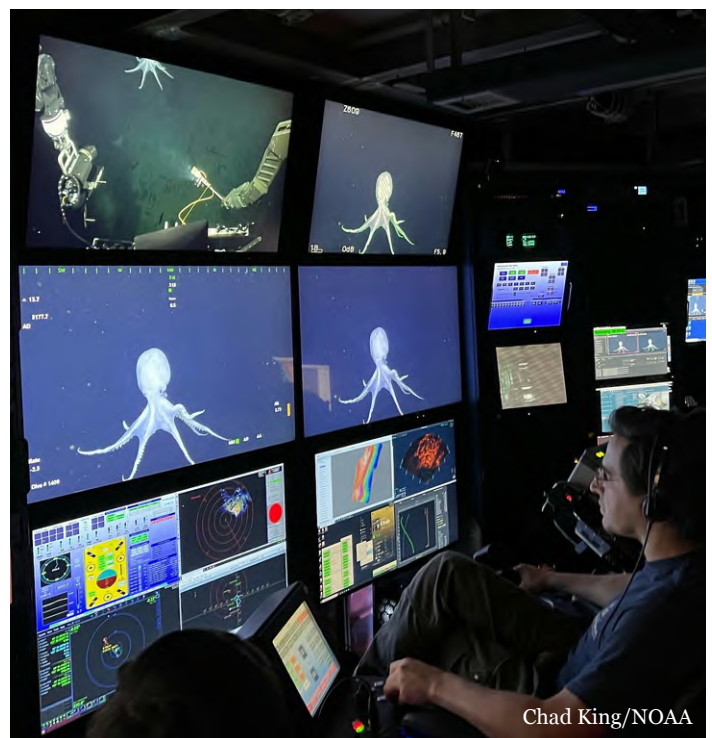
Whalefest Monterey was held virtually for 2021 and expanded to four days of programming from January 26th-29th. The community event, presented in partnership with Fisherman's Wharf Association, City of Monterey, Marine Life Studies, and numerous community sponsors, celebrates gray whale migration and ocean biodiversity in the sanctuary. The program was broadcast through Whalefest Monterey's social media channels, as well as available on local AMP-Channel 24 for the public to watch.

### Recycling Plastics Used in Agriculture

The two primary field plastics used in agriculture in sanctuary watersheds are drip tape and plastic film used both as a mulch and as a fumigant tarp. Using grant funds from the California Marine Sanctuary Foundation and the Nature Conservancy, we convened a working group to develop a drip tape collection center in Monterey County. In September, we worked with the Monterey County Farm Bureau to host a stakeholder meeting involving growers, field plastic producers, technical assistant providers, and recycling industry representatives to identify ways to increase the recycling rate of drip tape. These efforts reduce the amount of plastic pollution that can enter sanctuary waters and will be broadened to five additional counties in 2022 and 2023.

### Deep-sea Expeditions with MBARI

We collaborated on three research cruises in March, June, and December with Monterey Bay Aquarium Research Institute to dive with the remotely operated vehicle *Doc Ricketts* and revisit the Octopus Garden at Davidson Seamount and several coral translocation sites at Sur Ridge. The deep-sea expeditions recovered existing sensors and deployed new temperature and oxygen measuring equipment, as well as sampled animals for isotopic and genetic analyses and measured various deep-sea corals that have been transplanted since 2014.



## New Sanctuary Superintendent

Dr. Lisa Wooninck joined the team in November, bringing extensive marine policy and planning experience to her role as superintendent. Lisa has been with NOAA for 20 years as a research fishery biologist at NOAA Fisheries, and most recently, as policy coordinator for the West Coast Region for NOAA's Office of National Marine Sanctuaries. Lisa has a Ph.D. in ecology and evolutionary biology from U.C. Santa Barbara. Her interest in policy and marine resource management stems from her time as a 2000 Knauss Sea Grant Fellow in Congressman Farr's D.C. office.

## New Whale Watching Guidelines

A new whale watching guide was published that defines how to responsibly view marine mammals and summarizes existing federal protections. The goal of the guide is to promote safe whale watching practices with commercial and private boaters to prevent impacts that can disturb, harass, or cause animals to change their natural behavior. Some best practices include maintaining a 100-yard distance from whales, and all vessels should remain on one side of whales and operate at no-wake or low-wake speeds. The comprehensive guidelines are available on the sanctuary's [whale watching web page](#).

## NOAA Live! Open House Series

In March, we led a virtual [NOAA Live! Webinar Open House Series](#) and provided an in-depth look at the Exploration Center and key exhibits. A total of 609 K-12 grade students from 35 states and five countries attended the event and learned about biodiversity and how they could protect the sanctuary. Distance learning programs help to eliminate geographic barriers while creating greater awareness and deeper connections to America's underwater treasures.

## Celebrating Leatherback Turtles

In October, we hosted [Bon Voyage Leatherback Turtles](#), a public webinar with Tanzle, Inc. and NOAA Fisheries to highlight endangered Western Pacific leatherback turtles. The presentation featured a life-sized, augmented reality (AR) leatherback turtle as scientists shared the plight of this species that make an annual 10,000 mile journey between their nesting grounds in Indonesia and foraging grounds along the West Coast. Tanzle, Inc. created the AR visualization, enabling people to experience these enigmatic species to better understand the need for their protection.



## Healthy Soils Projects

Three California Department of Food and Agriculture Healthy Soils Projects are underway to store CO<sub>2</sub> in the soils of working land as a climate mitigation measure. We managed projects that incentivize growers and ranchers to implement practices on working lands that have been proven effective in removing CO<sub>2</sub> from the air and incorporating it into soil organic matter. We promoted these practices and their benefits to the broader farming community in sanctuary watersheds and throughout California. Greenhouse gas sequestration on working lands (ranchlands and croplands) has the potential to store millions of tonnes of CO<sub>2</sub> by removing it from the atmosphere.

## 21st Annual Snapshot Day

We organized 75 volunteers to monitor 75 creek and river sites in four counties (San Mateo, Santa Cruz, Monterey, and San Luis Obispo) as part of the 21st annual Snapshot Day in May. Volunteers monitored the water quality for temperature, pH, conductivity, water clarity, *E. coli* bacteria, nitrate, and orthophosphate. Support for Snapshot Day came from local cities, counties, resource conservation districts, local watershed advocacy organizations, and the Municipal Storm Water Program permit group. Snapshot Day is the only day that many sites are monitored all year, making these water quality measurements critical for understanding the health of watersheds that flow to the sanctuary.



### Staff Excellence Awards

Our team was recognized with staff excellence awards by the National Ocean Service (NOS) and NOAA's Office of National Marine Sanctuaries (ONMS) in 2021. Dr. Steve Lonhart was awarded NOS Employee of the Year for his work on endangered black abalone. Pam Krone was awarded NOS Team Member of the Year for her work on agricultural water quality and reducing agricultural plastics. Andrew White was given special recognition for his role in ensuring all staff remained remotely connected. Finally, Chelsea Prindle was awarded the ONMS [Sea to Shining Sea Award](#) for excellence in interpretation for directing the development and implementation of high-quality virtual distance learning programs.

### Get Into Your Sanctuary (GIYS)

The annual GIYS event was celebrated in August with a public webinar with local fishermen to showcase recreational fishing best practices. The program featured fishing tips, techniques, and strategies from a kayak and a charter fishing boat by licensed fishing guides. During the same week, staff hosted a virtual sanctuary scavenger hunt on the Santa Cruz Wharf and in San Simeon Cove with more than 150 participants, which highlighted responsible wildlife viewing, ocean recreation, and ways to protect the sanctuary. GIYS is celebrated across the National Marine Sanctuary System to encourage ocean recreation, protection, and stewardship.

### New Shipwreck Profiles

To educate the public about submerged cultural resources protected within the sanctuary, four historic shipwreck profiles were added to our website featuring the schooner [Active](#) (1872-1876, steam schooner [Celia](#) (1884-1906, steam freighter [La Feliz](#) (1904-1924, and passenger cargo steamer [St. Paul](#) (1875-1896. Shipwreck profiles include images, vessel specifications, nature of vessel casualty, map of approximate wreck location, original newspaper articles describing the vessel and wreck event, and references. More than 460 known losses occur within, or adjacent to, sanctuary boundaries.

### Hosting Public Webinars

Distance learning enables a more diverse audience to explore and deepen their understanding of the sanctuary. We collaborated with partners, including Monterey Bay Aquarium Research Institute and U.C. Santa Cruz, to host webinars such as [Revealing the Mysterious Coral and Sponge Gardens of Sur Ridge](#), [Dive into a Changing Ecosystem: From Kelp Forests to Urchin Barrens](#), and [Tracking White Sharks: An Update on Population Changes](#). Attendance to these webinars reached more than 1,600 people worldwide.

### New Day-Boat RV *Tegula*

The long-awaited 22-foot Radon day-boat RV *Tegula* was delivered to Monterey in April. With a cruising speed around 25 knots and a range of 70 nautical miles, RV *Tegula* will serve primarily as a dive platform for research, but will also be used for resource protection missions. Easy, on-the-water operations increase the ability of our team to quickly respond to emerging and emergency issues, and expand our presence on the water.



## Advisory Council Meetings

The advisory council met five times in 2021 and received updates including: Management Plan Review, restorative aquaculture, outreach to recreational fishermen by advisory council members, kelp restoration and urchin abatement, climate change and adaptation in sanctuaries, whale ship strikes, and the proposed designation of Chumash Heritage National Marine Sanctuary. Members approved a new council charter, approved letters in support of designating the Chumash Heritage National Marine Sanctuary and in opposition to offshore wind farms adjacent to the sanctuary, and requested ONMS leadership to consider extending term limits for alternate seats.

## Teacher Leadership Institute

For the third year, our team participated in the Santa Cruz County Office of Education's Teacher Leadership Institute to support local teachers in integrating environmental education field experiences into their classroom curriculum. As student distance learning continued in 2021, we led a team of five 4th grade teacher-leaders who built a new lesson sequence based on the Plankton Discovery distance learning program and implement into their virtual classrooms throughout the year. In total, nine classes and 270 students completed this lesson sequence.

## Beach COMBERS Monitoring Resumes

Between March 2020 and April 2021, the Beach COMBERS monthly monitoring volunteer program was intermittently on hold due to COVID-19. Following safety protocols and COVID-19 prevention measures, Beach COMBERS surveys resumed in April. Standard paper data collection surveys were modernized using the smart-phone app Survey123 to record data. The Beach COMBERS program has the specific goal of using deposition of beach cast carcasses as an index of the health of the sanctuary, and volunteers are trained and managed by U.S. Fish and Wildlife Service.



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## First Flush Sampling

In October, we organized volunteers to collect water quality samples during the first major rainstorm of the winter season when pollutants accumulated on impermeable surfaces are washed into creeks, rivers, and sanctuary waters. In 2021, 13 sites were sampled for bacteria, metals, nutrients, sediments, and detergents. Data from First Flush sampling will be used by local cities to identify hot spots and determine effectiveness of water quality improvements.

## Research Publications

Our conservation science team collaborated on the following 2021 publications:

- [Improving the IEA Approach Using Principles of Open Data Science](#)
- [Species-specific Thermal Classification Schemes Can Improve Climate Related Marine Resource Decisions](#)
- [Microplastics and Microfibers in Surface Waters of Monterey Bay National Marine Sanctuary](#)
- [Exploring Monterey Bay National Marine Sanctuary](#)
- [Reduction of Low-Frequency Vessel Noise in Monterey Bay National Marine Sanctuary During the COVID-19 Pandemic](#)
- [Place-based Ecosystem Management: Adapting Integrated Ecosystem Assessment Processes for Developing Scientifically and Socially Relevant Indicator Portfolios](#)
- [Disease-driven Mass Mortality Event Leads to Widespread Extirpation and Variable Recovery Potential of a Marine Predator Across the Eastern Pacific.](#)