



Monterey Bay National Marine Sanctuary

Sanctuary Office Report

Volume 17, Number 2



A REPORT FOR THE SANCTUARY ADVISORY COUNCIL MEMBERS

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ABOUT THE SANCTUARY

Designated in 1992, Monterey Bay National Marine Sanctuary (MBNMS or Sanctuary) is a federally protected marine area offshore of California's central coast. Stretching from Marin to Cambria, MBNMS encompasses a shoreline of 276 miles and 6,094 square statute miles of ocean.

Supporting one of the world's most diverse marine ecosystems, it is home to numerous mammals, seabirds, fishes, invertebrates and plants in a remarkably productive coastal environment. MBNMS was established for the purpose of resource protection, research, education and public use of this national treasure.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) AND OFFICE OF NATIONAL MARINE SANCTUARIES (ONMS) NEWS

Guiding cargo ships safely through port

Imagine you're a port pilot, responsible for the safe passage of a cargo ship that's about the same size as an aircraft carrier. It's the middle of the night, it's windy and you're contending with large waves and an outgoing tide. A stressful scenario to be sure but happily, you have the benefit of a real-time information system that gives you details about water levels, currents, salinity, and weather to help you guide your vessel. That system is known as PORTS, the Physical Oceanographic Real-Time System. The concept for PORTS was born following two serious maritime accidents in Tampa Bay, Florida. In May 1980, gale-force winds blew the freighter Summit Venture out of the Port of Tampa shipping channel. The ship struck the Sunshine Skyway Bridge sending a 1,200-foot span into the bay, along with six cars, a truck, and a Greyhound bus, killing 35 people. Earlier that same year, the U.S.

Coast Guard Cutter Blackthorn collided with an oil tanker in the shipping channel, causing 23 deaths. For more information: <https://www.noaa.gov/stories/guiding-cargo-ships-safely-through-port>

Last year's billion-dollar disasters show crucial link between NOAA satellites and emergency managers

The United States saw 14 billion-dollar disasters in 2019. These included eight severe storm events, three flooding events, two tropical cyclones, and one wildfire event in multiple locations. It was also the fifth consecutive year in which 10 or more billion-dollar weather and climate disasters affected the U.S. Overall, these events caused at least 44 casualties and had significant economic impacts. Many more less-extreme weather and climate events touched the nation last year, but no matter how large or small, NOAA's satellite imagery and data were the foundation of 2019's life-saving forecasts. For federal, state and local emergency managers, those same satellites provided critical, up-to-the-minute information as well. For more information:

<https://www.nesdis.noaa.gov/content/last-year%E2%80%99s-billion-dollar-disasters-show-crucial-link-between-noaa-satellites-and-emergency>

Virtual aquarium events keep you learning and entertained at home

Are you working from home? Looking for educational activities to do with your kids? Want to watch otters and penguins frolicking in an aquarium? NOAA's CELC Network is here for you! NOAA's Coastal Ecosystem Learning Centers (CELC) Network, a consortium of 27 aquariums across North America, has gathered a list of their favorite remote educational opportunities to keep you and your families learning and entertained in the coming weeks. These videos and activities still allow you and your families to "visit" aquarium exhibits and take part in their activities from the comfort of your own home. The new CELC online resources webpage presents a roundup of available resources to help you safely hunker down, learn something new, and keep up with your favorite critters. This webpage will be updated weekly, and all past events will be made available in the archived section. For more information: <https://www.noaa.gov/education/news/explore-ocean-and-coastal-acidification-with-noaa-data-in-classroom>

NATIONAL MARINE SANCTUARY NEWS

History of Gray’s Reef filmed on Sapelo Island

Key figures in the history of Gray’s Reef gathered on Sapelo Island, Ga to participate in the first-ever history film about the sanctuary. The film focuses on the period of time in which the area known as “Sapelo Live Bottom” transitioned into Gray’s Reef National Marine Sanctuary. Appearing in the film are Dr. Albert Greene, a plant physiologist who worked on Sapelo Island as a peer with Sam Gray in the early 1960s; Jesse Hunt, an early 1970s geology graduate student who studied the reef and suggested it be named after Sam Gray; Duane Harris, the former director of Georgia DNR’s coastal division, who wrote the nomination for Gray’s Reef to be designated as a national marine sanctuary; Reed Bohne, the first NOAA superintendent of GRNMS; and Cathy Sakas, former education coordinator of GRNMS and current chair of the Gray’s Reef National Marine Sanctuary Foundation. The short film was funded by a NOAA Heritage Internal Funding Program grant and will premiere at the *Gray’s Reef Expo: Celebrating NOAA’s 50th Anniversary* event in May. Capturing the history of Gray’s Reef on films with key figures helps reach Goal 4 of ONMS’ strategy, to deepen our understanding of sanctuaries and understand the value of our sanctuaries to our nation.

Florida Keys resource managers collaborate with United Arab Emirates; UAE donates to Mission: Iconic Reefs

During February 2020, Florida Keys National Marine Sanctuary Superintendent Sarah Fangman and research coordinator Dr. Andy Bruckner joined a delegation of US wildlife and nature experts invited to the United Arab Emirates by the Ministry of Climate Change and Environment. The group toured conservation and research facilities with the Florida Keys representatives and Emiratis exchanging information about coral restoration. Nearly three-quarters of the corals off the Arabian Peninsula were lost to bleaching in 2017, prompting the UAE to seek an alliance with Florida resources managers and scientists to create the world’s largest artificial reef. The UAE is also investing in the Florida Keys, granting \$3.5 million to the local United Way chapter for [Mission: Iconic Reefs](#) and educational outreach. Through domestic and international partnerships, we help ensure a healthier ocean, now and for future generations.

HIHWNMS collaborates on a study to enumerate singing humpback whales off west Maui using DARARs

On March 11, 2020 HIHWNMS Research Coordinator Dr. Marc Lammers organized and participated in the deployment of three Directional Autonomous Seafloor Acoustic Recorders (DASARs) using the Pride of Maui’s research support vessel the Malama Kai. The DASARs provided by Greenridge Sciences, Inc. are able to localize sources of sound and will be used as part of a project led by Dr. Aaron Thode of the Scripps Institution of Oceanography (SIO) to localize and count the number of humpback whales singing at any given time in the Sanctuary’s focal study area off west Maui. The data obtained will be used to complement existing efforts in the area to study whale abundance trends using a combination of acoustic monitoring and visual surveys from land and sea. This effort represents an exciting new partnership between HIHWNMS, SIO, Greenridge Sciences, Inc. and a local commercial operator (Pride of Maui), bringing together government, academia and the private sector on a project of high priority to the sanctuary. Advances the management plan’s objective to deepen and enhance understanding of humpback whales and their habitat.

Exploring the Blue with National Marine Sanctuaries collaboration Exploring By The Seat Of Your Pants

Hannah MacDonald and Nick Zachar hosted a live program with Exploring By The Seat Of Your Pants (EBSYP) on Monday, March 30th. The event, titled [Exploring the Blue with National Marine Sanctuaries](#), offered an overview of the sanctuary system as well as an introduction to our Sanctuaries 360° collection with the launch of the first virtual reality video in [Channel Islands National Marine Sanctuary](#). Over 200 participants from across North America tuned in to the program live with an additional 545 views of the recording on their Youtube channel in under three days. [Exploring By The Seat Of Your Pants](#) is a platform that inspires the next generation of scientists, explorers and conservationists through virtual field trips and live connections with experts across the globe. This platform is free for teachers, students and the public and there is no cost for us to host a program. These programs are recorded live and put up on [Youtube](#). EBSYP has grown exponentially with viewers during COVID-19 as students, teachers and parents are looking for content to continue learning while at home. EBSYP is seeking opportunities to continue to partner with and host live programs with NOAA and ONMS staff.





MONTEREY BAY NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES



MANAGEMENT

Looking Ahead: what the team is/will be working on in the coming weeks

The Program Operations team continues to work on the final phases of the management plan review process, processing final edit requests on the draft plan and awaiting the proposed rule to complete its cycle through NOAA and the Department of Commerce. The Federal Register Notice is anticipated to be mid May, but you will know just prior to the launch. Nichole is back from maternity leave just in time to head up the Spring 2020 advisory council recruitment and the revision of the Advisory Council Charter.

The team is working hard to maintain continuity of operations with the entire staff working from home - which makes it interesting and challenging for our IT manager. Contracting and budget management is still moving along and staff is remaining connected through web-based meetings, phone calls and emails. Most staff have been able to forward their phones to their mobile phones or check their voicemail regularly, so it should be easy to maintain public engagement.

Monterey Bay National Marine Sanctuary Advisory Council Meets in Santa Cruz

On February 21, MBNMS's advisory council met and received a series of presentations and updates on CA State EPA's Trash Amendment and its implications for the sanctuary, potential solutions to agricultural plastics, finalization of the 2020 work plan, and an update from the Monterey Bay National Marine Sanctuary Foundation's work in 2019. A letter of appreciation will be developed recognizing Mary Alice Fettes and the Fisherman's Wharf Association for their outstanding efforts organizing WhaleFest 2020 and highlighting the sanctuary to over 20,000 people. Two new members were sworn in and a large recruitment will commence next month. Subcommittees for reviewing applications and for the upcoming Charter review were formed. The next meeting will be held in Salinas on April 17 at the UC Extension Agricultural Center Conference Room. Sanctuary Advisory Councils are community-based advisory bodies consisting of representatives from various user groups, government agencies and the public at large. The role of the council is to provide advice to the sanctuary superintendent on the designation and/or operation of a national marine sanctuary.

MBNMS Closes Visitor Center and Offices

On Monday, March 16, MBNMS's Main office, the Coastal Discovery Center in San Simeon and the Sanctuary Exploration Center in Santa Cruz closed their doors to the public, following ONMS guidance, to slow the spread of the novel coronavirus (COVID-19). Staff had been working diligently in the 2 weeks leading up to this decision to keep centers sanitized while still keeping docents and themselves safe. Subsequently, shelter in place orders were issued by Santa Cruz and Monterey Counties, preventing staff from continuing work at the offices. New work plans have been developed, home offices have been set up, property passes issued and numerous webinars scheduled to keep the staff connected and productive. It is also critical to stay in (virtual) touch with all staff and volunteers during this time of uncertainty, as mental health is a critical component of physical health. MBNMS staff and affiliates continue their commitment to sanctuary resource protection while modeling the most effective means for flattening the COVID-19 curve.

RESEARCH AND MONITORING

Looking Ahead: what the team is/will be working on in the coming weeks

Steve Lonhart and a professional masters student at CSUMB (Walan Chang) are assessing kelp forest invertebrates as sentinel species responding to extreme climatic events. They are using PISCO and ReefCheck

CA data sets to determine site-level responses among multiple species with different thermal affinities, generation lengths, and reproductive strategies, all of which may affect the magnitude and direction of a response to recent marine heatwaves.

We're working with CeNCOOS, IOOS, UCSC and MBARI on a National Ocean Partnership Program proposal to demonstrate how to most effectively use NOAA unmanned aerial vehicles (UAVs). A large part of this effort is to address the distribution of birds and mammals in association with environmental variables and crab fishing. It will also address MBNMS science needs to understand the potential benefits and impacts of UAVs.

We're finishing up the edits on an ONMS Conservation Science Series publication that describes our methods for deep-sea coral restoration. We believe this "manual" will be of particular use to restoration in The Gulf of Mexico after the Deep Horizon spill.

We recently published a paper on the potential impacts of seal bombs on harbor porpoise. The paper shares new data collected by the MBARI hydrophone on seal bombs. This work is being followed up by our NOAA Acoustic Program grant to study the problem in more detail. The MBNMS SAC priorities related to noise are referred to in the manuscript, providing a nice link with SAC decisions and subsequent research.

https://www.frontiersin.org/articles/10.3389/fmars.2020.00142/full?utm_source=FAAE&utm_medium=EMLF&utm_campaign=MRK_1286267_45_Marine_20200331_arts_A

MBARI has a new contract with MBNMS for the third and final survey of the now famous lost shipping container. We will be collaborating to determine succession of species on and around the container, and to assess other impacts to the habitat.

Presentations Highlight New Tools for Streamlining Ecosystem Assessment

At the January 10th meeting of the MBNMS Research Activities Panel, Andrew DeVogelaere gave a presentation titled "Streamlining Ecosystem Assessment: New Tools to Quickly Generate Management Information from Ocean Monitoring Data". This presentation provided an overview and update on efforts to develop data products and tools for incorporating key data streams from long-term monitoring programs into condition reporting along the west coast. The presentation was originally developed by Jennifer Brown for the California Cooperative and Oceanic Fisheries Investigations (CalCOFI) annual symposium in La Jolla, CA on Dec 3, 2019 which was themed "Putting Ocean Ecosystem Monitoring Data to Use". This work is an on-going collaboration between MBNMS, CINMS, the California Current Integrated Ecosystem Assessment program, the Marine Biodiversity Observation Network (MBON), U.S. IOOS, CeNCOOS, and EcoQuants, LLC. National marine sanctuaries are an ideal setting to develop and apply ecosystem assessment tools because sanctuaries encompass a wide range of marine environments with a high density of research and monitoring efforts, as well as nearby coastal communities that depend on healthy ocean ecosystem for business and recreation.

MBNMS Research Activity Panel Meets at Moss Landing Marine Labs

On January 10th, Monterey Bay National Marine Sanctuary (MBNMS) Research Activity Panel (RAP) met at Moss Landing Marine Laboratories (MLML), in Moss Landing, CA. Agenda items included: Effects of Ocean Acidification and Hypoxia on Juvenile Rockfish; Summary of December MBNMS Advisory Council meeting; Draft Management Plan Schedule and Public Comment; Streamlining Ecosystem Assessment: New Tools to Quickly Generate Management Information from Ocean Monitoring Data; and How Can MBNMS (office or Advisory Council) Support Research Community? The MBNMS Research Activity Panel (RAP) is a working group of the MBNMS Advisory Council (AC). The RAP meets five times per year; and advises AC and sanctuary staff on basic and conservation science issues. <http://montereybay.noaa.gov/sac/rap/rapma.html>

Project and Data Management of Long-term Monitoring Program BeachCOMBERS Transitions to US Fish and Wildlife Service Ventura

As the long-term monitoring program BeachCOMBERS enters its 23rd year of sampling beach cast organisms within Monterey Bay National Marine Sanctuary (MBNMS), project and data management responsibilities are transitioning from Moss Landing Marine Laboratories (MLML) to U.S. Fish and Wildlife Service (USFWS) in Ventura, California. Funding support for this fundamental aspect of the program has been a struggle in recent years. After much discussion, deliberation, and collaboration among program partners, the USFWS Ventura office secured a GIS/BeachCOMBERS position for this purpose. MLML will still be involved in the project, and will be the site for a graduate student Northern Chapter coordinator to ensure the volunteers in the Northern Chapter (MBNMS beaches) have the support they need. The MBNMS office will continue to facilitate Volunteer Service Agreements for MBNMS beaches. BeachCOMBERS data are now available for everyone to explore through an on-line data portal hosted by the Central and Northern California Ocean Observing System (CeNCOOS). BeachCOMBERS (Coastal Ocean Mammal and Bird Education and Research Surveys) is a citizen science program collaboration among Monterey Bay National Marine Sanctuary, Moss Landing Marine Laboratories, US Geological Survey, US Fish and Wildlife Service, California Department of Fish and Wildlife, and Save The Earth Foundation. Since 1997, trained volunteers have surveyed beached marine birds and mammals monthly at selected sections of beaches throughout the Monterey Bay area, with the specific goal of using deposition of beach cast carcasses as an index of the health of the sanctuary. On average, BeachCOMBERS detect 2.5 events per year, where baseline numbers of dead organisms are significantly surpassed. These could be natural events (e.g., a low productivity year for food) or human caused (e.g., an oil spill). BeachCOMBERS accomplishments and information can be found on the web site <https://www.mlml.calstate.edu/beachcombers/>. CeNCOOS data portal: <https://data.cencoos.org/>

Seabird Monitoring Data from Citizen Science Surveys Published

Data collected from citizen scientists of the BeachCOMBERS (Coastal Ocean Mammal and Bird Education and Research Surveys) program within Monterey Bay National Marine Sanctuary have been analyzed and published in the journal *PLoS ONE*. According to the report, approximately 62,000 dead or dying Common Murres (*Uria aalge*), the trophically dominant fish-eating seabird of the North Pacific, washed ashore between summer 2015 and spring 2016 on beaches from California to Alaska. In addition, 22 complete reproductive failures were observed at multiple colonies region-wide during (2015) and after (2016–2017) the mass mortality event. These events co-occurred with the most powerful marine heatwave on record that persisted through 2014–2016 including the warming of an enormous volume of ocean water (the “Blob”) from California to Alaska. The article is available at: <https://doi.org/10.1371/journal.pone.0226087>. Since 1997, trained volunteers have surveyed beached marine birds and mammals monthly at selected sections of beaches throughout the Monterey Bay area, with the specific goal of using deposition of beach cast carcasses as an index of the health of the sanctuary. On average, BeachCOMBERS detect 2.5 events per year, where baseline numbers of dead organisms are significantly surpassed. These could be natural events (e.g., a low productivity year for food) or human caused (e.g., an oil spill). BeachCOMBERS accomplishments and information can be found on the web site <https://www.mlml.calstate.edu/beachcombers/>.

Staff supports long-term erosion monitoring in Elkhorn Slough

Since 2001 Elkhorn Slough National Estuarine Research Reserve (ESNERR) and MBNMS staffs survey 30 permanent sites in the main channel of Elkhorn Slough to assess bank erosion rates. MBNMS was again involved in 2019, providing boat support and science staff to conduct surveys. Staff assessed 1) distance from permanent stakes to bank and vegetation edge; 2) vegetation type and percent cover; 3) cliff height and maximum undercutting; and 4) hole density due to burrowing invertebrates small (e.g., isopods and crabs). Additionally,

staff searched targeted habitats for invasive species. Dr. Kerstin Wasson, Research Coordinator at ESNERR, analyzed rates of change to compare between different sampling times and across sites. 1. Upper and lower main channel sites show similar rates of vegetation retreat, even though rates of subtidal bathymetric change are much greater at lower sites; 2. Difficult to determine whether there are any directional trends in erosion rates; 3. Data from mudflat stakes suggest most of main channel has around 1 cm/year of erosion at elevation of +1.5 feet above MLLW, but Parsons complex actually seems depositional; and 4. Crab holes have increased in the Parsons complex in the last years, concurrent with declines of invasive marine snails there. This research is related to the Introduced Species Action Plan, and supports monitoring in the sanctuary with assistance from our partners at ESNERR. Data collected track the status and trend of erosional events within the slough, which is a key threat to habitat diversity.

3D Model of Whale Fall Released to the Public

During an expedition aboard the *E/V Nautilus* in October 2019, MBNMS and Ocean Exploration Trust researchers discovered a whale fall at a depth of 3,100 meters. Working with Monterey Bay Aquarium Research Institute staff, a 3D model of the whale fall was created using photogrammetry software. Individual frames from videos taken around the whale fall were the source. The 3D model can be viewed and/or downloaded at skfb.ly/6PsFG. Whale falls are rare, even more so was this particular whale fall, which was estimated to be only four months old, still having internal organs and some blubber present along with scavengers, bone-eating worms, and other whale fall community members. This 3D model can be compared to 3D models created from future visits to this whale fall, enabling another discrete analytical tool to study the ecological succession of a whale fall.

MBNMS Research Activity Panel March Meeting Canceled

Monterey Bay National Marine Sanctuary (MBNMS) Research Activity Panel (RAP) meeting scheduled for March 13th was canceled as a precaution to minimize public meetings in light of the recent COVID-19 virus. RAP leadership met by phone to address agenda item topics, and will communicate timely matters with RAP members by email, and postpone other matters until the next scheduled RAP meeting. Agenda items included: USGS research update; summary of February MBNMS Advisory Council meeting; RAP review of Draft MBNMS Management Plan; drone science needs; RAP representation of the research community; and 2020 Ricketts Award. The MBNMS Research Activity Panel (RAP) is a working group of the MBNMS Advisory Council (AC). The RAP meets five times per year; and advises AC and sanctuary staff on basic and conservation science issues. <http://montereybay.noaa.gov/sac/rap/rapma.html>

RESOURCE PROTECTION

Looking ahead: what the team is/will be working on in the coming weeks

Led by permit coordinator Sophie De Beukelaer, the permit team (Sophie, Bridget and Karen) continues to process and issue permits, amendments and authorizations and conduct National Environmental Policy Act (NEPA) reviews for various projects. For example, the Monterey Bay Aquarium Pipeline Support Retrofit project is currently under NEPA evaluation for impacts to marine resources, and consultations with NOAA National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service are underway. We are also working on authorizing the National Pollutant Discharge Elimination System (NPDES) permits for discharge into MBNMS from both Ragged Point Inn and Resort and the Moss Landing Power Plant in collaboration with Central Coast Regional Water Quality Control Board. Sophie is also processing various research permit and amendment applications.

Using GIS and MarineTraffic, Sophie continues to track and monitor tankers and cargo vessels deviating from the International Maritime Organization (IMO) recommended tracks into the coastal waters, which may impact

wildlife and lead to potentially catastrophic impacts in the event of a collision and/or oil spill. Automatic Identification System (AIS) vessel location data for 2019 are being analyzed and the third MBNMS staff authored report should be available by early June on the MBNMS website under Resource Protection reports (<https://montereybay.noaa.gov/resourcepro/reports.html>)

MBNMS representative Karen Grimmer continues to provide advice and work with partners to provide whale density data for the CA Dungeness crab working group. The group is conducting assessments every 2 weeks, per the Center for Biological Diversity settlement terms. CDFW announced fishery will be closed on May 15th in order to minimize risk to whales from entanglements. The working group members had recommended to the CDFW Director that it should remain open as the risk is low, and that fishermen will continue to follow best practices. As expected during this time, humpback whales are starting to migrate north into Monterey Bay and central California.

To address concerns related to the amount of plastic found in Monterey Bay National Marine Sanctuary, Pam Krone, Ag Water Quality Coordinator, is actively involved in investigating alternatives to plastic use and supporting educational activities to recycle, replace and create full cycle plastic use with manufacturers. On Feb 4th staff co-hosted a meeting with University of California Cooperative Extension to present information on biodegradable plastic mulch that included definitions, research, cost studies and practical application information. The meeting was attended by 40 growers, agricultural professionals, and interested parties. As a result of the meeting, local growers are interested in research trials in California on strawberry fields in order to evaluate performance under local growing conditions. These trials will begin in June 2020. MBNMS contract staff participates on the planning committee for this event along with researchers from UCCE and Washington State University.

The Water Quality Team just completed a 20-year Snapshot Day report. Snapshot Day is an annual volunteer water quality monitoring event in which an average of 170 sites are monitored from Pacifica to Morro Bay. Data was analyzed to 1) characterization of the deviation of analyte concentrations from water quality objectives (exceedances), 2) assessment of trends over time of three water quality constituents, and 3) representativeness of Snapshot Day data via comparison to the more frequent sampling effort conducted by the Central Coast Ambient Monitoring Program (CCAMP) at overlapping sites. The report, Info-Graphic and Executive Summary will be available on the MBNMS website soon. The 2020 Snapshot Day event has been cancelled due to COVID-19.

The RP team is revising MBNMS' internal environmental emergency response plan to provide ready guidance for staff when responding to unforeseen events of varying scale and complexity. MBNMS works in partnership with multiple entities to mitigate environmental threats to the sanctuary from incidents such as vessel groundings and chemical spills. However, MBNMS must also maintain capability to conduct normal operations during complex incidents that may divert some staff members from their regular duties for extended periods of time. Maintaining a current playbook for internal management of staff and resources during such unpredictable events provides an important tool for ensuring effective response and continuity of operations.

MBNMS Comments on Pure Water Monterey (PWM) Groundwater Replenishment Project Supplemental EIR

Monterey One Water proposes to expand a water supply project that will treat wastewater, agriculture wash water and storm water for injection into the Seaside Groundwater Basin for later potable use. From the Advanced Water Purification Facility, reverse osmosis concentrate will be mixed with varying amounts of waste water effluent ranging between 0 and 29.6 MGD per day and discharged to MBNMS. Because an amended NPDES permit will be required for the expanded PWM operations, MBNMS will need to authorize that permit for the

discharge to be a legal discharge into MBNMS. Comments provided by MBNMS will need to be addressed in order to complete its NEPA obligations and consider granting an authorization for the NPDES permit for the proposed expansion. Opportunities to comment on projects that discharge to MBNMS are important to ensure that MBNMS water quality and marine resources are protected.

MBNMS staff participate in a Save Our Shores panel

As part of a talk series, Save Our Shores held an interactive and engaging evening at the Dream Inn in Santa Cruz bringing together 175 community members with a panel of experts from the Monterey Bay Aquarium, the Marine Mammal Center, University of California - Santa Cruz and MBNMS. Entitled “How warming waters & red tides affect our oceans and us”, the public was engaged for an hour and a half in a discussion about phytoplankton, Harmful algal Blooms (HABs), microplastics and the importance of long term monitoring and their impact up the food web. Lisa Uttal spoke on behalf of the sanctuary and ‘what you can do’ as a community member to protect and understand our sanctuary. A call to individuals to decrease their carbon footprint, don’t use plastics, volunteer in the Plankton Monitoring Network and vote were just some of the actions the public can take to protect this ecosystem. Monterey Bay National Marine Sanctuary took the lead to develop and create a plankton monitoring network along the west coast in partnership with NOAA NCCOS, California State Biotxin Monitoring Program, University of California - Santa Cruz Raphe Kudela’s lab and Cabrillo College. As a result, a network of citizen scientists to monitor plankton has been created in the Monterey Bay region. In the last year, over 450 entries have been input into a NOAA database by partner volunteer monitors.

MBNMS convenes multi-group meeting on commercial unmanned aerial systems (UAS) filming in Pacific Grove

A commercial film production company is filming in Monterey Bay over the next nine months to collect unique footage that showcases the amazing wildlife in the sanctuary. There will be some UAS (drone) use to film the natural behavior of pinnipeds, sea otters, whales and other iconic species, as well as tidepools and other habitats. Some concerns were voiced from the City of Pacific Grove, BLM, Bay Net volunteers, and Black Oystercatcher monitors about potential disturbance of pupping harbor seals and nesting oystercatchers by UAS activity, and so MBNMS convened a meeting for all parties to discuss the issue. The production company elected to avoid the nursery area at Hopkins and will coordinate with the volunteer monitoring groups to record and observe disturbances related to the film shoots, in other areas of Pacific Grove. The PG police department can now issue a drone use permit with a clear understanding on the specific dates and locations. Staff have developed a disturbance data sheet that will be piloted this season to help assess the effects of UAS on wildlife. Currently, there is a lack of information on the effects of UAS on protected and non-protected species of wildlife, which makes it difficult to evaluate potential impacts. With the rising emergence of UAS use in areas with sensitive wildlife, clear communications between interested stakeholders on issues of concern can enhance the sanctuary resource protection goal of avoiding disturbance to the wildlife. Wildlife disturbance data is needed so that resource managers can develop appropriate guidelines for safe UAS operations close to wildlife.

MBNMS Conservation Working Group (CWG) monthly meeting and balloon survey

The CWG met on February 13 at Moss Landing and discussed a number of issues including organizing a post Valentine’s Day beach balloon survey, sending a letter to school districts on reducing their use of balloons, and moving forward with a shared intern project. The balloon survey was conducted on February 15 and 16 and covered a number of beaches from Davenport north of Santa Cruz to Pacific Grove. The next meeting is scheduled for March 12. The Conservation Working Group (CWG) is a working group of the MBNMS Advisory Council and includes groups such as Save Our Shores, O’Neill Sea Odyssey, Surfrider, Sierra Club, American Cetacean Society and The Marine Mammal Center. The CWG meets monthly, and advises SAC and sanctuary staff on conservation issues.

Staff conducts UAS monitoring along the Pacific Grove Shoreline

To address the lack of information about the effects of low overflights with UAS on wildlife within the sanctuary, MBNMS staff developed a wildlife disturbance field data monitoring sheet. This data sheet was put to the test by three MBNMS staff members when monitoring permitted UAS flights at various locations in Pacific Grove. Collected data will help inform communications between MBNMS staff and interested permit applicants as well as current permittees to best collaborate in avoiding wildlife impacts with low UAS overflights. Wildlife disturbance data is needed so that resource managers can develop appropriate guidelines and permit terms and conditions for safe UAS operations close to wildlife to achieve the resource protection goals of the sanctuary. <https://montereybay.noaa.gov/resourcepro/resmanissues/wildlife.html>

MBNMS staff meet with Monterey Bay Harbormasters

On March 12th, the Sanctuary Superintendent and members of the Resource Protection Team met with Harbormasters from Monterey, Moss Landing and Santa Cruz harbors to discuss collaborative and proactive measures to address derelict vessels before they end up grounding or sinking within MBNMS. Some of the topics included; addressing the older wooden vessels, requiring insurance for slip holders, state funding for disposal of vessels, proactive measures taken by Harbor personnel, and early communications with all partners including local responders and other state and federal agencies. It is important to prevent vessels from sinking or grounding within MBNMS to reduce environmental impacts as well as minimize the cost for removal and cleanup. By collaboratively taking action before the vessel ends up in pieces on the beach, potentially releasing hazardous materials and significant marine debris into the environment, we are protecting sanctuary resources and more effectively managing federal monetary resources and time.

Bay Net-Team OCEAN Informational Meeting for New Volunteers

On Wednesday February 12 at 6:00 pm new and returning Bay Net Shoreline and Team OCEAN Kayak Naturalist volunteers joined Lisa Emanuelson, California Marine Sanctuary Foundation contractor, online for an informational meeting for new volunteers. The hour and a half online session through GoToWebinar, allowed the 28 registered participants near and far to join the meeting which was also recorded and posted on the Bay Net-Team OCEAN Weebly site for volunteers. During the meeting Lisa Emanuelson went through volunteer duties for both programs, requirements to become a volunteer for either program, training and field trip schedules and answered any questions. Volunteer training is scheduled to start in late March 2020. Bay Net and Team OCEAN volunteers contact visitors in the environment where their actions directly impact local marine wildlife. Volunteers with Bay Net and Team OCEAN speak with an average of 40,000 people each year, one on one, in the environment where visitors can see their impacts directly.

Bay Net-Team OCEAN Training Starts!

The evening of Wednesday March 25 was the start of a new Bay Net-Team OCEAN Training season. Bay Net (a shoreline naturalist outreach program) and Team OCEAN (a kayaker naturalist outreach program) provide interpretation to an annual average of 35,000 on-the-water and on-the-trail visitors to Monterey Bay National Marine Sanctuary. This year, as last year, all weekday lectures were given via GoToWebinar so volunteers can join from the comfort of their own homes. In 2019 this method worked incredibly well and volunteers from much further away were able to join these outreach programs and become valuable volunteers. This year's class will access lectures while under Shelter In Place orders as well as take weekly quizzes and a final exam. Once the Shelter In Place orders have been lifted, fingerprinting, field trips and practice sessions will all ensue. Team OCEAN and Bay Net volunteers contact an average of 35,000 MBNMS visitors each year in the environment

where their actions can directly impact local marine wildlife. By assisting visitors to make wildlife friendly choices, disturbances to sensitive wildlife species can be avoided.

MBNMS staff coordinates meeting on Biodegradable Plastic Mulch and Prepares for Local Trials

To address concerns related to the amount of plastic found in Monterey Bay National Marine Sanctuary, contract staff is actively involved in investigating alternatives to plastic use and supporting educational activities to recycle, replace and create full cycle plastic use with manufacturers. On Feb 4th staff co-hosted a meeting with University of California Cooperative Extension to present information on biodegradable plastic mulch that included definitions, research, cost studies and practical application information. The meeting was attended by 40 growers, agricultural professionals and interested parties. As a result of the meeting, local growers are interested in research trials in California on strawberry fields in order to evaluate performance under local growing conditions. These trials will begin in June 2020. MBNMS contract staff participates on the planning committee for this event along with researchers from UCCE and Washington State University.

EDUCATION, VOLUNTEER AND OUTREACH PROGRAMS

Looking Ahead: what the team is/will be working on in the coming weeks

MBNMS staff have been developing a Business Recognition Program for the hospitality and on-the-water recreation businesses. The STAR group's initial efforts have catalyzed MBNMS staff to develop and design a hotel business recognition program as part of ONMS headquarters effort to create a sanctuary-wide national business recognition program. MBNMS is taking the lead for ONMS on developing a hotels program. Hotels will be recognized by partnering with MBNMS, have their staff learn about MBNMS and are willing to have MBNMS materials/activities and implement sustainable actions from their hotels. This year's Get Into Your Sanctuary (GIYS) weekend, scheduled July 31 - August 2, will likely focus on social media and other virtual experiences as opposed to events at our visitor centers. Look for the GIYS 2020 photo contest to be held Memorial Day to Labor Day (May 25 - September 7).

10th Annual Whalefest Monterey Highlights MBNMS

The 10th annual Whalefest Monterey was held at the Monterey Conference Center and Old Fisherman's Wharf on Saturday, January 25 and Sunday, January 26, which brought an estimated 15,000 people to the event. Presented in partnership with Fisherman's Wharf Association, City of Monterey, Monterey Bay National Marine Sanctuary, and numerous community sponsors, including Monterey Bay National Marine Sanctuary Foundation, the two-day event celebrates gray whale migration and biodiversity in the sanctuary. Featuring over 40 marine science and education institutions hosting exhibit booths, live musical entertainment, a 43-foot life sized inflatable whale model, research vessel tours, kids activities, cooking demos, and whale watching trips, the annual event brought the latest in marine science and conservation efforts to the public. A highlight of the free event is a two-day Science Symposium, with presentations by experts in ocean research, conservation, filmmaking, and ocean security. Sanctuary superintendent Paul Michel gave an update on the latest in resource protection efforts by staff, and Chad King, MBNMS Research Specialist, gave a talk about the discovery of the octopus garden at Davidson Seamount to over 100 symposium participants. Other speakers included Julie Packard, Executive Director of Monterey Bay Aquarium, and J. Nichols, author of "Blue Mind" discussing the future of our planet and the importance of a healthy ocean. MBNMS hosted an exhibitor booth to engage with more than 1,100 public members about connecting to the sanctuary and how to get involved in sanctuary volunteer stewardship programs. As part of our mission to educate about the significance and importance of national marine sanctuaries, MBNMS participates in community events to share messages of ocean awareness, inspiration, and conservation of important sanctuary resources to the public.

SEC Visitation and Field Trips: Week of February 10, 2020

This week, the Sanctuary Exploration Center welcomed 451 guests. Sixty fourth graders and adults visited for a Wharf Oceanography field trip and 15 toddlers and their families attended our preschool reading, crafts, and songs activity. The Exploration Center offers some free programs and transportation scholarships to local Title I schools and provides an educational space for visitors young and old from around the world.

MBNMS Coastal Discovery Center in San Simeon first Tidepool Walks of 2020

This February at the Coastal Discovery Center we've kicked off our Tidepool Exploration walks of 2020 on San Simeon Beach. Visitors escaping the cold from Michigan and Indiana and taking advantage of the holiday weekend joined us for beautiful low tides revealing lots of beautiful and fascinating critters to our guests. We found lots of beautiful purple and orange pisaster, and one young visitor found a gumboot chiton to share with the group. The Coastal Discovery Center hosts Discovery Saturday programs for the public each week. This month marks the kickoff of our Winter/Spring tidepool walks which are always a big hit with visitors, and this year I haven't seen ANY sea stars with wasting disease, just lots of big healthy ochre stars. Walks will continue through March to take advantage of the winter low tides series'.

Visitor Centers and Public Programs Canceled

As a precaution to minimize the potential spread of COVID-19 virus, the Sanctuary Exploration Center in Santa Cruz and the Coastal Discovery Center in San Simeon have been temporarily closed to the public, and all public programs for the next few weeks have been canceled. All MBNMS visitor center staff will be working remotely, and will only access visitor centers to perform needed maintenance, cleaning, and feeding animals.

MBNMS Education Staff Join Monterey Bay Environmental Educators Working Group to Collaborate on Virtual Program Offerings

On March 31, 2020 MBNMS Education staff participated in a Monterey Bay Environmental Educators (MBEE) working group with the Santa Cruz County Office Of Education to discuss the potential to collaborate in offering opportunities for teachers, students, and families for the rest of the school year. All schools in Monterey and Santa Cruz counties have closed for the remainder of the school year, and many students will miss-out on pre planned environmental education opportunities. Although exact programs have not yet been decided, this group hopes to provide a succinct list of program materials and virtual offerings through the County Office of Education. Weekly meetings will continue with interested partners until a program is launched. The Sanctuary Exploration Center has had to cancel over 20 planned field trips for Spring 2020. These classes will miss out on an enriching experience in MBNMS. Collaborations such as these can help the larger education community leverage our skills and strengths to offer virtual programs or materials to these students working from home.

Sanctuary Exploration Center (SEC) Staff deliver Spring 2020 Docent Training via Webinar

The March 2020 "Shelter in Place" order put a halt on the SEC spring 2020 docent training planning, which has always been done in person. In an attempt to still complete the lecture portion of docent training during this closure period, SEC staff designed an online 5 week training using GoToWebinar, which has already been implemented for Baynet and Team OCEAN training. Two virtual informational webinars will be held April 14 at 6pm and April 18 at 9am. Actual Docent Training webinars will take place April 27-May 25 from 6pm-8pm. In-person exhibit interpretation training will still take place at the SEC once the shelter in place has been lifted. Although this was a necessary adjustment to accommodate a docent training class this year, the products and

processes developed will also benefit other SEC volunteer programs in the future. Volunteer docents are integral in the essential functions of the Exploration Center. Docents will work towards fulfilling the mission of the Exploration Center by greeting and educating thousands of individuals about MBNMS.

MBNMS Staff Welcome New Education Team Member

Starting the week of March 30, 2020, MBNMS education team welcomed Michele Roest to the position of Program Coordinator and Community Liaison in the sanctuary's southern region. Michele will oversee the Coastal Discovery Center operations, and serve to support community relations and partnerships in San Simeon and Cambria. Michele is a biologist, science educator and interpretive planner, and has worked with government agencies, nonprofits and private businesses to develop science-based outreach and education programs and products. Michele previously was a member of the MBNMS team from 2000-2008, and was instrumental in the planning, implementation, and opening of the Coastal Discovery Center in 2006.

MBNMS Sanctuary Exploration Center Completes “Experience Monterey Bay Sanctuary” Education program for 2019/2020 school year.

A new three-part education program was developed and implemented during the 2019/2020 school year with funding from the Monterey Peninsula Foundation. The program was offered to 20 classes from qualifying underserved, Title 1 schools in Santa Cruz and Monterey Counties. Each program consisted of a pre-field trip classroom visit by MBNMS staff, field trip to the Sanctuary Exploration Center and Santa Cruz Wharf, and a post field-trip classroom visit. Additionally, transportation scholarships were given to qualifying schools who would not have otherwise been able to participate in this program. Through this program, students were introduced to the Sanctuary and learned how watersheds lead to the sanctuary and affect conditions observed from the Wharf. They also learned the role plankton play in our ecosystem by producing oxygen, acting as the base of the ocean food web, and potentially producing toxins. Finally, students gained an understanding of how the ocean is impacted by human use and that they can make positive choices to protect the sanctuary. MBNMS Staff and students collecting plankton from the Santa Cruz Wharf. Students working in small groups to make food webs to share with their families and communities. One of the main goals of the Experience Monterey Bay Sanctuary Education Program is for participants to become more connected to the natural world, to understand how the ocean is impacted by human use, and for students to feel that they can make positive choices to protect national marine sanctuaries.

NEWS COVERAGE

[Raise a Fluke for Whalefest Monterey](https://www.nbcbayarea.com/news/national-international/raise-a-fluke-for-whalefest-monterey/2219570/?akmobile=y&akdevice=androidphone&sslEnabled=true)

<https://www.nbcbayarea.com/news/national-international/raise-a-fluke-for-whalefest-monterey/2219570/?akmobile=y&akdevice=androidphone&sslEnabled=true>
NBC Bay Area – January 22, 2020

[Beth Peerless, Where It's At: Film takes the viewer deep into the dance](https://www.montereyherald.com/2020/01/22/beth-peerless-where-its-at-film-takes-the-viewer-deep-into-the-dance/)

<https://www.montereyherald.com/2020/01/22/beth-peerless-where-its-at-film-takes-the-viewer-deep-into-the-dance/>
Monterey Herald – January 22, 2020

[The EcoFarm conference tackles cultural problems in the agriculture industry.](https://www.montereycountyweekly.com/opinion/local_spin/the-ecofarm-conference-tackles-cultural-problems-in-the-agriculture-industry/article_80b0caa8-3d82-11ea-ac26-8be763b03a3a.html)

https://www.montereycountyweekly.com/opinion/local_spin/the-ecofarm-conference-tackles-cultural-problems-in-the-agriculture-industry/article_80b0caa8-3d82-11ea-ac26-8be763b03a3a.html
Monterey County Weekly – January 23, 2020

[Iceland didn't hunt any whales in 2019 — and public appetite for whale meat is fading](https://www.salon.com/2020/01/25/iceland-didnt-hunt-any-whales-in-2019-and-public-appetite-for-whale-meat-is-fading_partner/)

https://www.salon.com/2020/01/25/iceland-didnt-hunt-any-whales-in-2019-and-public-appetite-for-whale-meat-is-fading_partner/
Salon.com – January 25, 2020

[Letter – Voters can make environmental impact](https://www.santacruzsentinel.com/2020/01/25/letter-voters-can-make-environmental-impact/)

<https://www.santacruzsentinel.com/2020/01/25/letter-voters-can-make-environmental-impact/>
Santa Cruz Sentinel – January 25, 2020

[Carmel shop taking battle against plastic to new level](https://www.montereyherald.com/2020/03/03/carmel-shop-taking-battle-against-plastics-to-new-level/)

<https://www.montereyherald.com/2020/03/03/carmel-shop-taking-battle-against-plastics-to-new-level/>
Monterey Herald – March 5, 2020

[Monterey suspends cruise ships over coronavirus](https://www.sfchronicle.com/bayarea/article/Monterey-suspends-cruise-ships-over-coronavirus-15119835.php)

<https://www.sfchronicle.com/bayarea/article/Monterey-suspends-cruise-ships-over-coronavirus-15119835.php>
San Francisco Chronicle – March 10, 2020

[Coast Line – Events changed amid coronavirus concerns](https://www.santacruzsentinel.com/2020/03/14/coast-line-events-changed-amid-coronavirus-concerns-2/)

<https://www.santacruzsentinel.com/2020/03/14/coast-line-events-changed-amid-coronavirus-concerns-2/>
Santa Cruz Sentinel – March 14, 2020

[Rachel Kippen, Our Ocean Backyard | Sea sparkles in the Sanctuary: Small is beautiful](https://www.santacruzsentinel.com/2020/03/21/rachel-kippen-our-ocean-backyard-sea-sparkles-in-the-sanctuary-small-is-beautiful/)

<https://www.santacruzsentinel.com/2020/03/21/rachel-kippen-our-ocean-backyard-sea-sparkles-in-the-sanctuary-small-is-beautiful/>
Santa Cruz Sentinel – March 21, 2020

Web Site (<https://montereybay.noaa.gov/>)

★★ **Check out these MBNMS Advisory Council webpage links!** ★★

Advisory Council Meeting Agendas & Minutes

<https://montereybay.noaa.gov/sac/sacma.html>

Advisory Council Actions and Results

<https://montereybay.noaa.gov/sac/sacact.html>

Advisory Council User Group Newsletters (seats and working groups/sub-committees)

<https://montereybay.noaa.gov/sac/advisory-nwsltr.html>

*Please take a few moments to peruse the site. Your feedback is greatly appreciated.
Comments and suggestions can be sent to andrew.white@noaa.gov.*

Follow MBNMS on [Facebook](https://www.facebook.com/MBNMS) (<https://www.facebook.com/MBNMS>) and **[Twitter](https://twitter.com/mbnms)** (<https://twitter.com/mbnms>)

FUN, OCEAN RELATED WEB SITES

NOS Ocean Facts: Ocean Life

<https://oceanservice.noaa.gov/factspage.php?siteName=oceanfacts&cat=Ocean%20Life>

Caitlin Seaview Survey

<http://www.catlinseaviewsurvey.com>

SIMON

<https://www.sanctuariesimon.org>

Seasons in the Sea

<http://www.seasonsintthesea.com>

Thank You Ocean

<http://www.thankyouocean.org/>

Oceans Live

<http://oceanslive.gso.uri.edu/>

NOAA Ocean Explorer

<http://oceanexplorer.noaa.gov/>

Encyclopedia of the Sanctuaries

<http://www.ocean.com/Library/Encyclopedia/>

MBNMS STAFF

Paul Michel – Superintendent
Dawn Hayes – Deputy Superintendent

Research

Andrew DeVogelaere – Research Coordinator
Jennifer Brown – SIMoN Ecosystem Scientist
Erica Burton – Research Specialist
Chad King – SIMoN Data Analyst
Steve Lonhart – SIMoN Senior Scientist

Education

Amity Wood – Education and Outreach Coordinator
Acy Wood – Program Assistant (SEC)
Nick Ingram – Exhibits/Facility Specialist (SEC)
Bri Madrigal – Volunteer Coordinator (SEC)
Emily Pierce – Program Assistant (SEC)
Chelsea Prindle – SEC Manager
Michele Roest – Southern Region Program Coordinator
Lisa Uttal – Education Specialist

Resource Protection

Karen Grimmer – Resource Protection Coordinator
Sophie De Beukelaer – GIS Analyst & Research Permit Coordinator
Lisa Emanuelson – Citizen Watershed Monitoring Network Coordinator
Bridget Hoover – Water Quality Protection Program Director
Scott Kathey – Regulatory/Emergency Response Coordinator (on detail to GRNMS)
Pamela Krone – Agriculture Water Quality Coordinator

Program Operations

Raymond Chisolm – Program Specialist
Nichole Rodriguez – Advisory Council Coordinator
Andrew White – Network Manager and Webmaster



Learn More About Your Sanctuary

The Sanctuary Office Report is produced bi-monthly by Monterey Bay National Marine Sanctuary staff in conjunction with Sanctuary Advisory Council meetings. To learn more about the Sanctuary please visit our web site at: <https://www.montereybay.noaa.gov>.

To learn more about the Sanctuary Advisory Council please visit:
<https://montereybay.noaa.gov/sac/advisory.html>

The Office of National Marine Sanctuaries

Monterey Bay National Marine Sanctuary is one of 14 marine protected areas in the National Marine Sanctuary System encompassing more than 150,000 square miles of marine and Great Lakes waters from Washington State to the Florida Keys, and from Lake Huron to American Samoa. The system includes 13 national marine sanctuaries and the Papahānaumokuākea Marine National Monument. Visit the ONMS web site at:
<https://www.sanctuaries.nos.noaa.gov/>

Get involved and stay informed!

To learn how to get involved in the Sanctuary visit:
<https://montereybay.noaa.gov/getinvolved/welcome.html>

Sign up for the MBNMS listserv to receive email notices about upcoming Sanctuary events, and public meetings of the Sanctuary Advisory Council and Working Groups:
<https://montereybay.noaa.gov/intro/elists.html>

- Contact Information -

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