



Monterey Bay National Marine Sanctuary

Sanctuary Office Report



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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

Elusive El Niño arrives

The long-anticipated El Niño has finally arrived, according to forecasters with NOAA's Climate Prediction Center. In their updated monthly outlook released today, forecasters issued an El Niño Advisory to declare the arrival of the ocean-atmospheric phenomenon marked by warmer-than-average sea surface temperatures in the central Pacific Ocean near the equator. Due to the weak strength of the El Niño, widespread or significant global weather pattern impacts are not anticipated. However, certain impacts often associated with El Niño may appear this spring in parts of the Northern Hemisphere, such as wetter-than-normal conditions along the U.S. Gulf Coast.

Warm ocean temperatures may mean major coral bleaching

NOAA scientists are warning that warm ocean temperatures in the tropical Pacific and Indian Oceans could set the stage for major coral bleaching events across the globe in 2015. Their warnings follow severe

bleaching in 2014, and come with the release of the most recent outlook from [NOAA's Coral Reef Watch](#), a weekly product that forecasts the potential for coral bleaching up to four months in the future. "The new outlook gives us greater confidence in what it shows for future coral bleaching and it comes at an important time," said Mark Eakin, NOAA Coral Reef Watch coordinator. "The outlook shows a pattern over the next four months that is similar to what we saw during global coral bleaching events in 1998 and 2010. We're really concerned that 2015 may bring the third global coral bleaching event."

Land cover changes across the United States chronicled in new NOAA products

NOAA has issued a comprehensive series of reports detailing the changes in land cover across the United States from 1996 to 2010. The Coastal Change Analysis Program (C-CAP) reports focus on the Great Lakes, Gulf Coast, Northeast, Southeast and West Coast. The five regional studies are a new group of NOAA nationwide reports showing that between 1996 and 2010, 64,967 square miles in coastal regions — an area the size of Florida — experienced changes in land cover, including a decline in wetlands and forest cover, with development a major contributing factor. Over the past five years, NOAA scientists analyzed land cover data, which records the physical land type, rather than how land is used.

NOAA expands Cordell Bank and Gulf of the Farallones national marine sanctuaries off northern California

Cordell Bank and Gulf of the Farallones national marine sanctuaries off northern California will both more than double in size following a final rule released today by NOAA. The expansion will help to protect the region's marine and coastal habitats, biological resources and special ecological features. [Cordell Bank National Marine Sanctuary](#), located 42 miles north of San Francisco, will expand from 529 square miles to 1,286 square miles. [Gulf of the Farallones National Marine Sanctuary](#) will expand from 1,282 square miles to 3,295 square miles of ocean and coastal waters.

NATIONAL MARINE SANCTUARY NEWS

Sanctuaries Highlighted Internationally for Climate Efforts

At the request of U.S. State Department negotiators to the UN Framework Convention on Climate Change, NOAA's Office of National Marine Sanctuaries submitted a case study showcasing the "climate-smart" conservation efforts at Gulf of the Farallones National Marine Sanctuary. The U.S. delegation is interested in highlighting U.S. programs that enhance climate change resilience and in sharing the lessons learned and best practices with other countries who are confronting similar challenges. The Gulf of the Farallones sanctuary staff and advisory council have undertaken an extensive multi-year effort involving local and regional partners to address climate change impacts in the north-central California coast and ocean region. Recognizes ONMS and GFNMS leadership in implementing climate-smart conservation in the management of marine ecosystems, and provides a platform to showcase our effort at the epicenter of international climate change negotiations.

Exploring One of The Largest Elephant Seal Rookeries In The World

Gulf of the Farallones National Marine Sanctuary education staff partnered with State Parks to guide a walk through the Natural Preserve at Año Nuevo State Park to observe one of the largest mainland breeding colonies of northern elephant seals in the world! Every year up to 10,000 elephant seals visit to breed, give birth, and molt in this park. Sanctuary Exploration participants watched males battle for prime beach real estate and the right to mate, while females were birthing and suckling their newborn pups. Participants learned about the fascinating natural history, behavior and ecology of northern elephant seals while observing them first hand during this hike. The Sanctuary Exploration Series provides monthly opportunities for the public to connect with, and experience, our national marine sanctuaries. Building a strong public sanctuary constituency as well as inspiring ocean literacy, conservation ethics and wildlife etiquette through experiential learning are the goals for the series.

PMNM meets with Ōiwi TV on Marine Debris Footage for World Wide Voyage

On February 9, PMNM Education Coordinator Andy Collins met with the president of Ōiwi TV to review marine debris footage from the Monument that could be used in concert with *Hōkūlea's* voyage to Australia next month as part of the Polynesian Voyaging Society's (PVS) World Wide Voyage (WWV). The PVS media team is developing partnerships with local conservation organizations along the WWV route and highlighting global issues like marine debris. The footage, which was collected by NOAA's Marine Debris team during last year's expedition to the Monument, will help show how remote areas and coral reefs are impacted by debris. The plan is to work with local media outlets in Australia to compare similar impacts there and to deliver messages on what can be done about the global marine debris problem. Working with partners to promote the World Wide Voyage and raise awareness of the global issues of marine debris.

Flower Garden Banks Traveling Exhibit Installed at First Venue

Over the past two years, NOAA's Flower Garden Banks National Marine Sanctuary has been developing a traveling exhibit designed to broaden sanctuary awareness at a variety of informal science venues such as museums and aquariums. This exhibit was completed in September 2014 and showcased at the annual AZA Conference in Orlando, FL, where it received high praise and lots of interest. Last week, the exhibit was installed at its first venue, Moody Gardens in Galveston, TX, where it can be viewed by guests in the Aquarium Pyramid. Strategically located in the lower atrium between the tropical South Pacific and Caribbean exhibits, the three display units provide a look at local coral reefs, their wildlife, and the human actions that affect them. Alongside the mobile units are two small aquariums displaying local Galveston wildlife found in oyster reefs and sargassum mats. Training was also provided to Moody Gardens staff and volunteers so that they can answer guest questions about the sanctuary. A traveling exhibit enhances the sanctuary's ability to reach audiences at a variety of venues, creating new opportunities and flexibility in its efforts to generate widespread interest in the Flower Garden Banks.



MONTEREY BAY NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES



MANAGEMENT

Outreach & Awareness of MBNMS to Sporting Events

MBNMS staff have been coordinating with both the Big Sur International Marathon and the ‘Together with Love Run’ to promote awareness of the National Marine Sanctuary, as runners spend the majority of their time on the course right next to MBNMS!. This Sunday, February 8th, signage will be placed at key locations along the course in Pacific Grove to highlight connectivity with the Sanctuary.

A Gathering of Key SAC Members as Part of Recreation & Tourism Subcommittee

Recently, key SAC members on the Recreation & Tourism Working Group met to discuss:

a list of upcoming events or issues our team could cross-promote with a focus on our shared goals of improving sanctuary awareness; additional ways to cross-promote the myriad of recreation & tourism adventures available; and to brainstorm ideas for adding value to local businesses seeking broader marketing strategies by highlighting their unique proximity to a national marine sanctuary. It was an energy-infused meeting, which garnered much enthusiasm for various cross-promotion opportunities in the coming months.

Sanctuary Advisory Council Meets at the Watsonville Civic Plaza

On February 20th, the MBNMS Advisory Council met at the Civic Plaza in Watsonville, CA. Agenda topics included: updates on management plan review process schedule, conservation working group work plan proposal, the revised MBNMS/GFNMS introduced species rule, and updates on acoustics, progress on the Slant Test Well at CEMEX, and unmanned aircraft systems in MBNMS. Edwin Smith, City of Monterey councilmember, was sworn in as the new AMBAG representative to the Advisory Council. A class from Mount Madonna School attended the meeting and provided comments on boating laws and Orca protection. Actions taken included: approving the December 12, 2014 meeting minutes and renaming the Recreation & Tourism Working Group to the Recreation & Tourism Subcommittee and extending its work for another year. The next Advisory Council meeting will be on April 17, 2015 in Santa Cruz. The Sanctuary Advisory Council meets five to six times per year and provides a public forum for consultation on issues and events occurring in MBNMS.

Sanctuary Connects with Monterey County’s CVB on Travel Writer Opportunities

Monterey Bay National Marine Sanctuary staff met one-on-one with the new Communications Director of the Monterey County Convention & Visitor Bureau (MCCVB) to re-initiate discussions on how to better connect with both national and international efforts to promote the national marine sanctuary as part of the existing vehicle highlighting travel along the central coast of California. In addition, and as a result of this interaction, MBNMS staff are interested in presenting an overview to MCCVB staff - which has had recent turnover- at an upcoming MCCVB internal staff meeting.

Monterey County Hospitality Association Government Affairs Committee

Monterey Bay National Marine Sanctuary staff attended the monthly session of the MCHA’s Government Affairs Committee. Attendance at these meetings is important for two reasons. Firstly, to ensure the hospitality industry is familiar with the national marine sanctuary and to where possible encourage cross marketing of this special underwater treasure, and secondly to articulately convey the MBNMS role in desalination, as water issues are a regular focus of discussion for this group.

RESEARCH AND MONITORING

MBNMS staff reviews Nancy Foster Scholar applications

Monterey Bay National Marine Sanctuary staff reviewed 25 of the 135 applicants to the Dr. Nancy Foster Scholarship program. Students ranged from those just finishing their undergraduate degree to PhD students nearing completion of their dissertation research. Most of the projects had scientific merit and were of interest to the sanctuary program, but only a few really “made the connection” between their research and the sanctuary system. Reviewing NFS applicants is key to selecting graduate students that can further the mission of ONMS and embody the ideals championed by Dr. Foster. Since 1% of the overall ONMS budget goes to this program, it is important to invest in the process to select the best students.

ONMS research highlighted at NISC Policy Liaison meeting

On February 5th, Dr. Steve Lonhart was a speaker (via webinar) at the monthly meeting for Policy Liaisons of the National Invasive Species Council (NISC), which “was established by [Executive Order \(EO\) 13112](#) to ensure that Federal programs and activities to prevent and control invasive species are coordinated, effective and efficient. NISC members are the Secretaries and Administrators of 13 federal departments and agencies to provide high-level coordination on invasive species and is co-chaired by the Secretaries of [Commerce](#), [Agriculture](#), and the [Interior](#).” NOAA was serving as host, and provided an overview of invasive species research in ONMS and NERR sites. Research Coordinators from most ONMS sites graciously provided material to Lonhart, which he compiled in a powerpoint and has subsequently passed along to Dr. Steve Gittings for use at HQ. NOAA is struggling to raise the profile of invasive species issues within the agency. This was an opportunity to share our exciting science with policy representatives from several other Departments.

ARMS retrieved from kelp forest in Monterey Bay

On January 29th and 30th, SIMoN staff (Chad King and Dr. Steve Lonhart) retrieved nine Autonomous Reef Monitoring Structures (ARMS). These stacks of settling plates are used extensively in coral reef ecosystems, and only recently expanded into colder waters. ARMS provide "a systematic, consistent and comparable method to monitor cryptic reef diversity over space and time, and information from the ARMS will provide managers with a tool to assess this diversity along with the effects of climate change and ocean acidification." Dr. Jon Geller (Moss Landing Marine Labs) and his graduate students photographed each plate, scraped them clean, homogenized the material, and then will extract samples for genomic analyses. To our knowledge, ARMS have not been used in warm temperate kelp forest ecosystems to date. The results of this effort will increase our knowledge of cryptic infaunal diversity and allow us to assess whether ARMS are suitable tools in colder water environments.

Sea Star Wasting Disease survey protocols tested in local kelp forest

On January 21st, Dr. Steve Lonhart collaborated with science divers from UC Santa Cruz and Moss Landing Marine Labs to test methods related to sea star wasting disease (SSWD). Researchers in central California, and especially MBNMS, are investigating the ecological consequences of SSWD on both the decimated sea star populations and their prey populations. Partners with MBNMS are developing a monitoring program to track recruitment and growth of sea star populations in Monterey Bay, as well as targeted surveys for key species of invertebrates. The ecological fallout from the widespread decimation of sea star populations remains a mystery. Efforts to characterize populations of predators and prey are key to understanding trophic dynamics in kelp forests and this project is a key first step.

Latest samples of kelp collected for Kelp Watch Program

On February 4th Sanctuary Integrated Monitoring Network (SIMoN) staff received kelp samples from two University of California Natural Reserves (Rancho Marino in Cambria and Big Creek in Big Sur) within MBNMS. Don Canestro collected samples from Cambria and assisted with small boat operations to collect samples at Big Creek with Dr. Steve Lonhart. These kelp samples will be tested for radioactive isotopes of Cesium, which is one of several radionuclides released from the tsunami-damaged nuclear reactor in Fukushima, Japan. Dried kelp will be shipped to lead investigator Dr. Steven Manley at CSU Long Beach for processing, then tested at UC Berkeley. Kelp Watch is a collaborative scientific campaign designed to determine the extent of possible radionuclide contamination of our kelp forest ecosystem from seawater arriving from Fukushima in 2015.

Replacement camera successfully tested during dive operations

On February 20th, Unit Diving Supervisor Dr. Steve Lonhart and NOAA divers LT Bryan Begun (WCR office), Lilli Ferguson (CBNMS), and Carliane Johnson (contractor) successfully completed several dives along the Monterey Breakwater. Conditions were excellent, with no swell or surge, 25-30 ft visibility, and water temperatures of 59 F at depth. During the first dive, a large nudibranch (*Dendronotus iris*) was disturbed, and as part of its general escape response, ‘swam’ up from the bottom about 8 ft, then drifted down to a new location. Lonhart was testing a replacement camera body (the original 300D failed and Canon could not repair it) in the UW housing system used to capture macro photos. Below are some of the photos of the nudibranch. NOAA divers are required to make a minimum of three dives per quarter to maintain dive proficiency. By tagging along while testing a replacement camera system, three divers were able to log valuable time underwater.

SIMoN staff provide guest lecture to graduate students

On January 22nd, Dr. Steve Lonhart was an invited lecturer for the Subtidal Ecology class at Moss Landing Marine Laboratories. Over the course of two hours, Lonhart provided an overview of invertebrates commonly encountered in local kelp forests. The 11 graduate students will be diving on a weekly basis throughout the semester, conducting both class and individual science projects in Stillwater Cove, Pebble Beach. Students were also familiarized with the SIMoN web site and several of the tools that would support their research efforts. Outreach by sanctuary scientists, particularly to graduate students, furthers the campaign of outreach and exposes new scientists to exciting opportunities to work with staff and address issues of interest to the sanctuary.

Last Great Airship Crashes Off Point Sur, California 80 Years Ago (1935-2015)

February 12th marks the 80th anniversary of the loss of the U.S. Navy airship USS *Macon*, a 785-foot dirigible that was built and operated by the navy for scouting. It served as a flying aircraft carrier, launching Sparrowhawk biplanes. *Macon* was damaged in a storm on February 12, 1935, and sunk in the Pacific Ocean off Point Sur, California. All but two of the *Macon*'s 83 crewmen were rescued by nearby navy ships. The wreckage lies in the waters of Monterey Bay National Marine Sanctuary. The wreckage of the *Macon* and four aircraft lie at a depth of more than 1,500 feet and were first documented in 1990 by Monterey Bay Aquarium Research Institute (MBARI). Monterey Bay National Marine Sanctuary conducted a sonar survey in 2005 followed by the first archaeological expedition in 2006 that documented debris associated with the wreckage. In 2010, the wreck site and remains on the seafloor were added to the National Register of Historic Places; the nation's official list of locations considered worthy of preservation due to their cultural significance. See new online feature of *Macon* at: <http://sanctuaries.noaa.gov/macon/>. The wreckage of the USS *Macon* provides an opportunity to study the relatively undisturbed archaeological remnants of a unique period of U.S. aviation history.

Interest in Sur Ridge continues to grow as featured in Santa Cruz Sentinel

In 2013, a team of scientists from Monterey Bay National Marine Sanctuary (MBNMS) and Monterey Bay Aquarium Research Institute (MBARI) conducted the first exploration of Sur Ridge. Deep-sea corals and sponges were abundant, and stumbling upon a chemosynthetic community of clams was an exciting surprise. Scientists returned to Sur Ridge in 2014 to characterize the ecosystem, and begin coral restoration projects. Daily logs were written for the web during the first research cruise, and other information was posted to Twitter and Facebook sites. Several media outlets (Popular Science, National Geographic, and Discovery Canada) picked up the story. Interest in Sur Ridge continues to grow, as exemplified in recent Santa Cruz Sentinel news story, “Unlocking the mysteries of Sur Ridge”

(http://www.santacruzsentinel.com/environment-and-nature/20150224/dan-haifley-our-ocean-backyard-unlocking-mysteries-of-sur-ridge#.VPI_qe77MQQ.gmail). See MBNMS cruise blog for project information and daily logs

(<http://sanctuarymonitoring.org/news/2013/12/lost-shipping-container-and-benthic-ecology-cruise-log-dec-11-16-2013/>). Sur Ridge is considered a sanctuary ecologically significant area (SESA), supported by expansive fields of deep-sea corals and sponges. Research will continue to characterize the area.

Sanctuary co-sponsors annual MARINE workshop

On March 6 and 7, Drs. Andrew DeVogelaere and Steve Lonhart supported the annual meeting of the Multi-Agency Rocky Intertidal Network (MARINE) at Moss Landing Marine Laboratories. This two day meeting included staff from the primary funding agency (Bureau of Ocean Energy Management [BOEM]) but also the numerous partners (e.g., NMS, NPS, CSU, UC) and their principal investigators and staff. The meeting covered updates on Sea Star Wasting Syndrome, possible wasting of purple urchins, and modifying protocols to capture changes related to ocean acidification, climate change, and low oxygen events. MARINE is a partnership of agencies, universities and private groups committed to determining the health of the rocky intertidal habitat and providing this information to the public and resource trust agencies. This long-term, large scale program provides a critical capacity to detect both infrequent events, and chronic, low-level changes to ecosystem attributes in the rocky intertidal from Washington to Mexico.

MBNMS supports CO-OPS diving operations

On March 4, Monterey Bay National Marine Sanctuary's Unit Diving Supervisor Dr. Steve Lonhart supported field operations undertaken by divers from NOS' Center for Operational Oceanographic Products and Services (CO-OPS). CO-OPS working divers Eric White, Dave Sinson, and Aliya Jamil serviced the tide gauges on Wharf #2 in Monterey Bay, and Lonhart served as the topside DPIC and tender for safety diver Sinson, while White and Jamil serviced the instruments. In addition to removing heavy biofouling, the team ensured the primary and backup units were operational and transmitting real-time data on tidal height. This work was facilitated through the use of a small boat (17 ft Boston Whaler) from the University of California at Santa Cruz. Diving operations went smoothly and the team was back on shore after 2 hours. MBNMS was able to support CO-OPS divers by providing a small boat platform and a tender for a tethered safety diver. In today's world of limited divers, limited vessels, and an overall limit in resources, collaboration and sharing of resources among different entities within NOS not only demonstrates the ability to cooperate and coordinate between programs, but also a willingness to get the job done in spite of actual limitations.

Staff meet with docents from Point Lobos State Park regarding sea otter counts

On March 2, Sanctuary Integrated Monitoring Network (SIMoN) Senior Scientist Dr. Steve Lonhart met with docents from the Point Lobos State Park. For almost 30 years docents from the park have surveyed sea otters in the reserve on a monthly basis. SIMoN staff helped build a web-based interface to enter observational data, which has been used by docents since 2006. Docents made suggestions on how to improve data entry and will work with SIMoN staff to upgrade the existing system, consult with sea otter experts at USGS, and develop new tools to display the otter sighting data. MBNMS assisted docents over 10 years ago by creating a database for their sea otter sighting data. Now staff are working with docents to improve the system, thereby making more data available to the public via the SIMoN web site.

2015 Hollings Undergraduate Scholarship applications reviewed

Dr. Steve Lonhart reviewed 13 applications on March 2, 2015. Undergraduates applied to the Ernest F. Hollings Undergraduate Scholarship, which is in turn reviewed by NOAA staff. The purposes of the program include: (1) increase undergraduate training in oceanic and atmospheric science, research, technology, and education and foster multidisciplinary training opportunities; (2) increase public understanding and support for stewardship of the ocean and atmosphere and improve environmental literacy; (3) recruit and prepare students for public service careers with the National Oceanic and Atmospheric Administration and other natural resource and science agencies at the federal, state and local levels of government; and (4) recruit and prepare students for careers as teachers and educators in oceanic and atmospheric science and to improve scientific and environmental education in the United States. The program provides selected undergraduate applicants with awards that include academic assistance; housing assistance; a 10-week, full-time internship position during the summer at a NOAA or partner facility. The internship occurs between their junior and senior year and provides "hands-on" multidisciplinary educational training experience involving the scholars in NOAA-related scientific, research, technological, policy, management, and education activities. MBNMS participation contributed to the merit review of eligible applications and the selection of undergraduate scholars. Our experience in the area of Biological Sciences as well as our understanding of the goals proposed by NOAA for its collaborative efforts to increase environmental literacy proved valuable in evaluating and making recommendations to NOAA on the applications most worthy of receiving scholarships.

The Marine Biodiversity Observation Network (MBON) for Monterey Bay and Florida Keys National Marine Sanctuaries hosts first all-hands meeting

The Marine Biodiversity Observation Network (MBON) demonstration project in the Monterey Bay and Florida Keys National Marine Sanctuaries had its first all-hands meeting in Miami from March 2nd-4th. The goal of this 5-year MBON project is to monitor marine biodiversity within the diverse habitats of the two national marine sanctuaries and provide an integrated picture of the current status and recent changes in biodiversity to inform natural resource managers and policymakers. Over the 3-day meeting, the group reviewed the available monitoring data in both Monterey Bay and Florida Keys, discussed innovative uses of new in situ observations, coordinated methods for environmental DNA collection and analysis, explored data management technology to integrate biodiversity data and make real-time data products available to scientist and resource managers, and evaluated potential education and outreach products. National marine sanctuaries are an ideal setting to develop and evaluate a biodiversity network because these areas 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 the ocean for business and recreation. The MBON demonstration projects will link federal and non-federal partners to help us better understand these important marine ecosystems and serve to inform resource managers on the current status of biodiversity and potential threats to biodiversity in sanctuaries.

Unit Diving Supervisor attends triennial UDS Conference

Dr. Steve Lonhart attended the NOAA Diving Program's Unit Diving Supervisor (UDS) Conference March 8-14 in Seattle, WA. He presented an overview of the dive unit, which includes Tom Laidig (SWFSC, FED) and 8 divers from four different sites within the West Coast Region's Office of National Marine Sanctuaries (ONMS). In addition to updates on regulations, responsibilities, and support from both the NOAA Dive Program (NDP) and NOAA Dive Center, many UDS' became certified instructors to teach the Dive Alert Network (DAN) Diving First Aid for Professional Divers course. This would normally cost \$500 per student but was free for conference attendees. An additional certification was offered for Visual Inspection Procedures (VIP) for SCUBA and other compressed gas cylinders. The NDP saved \$14,000 in instructional costs by offering these certifications during the UDS conference and increased within-unit capacity as well as savings on future trainings. Tom Laidig, the former UDS for this unit, was also recognized with a certificate for 19 years of service to the NDP as a UDS. The UDS conference is vitally important to shaping the future of the NOAA Diving Program, and offers UDSs from across line offices an opportunity to meet, review policy, hear directly from the NDP and NDC, as well as take advantage of educational and certification opportunities that significantly reduce NOAA overall expenses, particularly at the site level.

MBNMS Research Activity Panel Meets at Elkhorn Slough National Estuarine Research Reserve

The MBNMS Research Activity Panel (RAP) will meet at Elkhorn Slough National Estuarine Research Reserve in Watsonville, CA on March 13th. Agenda items include: Estuarine Conservation Research at the Elkhorn Slough Reserve, CeNCOOS Update, SAC update, Condition Report and Management Plan updates, NOAA Ship *Bell M. Shimada* research cruise, and setting the RAP agenda. The MBNMS Research Activity Panel (RAP) is a working group of the MBNMS Advisory Council. The RAP meets six times per year, and advises SAC and sanctuary staff on basic and conservation science issues. (<http://montereybay.noaa.gov/sac/rap/rapma.html>)

RESOURCE PROTECTION

AMBAG Board Receives Update on WQPP MOA

On March 11th, the WQPP Director, gave a presentation to the Assoc. of Monterey Bay Area Governments (AMBAG) Board regarding the WQPP MOA, which expires May 1, 2015. It was an opportunity to re-engage with local government officials and update them on WQPP activities. This is the 3rd update to the MOA since it was created in 1992 when the sanctuary was formed. All original signatories have remained engaged and interested in participating in this collaborative effort. The MOA provides a framework of how federal, state and local governments can work together on issues related to water quality across jurisdictions. It outlines agency authorities and an important process for handling enforcement and permitting issues.

Expert Advisory Panel Discussion of Instructional Gap Analysis

The Agricultural Water Quality Coordinator facilitated a discussion amongst the Western SARE grant Expert Advisory Panel concerning the results of the Gap Analysis. The purpose of the Gap Analysis was to identify tools and instructional materials available to conservation professionals in assisting growers with irrigation and nutrient management (INM) decisions. The Gap Analysis revealed several key findings: A) the number of unbiased professionals available to assist with INM is small, B) there is a small market for these services despite their importance, C) training Resource Conservation District staff lacking competency in INM is prohibitively expensive, and D) the resources gathered and presented on the AWQA website (<http://www.awqa.org/toolkits>) seem very comprehensive. Through better access to instructional materials Conservation Professionals can help growers understand the importance of good irrigation and nutrient management practices as well as to help them develop increasing skill. Through increased adoption of irrigation management, water saving practices and correct nutrient application, farms will contribute less agricultural pollution to the Monterey Bay National Marine Sanctuary.

Agricultural Water Quality Alliance Meeting on the Future of Agriculture

The Agricultural Water Quality Coordinator facilitated a meeting amongst government agencies, growers, conservation professionals, researchers, and educators regarding the challenges and imperatives facing agriculture on California's Central Coast in the next 10-20 years. Two respected agricultural leaders, one from Reiter berries and the other from the Grower Shipper Association presented information on likely evolution in agriculture in terms of business, technological, organizational, and regulatory response. Following the presentations, the group engaged in a roundtable discussion of agricultural sustainability and the support AWQA can provide. The MBNMS Superintendent and Water Quality Protection Program Director also participated in the meeting and roundtable discussion. Agriculture is important to the Central Coast for economic, social and environmental reasons. Through engaging in dialogue amongst diverse stakeholders, all of us became increasingly aware of the opportunities and challenges of creating sustainable agriculture. Creating sustainable and healthy agricultural systems that better manage their soil, water and human resources will promote regional economic viability and increase focus on the ecosystem services provided by agriculture to the marine and land environments.

Sanctuary partners author legislation that will protect MBNMS

On February 12th, Assemblymember Luis Alejo (D-Salinas) introduced Assembly Bill 300, The Safe Water and Wildlife Protection Act of 2015, which will create a multi-agency task force to find solutions to prevent or mitigate toxic algal blooms in rivers, lakes and estuaries across CA. AB 300 is sponsored by the City of Watsonville and coauthored by Senate Majority Leader Bill Monning (D-Carmel) and Assemblymember Mark Stone (D-Monterey Bay). Deaths due to cyanobacterial intoxication were first discovered in Monterey Bay in 2007 when 11 southern sea otters were poisoned by microcystin, the toxic form of *Microcystis aeruginosa*. As of 2010, at least 21 sea otters have died, most found near embayments, harbors or river mouths. Microcystin was detected flowing from 15 of 21 freshwater systems into MBNMS and is thought to be present throughout the year. WQPP Committee member Robert Ketley, City of Watsonville, was instrumental in raising awareness of this serious issue and finding a means to bring research and resources to address it. MBNMS is vulnerable to land based sources of contaminants and partnerships, such as with the City of Watsonville, are critical to protecting the resources of MBNMS.

MBNMS Essential Fish Habitat Stakeholder group met to discuss Collaborative EFH proposal

On March 2, 2015, the Groundfish EFH collaborative group met to discuss the status of the MBNMS Collaborative Proposal that was submitted to the Pacific Fishery Management Council back in July 2013. The Council will be taking up the Groundfish EFH scoping process at the April meeting, and the group is planning to submit a letter to the Council. The letter will request that the Council include this proposal in the scope and consider it under the range of alternatives as well as express continued support from all parties. In addition, the group invited input from fixed gear fishermen to discuss any concerns or questions about the proposal. The meeting was productive and demonstrates the need for continued in person discussions on this topic. MBNMS and local stakeholders (fishermen/NGOs) have been engaging with NMFS and the PFMC over the past 18 months on proposed modifications to Essential Fish Habitat Conservation Areas. Through this process, the collaborative coalition hopes to both protect valuable hard and soft substrate on the shelf, upper slope and

select canyons with associated biogenic habitat (corals and sponges) where groundfish FMP species have been verified, and re-open select areas allowing fishermen access to valuable and historic bottom trawl fishing grounds.

MBNMS Issues Extension for the California American Water test slant well project

On March 2, 2015, MBNMS granted an extension to Cal Am until March 16 to complete construction activities for the test slant well at the CEMEX site in Marina. Prior, RP staff conducted site visits to evaluate the status of avoidance measures outlined in the mitigation plan to avoid sensitive habitat for Western snowy plover, Monterey spineflower and Smith's blue butterfly. For the next two weeks, daily biological monitoring will continue by Zander Associates and Point Blue focused in the area of the well head construction, with the understanding that observation of listed species will stop activities. MBNMS concurs with USFWS professional opinion that allowance to complete construction during this period will not adversely affect the listed species. As federal lead agency under NEPA, MBNMS has the authority and responsibility to ensure the project does not harm or have negative environmental impacts to sanctuary resources.

Joint Agency Meeting in San Francisco with Deep Water Desal Project Proponents

On March 4th, MBNMS Superintendent and Resource Protection staff participated in a meeting with the CA Coastal Commission and CA State Lands Commission to better understand the proposed Deep Water Desalination project proposed in Moss Landing, CA. The project proposes a 48 MGD intake of seawater from just offshore of Moss Landing at approximately 125ft depth. The agencies intent was to communicate potential concerns regarding the project while requesting additional information in order to begin the CEQA/NEPA process. MBNMS has a regulatory obligation and regional interest in ensuring the multiple desalination projects proposed within Monterey Bay comply with our mandate of resource protection.

Sub-surface Test Slant Well Construction Completed

On March 16th, California American Water Company (CalAm) completed construction of a test slant well in Marina, CA. MBNMS was the federal NEPA lead for this project as it has important implication in future desalination facilities proposed for this region. The test well extends approximately 750 ft underground and will determine if sub-surface water intakes are able to provide source water for a proposed desalination facility that will provide potable water to the Monterey Peninsula. In working closely with CalAm and USFWS, the project took two weeks longer than anticipated, but was successful in minimizing impacts to threatened and endangered species in the area. They will begin pumping water later this week. This is the first sub-surface slant well of its kind on the central coast of CA. The results of the water quantity and water quality measurements will inform both resource managers and potential desalination project proponents whether sub-surface intakes are viable in this area. Sub-surface intakes are preferred because they prevent entrainment and impingement of marine organisms.

Stakeholder meeting on the Santa Cruz Littoral Cell Coastal Regional Sediment Management Plan

MBNMS, in partnership with the U.S. Army Corps of Engineers (USACE), coordinated and facilitated a public meeting for the Santa Cruz Littoral Cell Coastal Regional Sediment Management Plan on 3/19/2015 at the US Geological Survey's Pacific Coastal & Marine Science Center in Santa Cruz. At this meeting MBNMS and USACE provided an overview of the goals, objectives, and major contents of the CRSMP, and solicited initial input on the plan -- which will be released for public comment within the next week or two. This meeting was attended by 37 participants, including: staff from a variety of Federal, state and local agencies and municipalities; researchers; NGO representatives; elected officials, and; members of the general public. As a background, the CRSMP is a consensus-driven guidance and policy document for the 75-mile stretch of the coast between Moss Landing and Pillar Point. The plan seeks to present ways to: restore and maintain coastal beaches and other critical areas of sediment deficit; reduce the proliferation of protective shoreline structures; sustain recreation and tourism; enhance public safety and access; and restore coastal sandy habitats. The CRSMP compiles the best available data on sources of sediment inputs into the cell (e.g. rivers, bluff erosion), sediment sinks (e.g. harbors, submarine canyons), shoreline erosion rates along the cell, threatened infrastructure and erosion hotspots, etc. It also recommends future regional- and site-specific strategies for best managing and responding to these issues to protect coastal resources and infrastructure, and will provide sufficient information for local and regional coastal decision makers to develop policies, pursue sediment management measures, and provide a scientific background to support local coastal planning decisions. Implementation of the CRSMP could result in a wide range of potential benefits to agencies, local jurisdictions, and other stakeholders. It provides a technical reference containing the best-available and most-recent scientific information regarding

local geology, geomorphology, physical and biological processes, coastal erosion threats, and coastal sediment issues. It also provides a framework that will allow local stakeholders to further evaluate, prioritize, and pursue specific projects on a cooperative basis. Finally, it is expected to improve agency and institutional collaboration, resulting in increased efficiency and effectiveness in addressing coastal erosion and sedimentation issues and provide new opportunities for information sharing and leveraging financial and manpower resources in data collection and analysis, tool development, and project implementation.

Presentation to Pacific Grove Planning Commission on Federal and State regulations

MBNMS Resource Protection Coordinator provided a presentation to the Pacific Grove Planning Commission on Federal and State regulations in coastal marine waters to assist planning for their Local Coastal Plan update. The presentation outlined the background and regulations for Monterey Bay National Marine Sanctuary, US Fish & Wildlife, BLM CA Coastal Monument, and State managed areas such as Asilomar Marine Reserve, Pacific Grove Marine Gardens State Marine Conservation Area, and the Lover's Point State Marine Reserve, including the ASBS and how they relate to the protection of water quality and ecosystem resources. Data resources for climate change were discussed such as the coastal hazard maps, sea level rise data and coastal erosion publications. It's important for the Sanctuary to engage in local coastal planning processes in order to educate local decision makers on coastal resources and regulatory frameworks as well as encourage use of climate adaptation data to inform future planning scenarios for coastal hazards that may include for example sea level rise, coastal erosion and coastal storm impacts.

Agency meeting and site visit to Surfer's Beach, Pillar Point to discuss pilot beach nourishment project

On March 16, MBNMS and GFNMS staff met with US Army Corp of Engineers and CA Resources Agency (members of the Coastal Sediment Management Work Group) to discuss a pilot beach nourishment project at Pillar Point Harbor in San Mateo. There is renewed interest in looking at how the sanctuaries can allow beach nourishment under certain circumstances (ie. clean sediment, small footprint) and the meeting was to examine potential scenarios or options for moving the idea forward. Simultaneously, Caltrans is requesting an emergency road repair permit through the Coastal Commission, and is proposing adding additional hard substrate for a revetment in order to protect an area of Hwy One. A number of next steps were outlined in the meeting.

EDUCATION, VOLUNTEER AND OUTREACH PROGRAMS

Sanctuary Exploration Center 2015 Docent Training Class Has Begun!

On Wednesday March 3rd 37 participants were introduced to Monterey Bay National Marine Sanctuary and the Sanctuary Exploration Center as their first class of the 2015 docent training program. The class will continue for nine weeks, totaling 30 hours of instruction. Speakers from Monterey Bay National Marine Sanctuary and other science organizations will present on watersheds, MBNMS regulations, current sanctuary research, biodiversity, Ca State MPAs, fisheries, climate change, ocean observing, and seasons within the sanctuary. Additionally, they will learn effective interpretation tools and techniques and practice interpreting our exhibits to the public. After training, volunteer docents will interpret exhibits to the public, conduct guided tours, assist in daily operations, and participate in events and programs. Volunteer docents are integral in the essential functions of the Exploration Center. These 37 additional docents will work towards fulfilling the mission of the Exploration Center by greeting and educating the public about MBNMS.

Team OCEAN and Bay Net Information Meeting Night Draws Record Crowd!

An informational meeting was held the evening of March 4th to inform interested volunteers about the Team OCEAN Kayaker Outreach and Bay Net Shoreline Naturalist Programs. A record crowd of 43 new and 10 veteran volunteers attended. The evenings presentation covered Monterey Bay National Marine Sanctuary requirements of both volunteer programs, training schedule and field trip dates. Veteran volunteers offered their insight into the programs, what it means to volunteer with MBNMS and what it means to be part of a volunteer team. The informational meeting is integral to getting new volunteers oriented to the programs and the community of volunteers that donate their time. In the field volunteers interact with 17,000 Monterey Bay National Marine Sanctuary visitors annually. These in-the-field programs reach visitors who are not part of the "choir" in that they have not sought us out and may not be visitors we would interact with in a visitor center.

Monterey Bay NMS reciprocates volunteer exchange with Olympic Coast NMS.

Last July, staff and volunteers from the Olympic Coast National Marine Sanctuary hosted a series of awe-inspiring field trips for eight Monterey Bay National Marine Sanctuary (MBNMS) docents and staff. Trips included a tour of the famous Elwha Dam removal project, the Makah Cultural and Research Center, seabird watching in Neah Bay, hikes in the majestic Olympic Coast and a chance to partake in OCNMS' 20th anniversary! This past week, Olympic coast guests were shown the best of what MBNMS has to offer by staff and volunteers from Santa Cruz, Monterey and Cambria. Staying with host families, the trip combined visits to other interpretive centers and aquariums with hikes in the redwoods, tidepooling, kayaking with sea otters, condor-watching on the Big Sur Coast, and a tour of the Piedras Blancas Light Station followed by a visit to a nearby elephant seal rookery. Windless sunny days were perfect for whale-watching, and wildlife from butterflies to condors magically appeared as if on cue. Tour guides made up of docents, MBNMS researchers and partnering agencies enthusiastically shared their knowledge, hosts shared their love of place, and all left deep impressions on our visiting volunteers. One volunteer commented, "Before becoming a docent, I didn't know about the NMS system, so I am excited to share my new knowledge with people. By volunteering as a docent, I hope to inspire others to learn about and protect our wonderful marine sanctuaries." Volunteers are the lifeblood of the National Marine Sanctuary system, and they donate thousands of hours each year in the areas of research, monitoring, enforcement, education and management advisement. Visits to other national marine sanctuaries enable volunteers to share ideas and to realize the vital role they play as ambassadors for the national marine sanctuary system as a whole.

Sanctuary works with San Luis Obispo tourism board on wildlife viewing etiquette

San Luis Obispo County Tourism Business Improvement District Advisory Board (CBID) recently included a one-minute public service announcement made by MBNMS to address proper wildlife viewing practices on their Stewardship Traveler landing page on WCC.com and on Coastal Discovery Route, and to their You Tube page on winecoastcountry.com. Thousands of tourists come to the Central Coast of CA each year to enjoy amazing views of cetaceans, pinnipeds and seabirds. By partnering with local tourism boards, MBNMS can increase its messaging to protect the very resources that attract tourists while promoting good stewardship practices.

To see the wildlife viewing etiquette public service announcement, go to:

<http://montereybay.noaa.gov/educate/pdf/120327piniped.pdf> and/or <http://sanctuaries.noaa.gov/protect/oceanetiquette.html>

Hearst Theater shows BBC's "Ocean Giants" to benefit Coastal Discovery Center

Two movies about cetacean intelligence and communication were played for visitors of SLO County as part of the Coastal Discovery and Stewardship Ocean Film Festival during Jan and Feb, sponsored by County Tourism Business Improvement District Advisory Board's Stewardship Traveler Program. Monterey Bay National Marine Sanctuary's Coastal Discovery Center also displayed 13 eye-catching photographs in the theater lobby taken by their volunteers and entitled "Scenes from Your National Marine Sanctuary." Over 400 people attended the movie night event and supported MBNMS' Coastal Discovery Center through donations. Partnership between MBNMS and tourism boards are encouraged to educate the public about MBNMS and to help fund its mission.

Coastal Discovery Center receives Earth Day grant from CA State Park Foundation

Monterey Bay National Marine Sanctuary's Coastal Discovery Center in San Simeon will be working with volunteers and CA State Park staff to make improvements at Hearst/ San Simeon State Park on April 18th with an Earth Day grant from the CA State Parks Foundation, sponsored by PG&E. Plans to celebrate Earth Day include improving the native plant garden at the Coastal Discovery Center, reseeding eroded hillsides, planting native tree species to replace invasive tree species and to better define an outdoor interpretive area, and prepping an area for a new interpretive shore-whaling exhibit behind the Center. To find out more about the event, sign up to participate: www.calparks.org/earthday. The Coastal Discovery Center addresses parallel education and resource protection missions for both CA State Parks and MBNMS. Located at San Simeon State Park and WR Hearst Memorial Beach, the park receives over 53,500 visitors annually. Improvements to the

park and the Coastal Discovery Center benefit indoor and outdoor education programs. In addition, celebrating Earth Day with CA State Parks and local volunteers strengthens partnerships while exercising good stewardship.

Coastal Discovery Center featured in tourism board's promo

The first episode of the San Luis Obispo's promotional Highway1 DiscoveryRoute Travel Show "On the Road with Jo" features an interview with Monterey Bay National Marine Sanctuary's Carolyn Skinder on educational programs and proper elephant seal viewing etiquette. The show is being produced to showcase County Tourism Business Improvement District Advisory Board's Stewardship Traveler program, which includes San Simeon. Partnering with local tourism boards allows MBNMS to increase its messaging in resource protection, education and stewardship of our ocean. To view the "On the Road with Jo" video: go to <http://www.winecoastcountry.com/> and scroll down to video.

Coastal Discovery Center in San Simeon seeks volunteers

Monterey Bay National Marine Sanctuary and CA State Parks are seeking passionate individuals to share their knowledge of the Central Coast by volunteering at the Coastal Discovery Center in San Simeon. Information session for docent training will be held March 27, Friday, at 6:30 pm. Location: Rabobank on 1070 Main St. Cambria, CA 93428 Training dates will be held on April 11th, 18th and 25th. MBNMS depends on volunteers to run the Coastal Discovery Center in San Simeon, teach Saturday programs and to work at education and outreach events. The Coastal Discovery Center is run in collaboration with CA State Parks and hosts 18,000 visitors and 1,000 school children annually.

<http://montereybay.noaa.gov/vc/cdc/welcome.html>

MBNMS' Coastal Discovery Center helps Cayucos celebrate "Mermaid March"

Monterey Bay National Marine Sanctuary's Coastal Discovery Center staff recently teamed up with the Cayucos Public Library to present "This is the sea that feeds us" program on plankton as part of Mermaid March in Cayucos. The presentation was given by docent Derra Hunt and staff to children in grades K-8 as part of an after school program. The children's book, *The Sea That Feeds Us* by Robert E. Baldwin and Don Dyen, was used to introduce the importance of plankton in the ocean food web. Live plankton was then examined under a video microscope so that all could marvel at what lives in a drop of seawater. The Center's mascot, an eight-foot creation of King Neptune, was loaned to the library during the month to join the other mermaids in town. Local libraries are part of the Coastal Discovery Center's education and outreach program.

Santa Cruz Beneath the Waves Film Festival

The Power of Film, Monterey Bay National Marine Sanctuary's Exploration Center will be holding the 3rd annual Santa Cruz Beneath the Waves Film Festival on September 24, 25, 26, 2015. This exciting event brings together both amateur and professional short global, regional and locally focused films about the ocean, science and the current threats. Part art, part education and extremely creative, these films are selected from a large number of films submitted to the Beneath the Waves Film Festival each year. Please join us for a variety of films and come take part in the variety of activities that will be made available to the public over the 3-day festival.

Water Quality Staff Lead School Outing in Santa Cruz Mountains

On Friday 3/13 Water Quality Protection Program staff member, Lisa Emanuelson, assisted Santa Cruz Schools and the Resource Conservation District of Santa Cruz County by leading a station for the Watershed Stewards Project a special project of the California Conservation Corps. Santa Cruz County 4th graders learned about water clarity, temperature, pH, dissolved oxygen, flow velocity, and how healthy riparian communities in the San Lorenzo River watershed influence the Monterey Bay National Marine Sanctuary. By teaching students about watersheds and their connection to healthy communities, fish stocks and water supplies we work towards a better understanding of the need for healthy ecosystems which includes National Marine Sanctuaries.

NEWS COVERAGE

[Morning Forum series offers varied lineup of upcoming speakers](http://www.losaltosonline.com/news/sections/community/177-features/49786-)

<http://www.losaltosonline.com/news/sections/community/177-features/49786->
Los Altos Town Crier-March 25, 2015

[Oceanographer to speak on state of the planet's oceans at Mayo](http://www.nj.com/independentpress/index.ssf/2015/03/oceanographer_to_speak_state_o.html)

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NJ.com-Mar 21, 2015

[Study: Some fish can live in low-oxygen zones](http://www.heraldandnews.com/news/oregon/study-some-fish-can-live-in-low-oxygen-zones/article_825994cc-cc56-11e4-835a-fb89695d4fdf.html)

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[Why Today's Major Marine Sanctuary Expansion Off California's ...](http://www.kcet.org/news/define/revisit/commentary/golden-green/why-todays-major-marine-sanctuary-expansion-off-californias-coast-is-important.html)

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<http://globenewswire.com/news-release/2015/03/05/712866/10123502/en/OceanGate-Inc-Launches-New-Manned-Submersible-Cyclops-TM.html>
GlobeNewswire-March 5, 2015

[Shark-research pioneer Clark dies at 92, shortly after her final scuba ...](http://www.keysnet.com/2015/02/28/501455_shark-research-pioneer-clark-dies.html?rh=1)

http://www.keysnet.com/2015/02/28/501455_shark-research-pioneer-clark-dies.html?rh=1
KeysNet-Feb 28, 2015

[Twisted Tasting didn't disappoint](http://www.santacruzsentinel.com/lifestyle/20150224/twisted-tasting-didnt-disappoint)

<http://www.santacruzsentinel.com/lifestyle/20150224/twisted-tasting-didnt-disappoint>
Santa Cruz Sentinel-Feb 25, 2015

[Marine sanctuaries talk at MJC](http://www.mantecabulletin.com/section/146/article/120847/)

<http://www.mantecabulletin.com/section/146/article/120847/>
Manteca Bulletin-Feb 19, 2015

[Maui Whale Festival celebrates "World Whale Day," Feb. 14](http://www.hawaiimagazine.com/content/maui-whale-festival-celebrates-world-whale-day-feb-14)

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Web Site (<http://montereybay.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>)

*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.*

FUN, OCEAN RELATED WEB SITES

Seasons in the Sea

<http://www.seasonsintthesea.com>

Waterlust

<http://www.waterlust.org/about/>

Thank You Ocean

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

NOAA Online Media Library

<http://sanctuaries.noaa.gov/photos>

SIMON

<http://www.sanctuariesimon.org>

Oceans Live

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

Office of National Marine Sanctuaries

<http://www.sanctuaries.nos.noaa.gov/>

NOAA Ocean Explorer

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

Encyclopedia of the Sanctuaries

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

National Data Buoy Center

<http://www.ndbc.noaa.gov/rmd.shtml>

National Ocean Service

<http://www.nos.noaa.gov/>

National Oceanic & Atmospheric Administration

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

Your Sanctuary TV

<http://yoursanctuarytv.org/>

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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: <http://www.montereybay.noaa.gov>.

To learn more about the Sanctuary Advisory Council please visit:

<http://www.montereybay.noaa.gov/intro/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:

<http://www.sanctuaries.nos.noaa.gov/>

Get involved and stay informed!

To learn how to get involved in the Sanctuary visit:

<http://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:

<http://montereybay.noaa.gov/intro/elists.html#educate>

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