



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

Broken piece of pipeline responsible for Santa Barbara oil spill to be removed, inspected

Officials from Plains All American Pipeline say they hope the broken section of a pipeline that spilled oil along the California Coast can be removed for investigation by Tuesday. The company on Monday downgraded the amount of oil that may have spilled. The new estimate of the worst-case volume of oil released is 101,000 gallons. That's about 4,200 gallons less than previously thought. Plains All American is still measuring the spill as it cleans up along the Santa Barbara County coastline and recovers oil from the pipeline. Oil blackened area beaches and created a 10-square-mile slick in the ocean after the onshore pipeline ruptured May 19. <http://www.dailynews.com/general-news/20150526/broken-piece-of-pipeline-responsible-for-santa-barbara-oil-spill-to-be-removed-inspected>

NOAA announces \$9 million in grants to improve coastal community resilience

Two new NOAA grant programs will help coastal communities and their managers create on-the-ground projects to make them more resilient to the effects of extreme weather events, climate hazards, and changing ocean conditions. This builds on NOAA's commitment to provide information, tools, and services to help coastal communities reduce risk and plan for future severe events. NOAA's National Ocean Service is supporting the effort with \$5 million in competitive grant awards through the [2015 Regional Coastal Resilience Grant Program](#) and NOAA Fisheries is administering the companion \$4 million [Coastal Ecosystem Resiliency Grants Program](#). For the rest of the article use this link: <http://www.noaanews.noaa.gov/stories2015/20150519-noaa-announces-nine-million-in-grants-to-improve-coastal-community-resilience.html>.

Successful conservation efforts recognized in revised ESA Humpback Whale listing

NOAA Fisheries proposed today to reclassify the humpback whale into 14 distinct population segments under the Endangered Species Act, providing a more tailored conservation approach for U.S. fisheries managers. Protection and restoration efforts over the past 40 years have led to an increase in numbers and growth rates for humpback whales in many areas. The humpback whale is currently listed as endangered throughout its range. The proposed rule finds that ten of those 14 populations do not warrant ESA listing. While commercial whaling severely depleted humpback whale numbers, population rebounds in many areas result in today's larger numbers, with steady rates of population growth since the United States first listed the animal as endangered in 1970. For the rest of the article follow this link: <http://www.noaanews.noaa.gov/stories2015/20150420-successful-conservation-efforts-recognized-in-revised-esa-humpback-whale-listing.html>.

NATIONAL MARINE SANCTUARY NEWS

Sanctuary Species Identification

Ecologist Alice Stratton completed review and species identification from 8 years of archived photographic and video data from two shipwrecks in SBNMS. Once QA/QC is complete, the data will be shared with Dr. Peter Auster, Research Professor Emeritus, at the University of Connecticut for statistical analysis and further development of an SBNMS species inventory. This Shipwreck Ecology project will help better characterize sanctuary habitats and enable comparison among wreck types and locations. Additionally, this data will serve as a baseline for future monitoring as recreational diving within the sanctuary increases.

Rehabilitated Monk Seals Return to PMNM

On March 25, two Hawaiian monk seals were returned to Papahānaumokuākea Marine National Monument after being rehabilitated at The Marine Mammal Center's Ke Kai Ola Hawaiian Monk Seal Hospital in Kona. The seals were rescued last year in an emaciated state, one from Kure Atoll and another from Laysan Island, during NOAA Fisheries Hawaiian Monk Seal Research Program's field camp season. PMNM staff worked with multiple co-managers and partners, including NOAA Fisheries, Hawai'i DLNR, USFWS, U.S. Coast Guard, and The Marine Mammal Center to facilitate media outreach for the project, resulting in dozens of news stories. Working with partners to raise awareness about efforts to save critically endangered Hawaiian monk seals in the Monument.

MPA Center Represents Marine Theme at Steering Committee Meeting of IUCN World Commission on Protected Areas - MPA Center Acting Director Lauren Wenzel attended the Steering Committee of IUCN's World Commission on Protected Areas (WCPA) to discuss follow up to the very successful 2014 World Parks Congress, which drew global attention to marine protected areas. The WCPA discussed how to build on the momentum of the WPC to achieve key conservation milestones between now and the IUCN World Conservation Congress, which will be held in Hawaii in September 2016. Among the major areas of emphasis for WCPA are: strengthening protected area networks; improving protected area effectiveness; positioning protected areas as tools for addressing and mitigating climate change impacts; and inspiring a new generation. The World Conservation Congress is held every four years and is a major forum for conservation announcements, capacity development and celebration.

North Carolina Shipwrecks of World War I and II

Over 80 eighth grade social studies students at Crittenden Middle School dove into World War I and World War II North Carolina shipwrecks. Shannon Ricles presented to the students outlining how and why the war came to the Outer Banks and gave an overview of the various known shipwrecks associated with each time period. She also explained NOAA's interest documenting and surveying the shipwrecks and showcased previous Battle of the Atlantic expeditions. This presentation is part of an ongoing effort to further the MNMS's partnership with Crittenden and Newport News Public Schools. Collaborating on education events supports the National Marine Sanctuary Act's education and outreach mandate to enhance public awareness and appreciation of the marine environment.

Window in the Waves Documentary Goes National

National distribution of the Window in the Waves documentary about Flower Garden Banks National Marine Sanctuary began in February 2015 through American Public Media. Within the past month, the documentary has been shown on PBS stations in California, Florida, Indiana, Nevada, and Texas. Airing of the documentary through a variety of public broadcast stations builds sanctuary awareness with a larger audience.



MONTEREY BAY NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES



MANAGEMENT

Santa Cruz Mountains Comprehensive Stewardship Planning Underway

A comprehensive planning and network-building effort for the Santa Cruz Mountains (a 250,000 acre planning area) got underway March 26-27. SemperVirens Fund and CA State Parks is leading this initiative to bring together diverse leaders from the Santa Cruz Mountains (including MBNMS) to launch an effective network that can help steward the Santa Cruz Mountains for the next 100 years. Some of the specific priority areas of focus include: Water Quality and Watershed Health; Invasive Plant and Animal Species; Biodiversity and Endangered Species; Use, Access and Working Lands; Appropriate Rural and Urban Development; Climate Change Adaptation; Public Research and Education; and Strong Human Communities and Citizen Engagement.

Monterey Bay National Marine Sanctuary Advisory Council Meets

Monterey Bay's Advisory Council meet on April 17th in Santa Cruz and received a series of updates on the progress of the Council's Charter revision, an overview of MBNMS' draft Condition Report (now in peer review), accomplishment highlights on the Sanctuary's management plan (2008 to present), the recently updated MOA for Water Quality Protection Program partners, the merger of NOAA's Office of Law Enforcement into a western region, the accomplishments and contributions of the many volunteer programs and a progress report on the Sanctuary exploration Center in Santa Cruz. 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.

Audience with Monterey County Convention & Visitor Bureau Staff at Their All-Hands Meeting

MBNMS staff had the rare luxury of presenting to all staff (including DC and other locations via Skype) of the Monterey County Convention & Visitor Bureau at their meeting this past week. A half hour was allotted to re-familiarizing their office to the natural wonder of MBNMS. The crux of the presentation was discussing why visitors return to Monterey (the ocean!) and how we can work together to better promote Monterey Bay National Marine Sanctuary (despite a \$0.00 marketing budget) to area visitors and locals alike. As a parting gift, MBNMS staff were able to ensure the right person in their office is now in ownership of 60 high-resolution gorgeous photos. We have already received positive feedback and anticipate seeing broader exposure of these images in the coming months.

Marketing Meeting For Area Social Media Connoisseurs

MBNMS staff have been capitalizing on a unique and meaningful opportunity to meet monthly with key members of area businesses to discuss marketing strategies and cross-promotion opportunities. Staff from the Monterey County Convention & Visitors Bureau, Laguna Seca Raceway, the City of Monterey, the Plaza Hotel, Monterey Bay Aquarium, and other Hotels and Hospitality businesses, along with the MBNMS Government & Community Relations Coordinator, discuss upcoming events and strategize for improved exposure within the local community as well as capitalizing on existing tourism conduits. MBNMS staff highlighted the upcoming Get Into Your Sanctuary Weekend in June as well as other upcoming events. Attendees seemed interested in helping promote these efforts as well as collaborating on promoting MBNMS in general, where possible.

Your Sanctuary Television Program

MBNMS staff are continuing to support efforts for the television program Your Sanctuary. Recently, the MBNMS Government & Community Relations Coordinator, collaborated with Steve Ellzey to record an audio segment which describes how and why local business can take advantage of using MBNMS in their marketing and promotional materials AND how they can prosper as a result of their unique proximity to a national marine sanctuary. This segment will be included in an upcoming program which is focusing upon the history of Cannery Row in Monterey.

Sanctuary Advisory Council's Recreation & Tourism Subcommittee Meets in Monterey

A core group of members from MBNMS Advisory Council's Recreation & Tourism Subcommittee met and discussed various projects and events going on within their respective communities. Subcommittee members brainstormed cross-promotional ideas MBNMS could pursue. Some examples included: developing decal stickers/signs for businesses and visitors; developing talking cards service industry employees could use to share information about the Sanctuary with patrons; have MBNMS staff present for interviews in the event of whale beachings, television ads and community fundraisers. The latest newsletter has been released and all templates have been made available. There is an opportunity for other Advisory Council members to learn how to use the newsletter and the Constant Contact program in order to communicate with their respective constituencies. Upcoming Sanctuary events currently in the planning process include the Sanctuary Classic, Monterey Bay SportsFest and Get Into Your Sanctuary. The next Recreation & Tourism Subcommittee meeting will be held sometime in July.

RESEARCH AND MONITORING

Panel of kelp forest and rocky intertidal experts convened by the California Ocean Science Trust

On March 27th local experts on mid-depth rocky reefs, the rocky intertidal and central California kelp forests met at UC Santa Cruz with several staff members from the California Ocean Science Trust (CalOST). CalOST staff received scientific input from central Coast baseline program experts on where to locate and how often to monitor potential sites in rocky intertidal, kelp and shallow rock, and mid-depth rock ecosystems for long-term monitoring in the central coast system of MPAs. The state is planning to release \$3,000,000 to study a subset of the key ecosystems, manage the data, and generate results over the next 5 years. Staff from MBNMS (and other sites) are intimately involved with monitoring state-designated MPAs that occur within sanctuary boundaries. In the past, this partnership included use of the RV FULMAR and staff time to design sampling protocols, train data collectors, and contribute via diving operations. Currently MBNMS continues to have an impact by contributing staff time in the field and expertise during planning phases such as this.

Hazard Analysis and Critical Control Point training provided after AIS workshop

On April 2 Susan Pasko (Aquatic Invasive Species Coordinator & Program Analyst, NOAA Fisheries Strategic Planning and Program Evaluation Division) and Jonathan Thompson (Senior Environmental Scientist for the CA State Lands Commission, Marine Invasive Species Program) lead a one-day training on Hazard Analysis and Critical Control Point (HACCP) planning related to AIS and natural resources management. HACCP Planning is an international standard for reducing or eliminating the spread of unwanted species during specific processes or practices or in materials or products. Free training is always welcome, and since invasive species are an issue in certain parts of MBNMS, it serves as a useful tool to prevent the spread of invasive species. This also dovetails with the new regulation in MBNMS regarding AIS.

National Geographic online features photo by Sanctuary staff

On March 21st, writer Leslie Willoughby contacted Dr. Steve Lonhart to acquire images of sea urchins for an article she was writing. Entitled “As sea stars die, new worries about urchins” her online article for National Geographic highlighted a wasting syndrome that is contributing to a massive mortality event among sea stars along the eastern Pacific from Alaska to Mexico. On April 1 the article was published online and used one of the images Lonhart provided Willoughby, as well as the caption for the image. Follow this link for the full article: <http://news.nationalgeographic.com/2015/03/150401-urchins-sea-stars-monterey-bay-california-animals/>. Images collected by sanctuary divers have repeatedly proven their value, particularly in highlighting sanctuaries as special places. National Geographic is a valued source of information and use of NOAA images and mentioning sanctuaries helps with the Campaign.

NOAA Aquatic Invasive Species workshop held in Santa Cruz, CA

On March 31st and April 1st, the triennial NOAA Aquatic Invasive Species Workshop was held at the SWFSC lab in Santa Cruz, CA. The objectives were to 1) examine invasive species issues/impacts that affect NOAA trust resources by region & explore mitigation strategies, 2) identify ways to use existing NOAA processes, programs, and priorities to advance AIS prevention and control strategies, 3) examine AIS case studies and issues where NOAA is making progress and those that need greater attention, and 4) establish a prioritized list of objectives for the NOAA AIS Team and a framework for moving forward. Dr. Peg Brady (NOAA Fisheries Strategic Planning Chief & NOAA Senior Policy Liaison to the NISC & ANSTF) led the workshop and Dr. Holly Bamford, Acting Assistant Secretary of Conservation & Management, visited via live video from Silver Spring. As with the 2012 workshop, a report will be generated based on presentations and discussions, along with a list of action items the NOAA-wide group will work on over the next three years. Staff from across NOAA line offices attended, along with California state agencies, and created innovative solutions to problems facing AIS-related projects within NOAA. Although slow, the incremental steps forward continue to the program on an upward trajectory.

NOAA represented on UCSC Dive Control Board and Scientific Boating Program

On March 19th Dr. Steve Lonhart of the Sanctuary Integrated Monitoring Network (SIMoN) attended the quarterly meetings of both the UC Santa Cruz Dive Control Board and the Scientific Boating Program. Lonhart serves as the NOAA representative for both groups, and facilitates NOAA diving and boating with university projects and personnel. There is also a Federal biologist serving the same role for the USGS. Incidents, safety protocols, and operational procedures were reviewed and discussed. UC Santa Cruz is a key partner and collaborator on several nearshore projects that involve small boat operations and science diving. Membership on the Boards for each of these groups facilitates safe and coordinated operations with NOAA personnel, increasing capacity and ensuring efficient use of limited resources.

Stanford science divers conduct survey for diseased sea stars

On March 25th, science divers from Stanford University surveyed the kelp forest in front of the Hopkins Marine Station for both healthy and diseased sea stars. Freya Sommer, the Diving Safety Officer at Hopkins Marine Station, was training graduate and undergraduate divers in a one-week, intensive science diving methods course. She offered the services of the students, who were given a 45-min lecture the previous evening about sea star wasting disease and how to collect survey data. In addition to the Stanford students, WCR Operations Officer Bryan Begun and MBNMS’ Scott Kathey also attended the training and collected data. Divers surveyed 900 square meters of habitat in a kelp forest located within Lovers Point State Marine Reserve and collected data on the size of bat stars and their health status. The survey will help local researchers and MBNMS staff to track the geographic extent and incidence of the disease in bat stars. Supporting the DSO and interacting with staff and

students at Hopkins Marine Station facilitates future collaborative efforts. And the students provided a free source of divers to collect high-quality data over a large area in a single day.

New findings on feeding habits of Cuvier's Beaked Whale

MBNMS staff co-authored recent paper in *Northwestern Naturalist* entitled, "Stomach contents of a Cuvier's Beaked Whale (*Ziphius cavirostris*) stranded in Monterey Bay, California." Results suggest *Z. cavirostris* is an opportunistic, generalist predator that consumes both schooling and solitary cephalopods. The finding of a benthopelagic fish (Giant Grenadier) and some squids in the stomach provides evidence that *Z. cavirostris* foraged near the seafloor. Paper can be found online (<http://www.bioone.org/toc/nwnt/96/1>). MBNMS was established for the purpose of resource protection, research, education, and public use. Biological characterization is necessary for effective understanding and protection of natural resources.

Inspector conducts Dive Unit Safety Assessment

On April 21 and 22, Office of Marine and Aviation Operations (OMAO) Inspector Zach Hileman was in Monterey to conduct a Dive Unit Safety Assessment (DUSA) of the dive unit under Unit Diving Supervisor Dr. Steve Lonhart. NOAA Administrative Order 209-123 requires a DUSA for each dive unit to assess compliance with the NOAA Diving Standards and Safety Manuals. The inspector reviewed administrative records, the unit log book, maintenance records, equipment condition, and evaluated operating and rescue procedures during a dive on Wednesday at the Breakwater. Minor issues were noted and several resolved on site (e.g., equipment servicing to fix to normal wear and tear). Hileman indicated the unit passed, but there would be some follow-up recommendations using the computer tracking system at the Safety and Environmental Compliance Office. NOAA divers put their lives at risk every time they conduct an underwater operation. The DUSA is a means of assessing life-support equipment, personal dive gear, and operating procedures. Safety in diving operations is the primary focus, with mission goals secondary. Oversight by an OMAO inspector on a triennial basis ensures compliance and heightens safety awareness.

"Citizen Science" captivated attendees at annual Sanctuary Currents Symposium

The annual Monterey Bay National Marine Sanctuary Currents Symposium was held on Saturday April 25, 2015 at California State University, Monterey Bay. Approximately, 300 people were in attendance. The symposium theme was "We Want You! The Rise of Citizen Science." Discussions centered around plenary sessions featuring internationally-recognized scientists, a research poster session, and exhibitory displays throughout the day. Keynote presentations focused on topics ranging from programs focused primarily on education to those modeled closely on formal monitoring efforts, from the rocky intertidal to the open ocean. A research poster session followed the presentations and an exhibit hall provided attendees with many opportunities to get involved. Symposium information and program can be found at: <http://montereybay.noaa.gov/research/currsymp2015/welcome.html>. The annual Sanctuary Currents Symposium provides an exciting opportunity to bring scientists, managers, students, and members of the public together to address the most important issues of the day with respect to the Monterey Bay and beyond.

Seacliff State Beach docents learn about invertebrates in their exhibits

On the evening of April 9th, Dr. Steve Lonhart was invited to speak to 25 state park docents about the invertebrates that are on display at the Seacliff State Beach visitor's center. Although most visitors know about the SS *Palo Alto*, a cement ship at the end of the pier, tourists can also learn about marine life from docents inside the small Visitors Center opposite the pier. Over the course of 1.5 hours, docents learned about the natural history, anatomy, and general ecology of anemones, urchins, hermit crabs, chitons, limpets, and sea stars. Docents at the Visitors Center serve an important outreach and education role, informing residents and tourists alike about the amazing marine life that occurs within the State Beach and National Marine Sanctuary. Providing

them with up-to-date information increases the value of their interactions and promotes stewardship of these important resources.

Sea Star Wasting Syndrome surveys in Monterey Bay

On April 8 and 10, Dr. Steve Lonhart conducted underwater surveys with science divers from UC Santa Cruz to assess the current status of sea star wasting syndrome (SSWS) in Monterey Bay. Researchers in central California, and especially MBNMS, are investigating the ecological consequences of SSWS on both the decimated sea star populations and their prey populations. Partners with MBNMS have implemented 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. In addition, tracking the growth of recently recruited sea stars will inform the rate of recovery for these important benthic predators.

Monterey Bay Marine Biodiversity Observing Network Meets at MBARI

The Monterey Bay Marine Biodiversity Observation Network (MB-MBON) team met on April 9th at MBARI. The goal of this 5-year project is to monitor marine biodiversity within the diverse habitats of the Monterey Bay National Marine Sanctuary and provide an integrated picture of the current status and recent changes in biodiversity to inform natural resource managers and policymakers. Progress was made on a pilot project to integrate disparate data sets to explore spatial and temporal patterns in krill abundance in central California and how those patterns may be driven by the physical environment (e.g., temperature, salinity) and influence biodiversity at higher trophic levels (e.g., fish, birds, mammals). In addition, methods were refined for collecting water samples to gather baseline data on environmental DNA (“eDNA”) to examine biodiversity at scales ranging from microbes to whales. This project will support an integrated assessment of the condition of marine biodiversity in MBNMS and will provide marine resource managers and policymakers with tools to track and respond to threats ranging from invasive species to climate change.

Guest lecture on MPA science given to CSUMB class

On the evening of April 13th, Dr. Steve Lonhart was invited to speak to 30 students in the MSC1495: Marine Conservation Biology class at California State University Monterey Bay. This class is an introduction to the science and issues surrounding the loss of marine species and habitats resulting from overexploitation, habitat loss, species introductions, climate change, and other threats. Students examine the science behind management decisions, especially place-based management such as MPAs. Dr. Kerry Nickols invited Lonhart to talk to her students about the science behind monitoring MPAs. The interactive lecture was almost two hours long, and students were very engaged in the various aspects of designing, collecting, and analyzing monitoring data associated with state-implemented MPAs. Guest lectures in college courses provide an opportunity to inform students about MBNMS, the sanctuary program, and the importance of place-based management. Discussing the efforts of both MBNMS staff and partners from other agencies and universities highlights the collaborative nature of the science behind management of MPAs, provides insight into the issue of MPAs, and, in this case, generated interest in pursuing a career in field-oriented research.

RESOURCE PROTECTION

WQPP Team meets with partners to coordinate efforts in a watershed approach to improving water quality

On March 27th, the WQPP Team met with representatives of the RCD of Monterey County and Cooperative Monitoring Program to coordinate efforts to address water quality impairments in an urbanized stream in Salinas,

CA. Through a grant, partners are working together to address pollution from agriculture and urban sources. In the meeting we identified potential areas to make improvements and then conducted a site visit. In order to make progress and see real water quality improvement in surface waters, it is important to take a holistic approach and engage many partners in a coordinated fashion.

30-day Public Comment Opens for a Coastal Regional Sediment Management Plan in MBNMS

A draft Coastal Regional Sediment Management Plan for the Santa Cruz Littoral Cell (CRSMP) has been developed and is being distributed widely for a 30-day public comment period. MBNMS and the U.S. Army Corps of Engineers (USACE), in collaboration with local jurisdictions and stakeholders, are developing the Plan working with the California Coastal Sediment Management Workgroup, a task force co-chaired by the USACE and the California Natural Resources Agency. The Santa Cruz Littoral Cell encompasses the 75-mile coastline from Moss Landing to Pillar Point. The public comment/review period for the draft Plan will be open through May 15, 2015. This CRSMP provides a framework that can be used to restore and maintain coastal beaches and other critical areas of sediment deficit reduce the proliferation of coastal armoring structures such as seawalls and revetments, restore coastal sandy habitats throughout the Region, enhance public safety and coastal access, and sustain recreation and tourism. It will recommend future regional and site-specific strategies for best managing and responding to these issues to protect coastal resources and infrastructure. It 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. To download the draft Plan, please visit: montereybay.noaa.gov. 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.

2015 Salinas Valley Ag Technology Summit

The Agricultural Water Quality Coordinator attended the Salinas Ag Technology Summit on 3/26/15, gaining insights into technological innovations, food safety legal issues and advanced research on plant nutrient needs. Innovative startup companies are launching drone technology for assessing irrigation failures, plant disease and pest issues. Well established John Deere is entering the precision agriculture business with soil moisture and communication relay systems for irrigation management. Vermiculture management is becoming more precise for increasingly consistent compost with consistent nutrient levels. Innovation in the agriculture industry will create increasingly robust agriculture businesses with increased technical capacity. Some of these innovations will allow for precision application of pesticides and fertilizers in the amount and location needed by the plant. This precision will help reduce pollution from the watersheds that contribute to the Monterey Bay National Marine Sanctuary.

Western Sustainable Agriculture Research and Education Irrigation and Nutrient Management Technical Cross Training a Success

On May 6th, MBNMS Agricultural Water Quality Coordinator organized and facilitated the second of two technical cross trainings for a USDA Western Sustainable Agriculture Research and Education (SARE) grant. The trainings are designed for professionals assisting agricultural growers with increasing the precision of their irrigation and nutrient applications in order to meet crop needs, minimize excess application, and reduce runoff and infiltration. The session was attended by 23 professionals from USDA-NRCS, Resource Conservation

Districts, Grower Organizations, Technology Suppliers and student interns. New technologies are emerging for assisting growers with more precise information regarding the amount and timing of nutrient and water application. Precision application in agriculture will help reduce pollution from the watersheds that contribute to the Monterey Bay National Marine Sanctuary.

ADAPT Monterey Bay Summit Discusses Climate Change

On April 3, 2015, MBNMS participated in the ADAPT Monterey Bay Summit with Center for Ocean Solutions, Monterey Bay Aquarium, The Nature Conservancy, Monterey Institute for International Studies Blue Economy, Central Coast Wetlands Group, Elkhorn Slough NERR, CA Coastal Conservancy and US Davis with the purpose of aligning efforts among groups working on Sea Level Rise adaptation in Monterey Bay. The goals of the meeting were to conduct a regional situational needs assessment and design a shared vision and 3-5 year strategy for the region on climate adaptation, including an operational structure and fundraising plan. We were able to accomplish most of the tasks and the next steps are to conduct a needs assessment to practitioners (i.e., planners, public works, elected officials) and based on the feedback, structure the strategy and organizational structure. Over the past few years, MBNMS has been a key leader in Monterey Bay coastal development issues including coastal erosion, coastal armoring and desalination, and has developed a number of reports and plan related to adaptation strategies. We will be developing a new climate change action plan as part of the management plan update, and the collaborative work with ADAPT Monterey Bay will feed information into this process.

MBNMS participates in multi-agency coordination call on Cambria Desalination Project

On March 24th, representatives from 10 different local, state and federal agencies held a conference call to discuss the current situation in Cambria with the new desalination plant that came online late last year. This project was constructed during an emergency drought declaration by the Governor of California and therefore did not go through the typical environment review of a project of this type. There have been multiple complaints about noise, brine overspray, algae in the lagoon, and concern for endangered species, to name a few. This project is not within the regulatory jurisdiction of MBNMS because the brackish water is extracted from an inland well and the brine is put into an evaporation pond. MBNMS staff is monitoring the situation because a full EIR is being developed and possible alternatives for the brine may include an outfall to the ocean. With the four year drought in California, coastal cities are looking to the ocean as a source of potable water. It is important to ensure that projects are planned and designed to incorporate best practices as they relate to potential impacts on the sanctuary.

16th Annual Snapshot Day Celebrated on Central Coast

On May 2nd over 130 volunteers monitored 140 sites from northern San Mateo County to San Luis Obispo County. Everyone from elected officials to grade school students collected water samples from creeks flowing into the sanctuary in order to promote stewardship in our watersheds as well as continue the long-term monitoring program that documents water quality conditions in creeks along the coast. A multi-year report was recently published and is available at <http://montereybay.noaa.gov/resourcepro/reports.html>. It demonstrates the value of this citizen science program in which volunteers have donated more than 13,000 hours. The report concludes that Snapshot data is able to show trends, identify where water quality is or isn't meeting beneficial uses, and is comparable to monitoring data collected by the CA State Water Board staff. Snapshot Day is a long-term water quality monitoring program that provides valuable information to resource managers that would not be possible without the army of volunteers that participate. It is also an annual event that promotes sanctuary recognition and messaging.

EDUCATION, VOLUNTEER AND OUTREACH PROGRAMS

Coastal Discovery Center presents *Teaching Science with Snails* program at the Cayucos Library after-school program

Last Wednesday, 20 students, ages 10-14, learned about the scientific method by working with live marine snails. Students formed a hypothesis about their snails' preference for light or dark, tested their hypothesis, wrote down their observations, repeated their experiments and drew conclusions based on their findings. MBNMS reaches out to school groups at libraries to teach and encourage ocean literacy and scientific method through inquiry-based learning.

Sanctuary Exploration Center docents learn about USS *Macon* and Davidson Seamount

On the evening of March 31, MBNMS staff provided two seminars to 30 new docents of the Sanctuary Exploration Center in Santa Cruz. The first seminar "Davidson Seamount: A Remarkable Feature In Your Sanctuary," included an introduction to seamounts, exploration and characterization of Davidson Seamount, protections of the seamount, and upcoming research cruise. The second seminar, "USS *Macon* Expedition," included the history of the U.S. Navy's lighter-than-air program, history and crash of the USS *Macon*, her discovery, and recent expeditions to characterize the wreck site off Point Sur, California. Volunteer docents are the interface between public visitors and the sanctuary. Training these volunteers to provide the public with factual information is an important aspect of sanctuary outreach and education.

SEC docents learn about kelp forest and rocky intertidal organisms

On March 17th, Sanctuary Integrated Monitoring Network (SIMoN) staff lectured for three hours (6-9 pm) on kelp forest and rocky intertidal organisms that are on display at the Sanctuary Exploration Center (SEC). This cohort of docents (about 30) took notes about interesting facts and anecdotes regarding the numerous fishes, invertebrates, and algae on display at the SEC. Docents interact with visitors, interpreting the many displays and modeled habitats. Docents asked several questions and many of the volunteers had already been using the SIMoN web site to bolster their knowledge of marine organisms and their natural history.

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Team OCEAN and Bay Net Volunteer Training Kicks Off!

A record crowd of 37 new and 10 seasoned volunteers attended the first night of Team OCEAN Kayaker Outreach and Bay Net Shoreline Naturalist volunteer training on March 25th. The evening's presentation of Interpretive Essentials was given by Jim Covell of the Monterey Bay Aquarium. Seven more weeks of training are ahead with presentations including marine mammals, birds, oceanography and Monterey Bay National Marine Sanctuary. 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. By providing field-based volunteer programs we expand the reach of Monterey Bay National Marine Sanctuary's mission of understanding and protecting the cultural resources and coastal ecosystem found in Central California.

Team OCEAN and Bay Net docents learn about kelp forests

On the evening of April 15th, Dr. Steve Lonhart was invited by MBNMS Volunteer Monitoring Coordinator, Lisa Emanuelson to speak to about 45 potential new docents for Team OCEAN and Bay Net at the Pacific Grove Youth Center. As part of a series of lectures provided to the new class of docents, Lonhart's 1.5 hour lecture focused on kelp forests, and the iconic species found in these fascinating nearshore communities. He also presented new information on sea star wasting syndrome, the recent appearance of urchins in some areas, and answered questions from the audience. Docents serve an important outreach and education role, informing residents and tourists alike about the amazing marine life that occurs within Monterey Bay National Marine Sanctuary. Providing them with up-to-date information increases the value of their interactions and promotes stewardship of these important resources.

Shore Whaling Exhibit and Education Program at Monterey Bay National Marine Sanctuary Coastal Discovery Center funded by NOAA's Preserve America Initiative

Monterey Bay National Marine Sanctuary (MBNMS), with the help of California State Parks, will create an outdoor shore-whaling exhibit adjacent to MBNMS' Coastal Discovery Center in Hearst San Simeon State Park. The exhibit will educate the public about how whales were used in the 19th century compared to their status today and will greatly enhance the existing program on the history of old San Simeon. As a popular whale-watching site, San Simeon Bay was also home to one of seventeen shore whaling stations along the California coast during the mid-1800s. Whalebones still wash up on the beach today. The exhibit will allow the public to see and interact with one of the original try pots used to render whale blubber. This exhibit will improve upon the park's overall interpretive value while highlighting NOAA's role in both resource protection and maritime heritage.

California State Parks and MBNMS celebrate Earth Day on April 17th

The celebration took place at the Coastal Discovery Center with the help of a California State Parks Foundation's 17th Earth Day Restoration and Cleanup grant, presented by Pacific Gas and Electric Company. Fifteen volunteers and MBNMS staff showed up at San Simeon State Park to weed, plant native trees, sign native gardens, address hillside erosion, pick up trash and prepare grounds for an outdoor shore whaling exhibit. 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.

Fisheries class visits Coastal Discovery Center

A class in fisheries science and management from California Polytechnic State University, San Luis Obispo learned about the Monterey Bay National Marine Sanctuary last week while visiting Coastal Discovery Center in San Simeon. Topics covered were how and why MBNMS was nominated, mission and goals of MBNMS, the sanctuary advisory council, management plans, and MBNMS regulations. Professors who teach marine science (policy and fisheries) are focusing on national marine sanctuaries during this time of NMS site nominations.

John Menke selected as volunteer of the year for Monterey Bay NMS

John Menke was honored last week by his fellow volunteers for being nominated as MBNMS' volunteer of the year. John has been instrumental in the success of the Center for the last 9 years it has been open. As a retired educator in marine ecology, John has shared his talents as teacher, mentor and docent trainer; has led the Long-term Monitoring Program and Experiential Training for Students (LiMPETS) program in San Simeon; has been translator for Spanish-speaking students and guests of MBNMS; has helped to develop new education and outreach programs; and has worked at numerous public events and fundraisers to support the Coastal Discovery Center. In addition, he bicycles 14 miles R/T from his home to the Center! Volunteers are the lifeblood of the

NMS program and deserve special recognition for all they do as ambassadors, teachers and researchers of the NMS system.

Ocean's Live! Lecture Series Begins

In partnership with Access Monterey Peninsula and Museum of Monterey, we hosted a free presentation by sanctuary scientist Dr. Steve Lonhart on Wednesday, 29 April 2015 at the Museum of Monterey. Steve gave an exciting and illuminating presentation called *Kelp Forests – A Diver's Dream*, and wowed the audience of about 75 with spectacular and fascinating images and stories about these amazing giant undersea forests! The program was taped and will be shown on Your Sanctuary TV, viewed locally on AMP2. It is a critical part of the sanctuary's mission to educate the public about national marine sanctuaries.

New fishing education program at San Simeon Pier

Monterey Bay National Marine Sanctuary staff met with the Cambria Fishing Club last week to discuss how to encourage proper recreational fishing etiquette at San Simeon Pier. The pier is located near the sanctuary's Coastal Discovery Center, and is also used by the local fishing club. Both groups see the need for an education program and are working together to create informational materials and a mentored pier fishing activity as part of the Coastal Discovery Center's Science Saturdays. Thousands of recreational fishermen enjoy fishing at San Simeon Pier each year, but most visitors are not aware of the types of fish they are catching, state fishing regulations and proper disposal etiquette for fishing line and offal. By partnering with the local fishing club and CDFW, MBNMS can increase messaging to protect the very resources that attract tourists while promoting good stewardship practices.

MBNMS Partner Sunrise Rotary Club holds mixer at the Sanctuary Exploration Center

Over 100 Rotarians came together at the Sanctuary Exploration Center (SEC) for an evening mixer. MBNMS staff were on hand to do a short presentation and to meet Santa Cruz business members. In 2011, both the Sunrise and Santa Cruz Rotary came together as 2 clubs to sponsor the SEC classroom during the exhibits capital campaign by the National Marine Sanctuary Foundation. The Rotary clubs are acknowledged with a plaque outside the classroom. This partnership provides a direct connection to the Santa Cruz business community and contributes significantly to MBNMS building relationships in and around Santa Cruz County. Sanctuaries protect local marine waters upon which so many recreational and tourism based businesses depend. Making better linkages to these business owners is critical to gaining support for sanctuaries and develops a new audience for ocean stewardship.

Sanctuary Exploration Center Hosts Presentation by Photographer Jodi Frediani

On April 23rd the Sanctuary Exploration Center hosted a presentation by photographer and naturalist Jodi Frediani. Frediani has spent the past five years photographing and observing marine mammals and birds within Monterey Bay. She shared her experiences and photographs to 55 members of the community in the Exploration Center's state of the art theater. Frediani donated photos for use in Exploration Center exhibits prior to the Center's opening three years ago. A critical part of the sanctuary's mission is to educate the public about national marine sanctuaries and the role sanctuaries play in the protection of diverse species and habitats. Additionally, the Sanctuary Exploration Center aims to inspire the public to be stewards of our bay and the unique inhabitants.

Sanctuary Exploration Center Holds 2015 Docent Training Graduation

On Tuesday April 28th 29 newly trained Sanctuary Exploration Center docents graduated from the 2015 docent training program. This nine-week class, totaling 35 hours of instruction has focused on watersheds, Monterey Bay NMS regulations, current sanctuary research, biodiversity, Marine Protected Areas, fisheries, climate change, ocean observing and seasons within the sanctuary. Additionally, they learned effective interpretation

techniques and practiced interpreting center exhibits to the public. These new docents will begin to 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 29 additional docents will work towards fulfilling the mission of the Exploration Center by greeting and educating thousands of individuals about MBNMS.

Students interview Sanctuary Staff about population growth

Sanctuary staff was interviewed and filmed by students who attend Millennium Charter School in Salinas, CA on April 29. The students mainly asked questions about the impacts of human population growth on the ocean. The students will use the video footage to create a documentary film. A critical part of the sanctuary's mission is to educate the public about national marine sanctuaries and the role we all play in protecting marine resources.

Sanctuary Exploration Center Hosts Free Film Screening of *Plastic Paradise*

In partnership with Ocean Guardian Program, the Sanctuary Exploration Center hosted a free film screening of the award winning film *Plastic Paradise* followed by a panel discussion with representatives from Save Our Shores, Clean Oceans Project, and The Last Plastic Straw Initiative. Forty community members attended the screening and discussion. A goal of MBNMS and the Sanctuary Exploration Center is to inform and educate the public on critical resource protection issues and inspire conservation practices. Plastic pollution is a major threat to the sanctuary and one, which can be prevented through public education.

MBNMS 2014 Annual Report

We are pleased to share our annual accomplishments for 2014. In the report, you can learn about:

- The first research expedition to Sur Ridge, a giant rocky outcropping off the Big Sur coast
- Protecting the highly endangered Leatherback Sea Turtle
- Studying a lost shipping container
- The Whale Trail and its expansion to California and our marine sanctuaries
- Snapshot Day: Fifteen years of water quality monitoring
- And much more!

View the report at: <http://montereybay.noaa.gov/materials/annualreports.html>. It is important to inform the public about how we carry out our mission of protecting the resources of Monterey Bay National Marine Sanctuary.

NEWS COVERAGE

[105000 gallons of oil may have spilled in Santa Barbara County](#)

<http://www.latimes.com/local/lanow/la-me-ln-pipeline-santa-barbara-coast-20150519-story.html#page=1>
Los Angeles Times-May 20, 2015

[Cambria, San Simeon services districts talk brine waste](#)

<http://www.sanluisobispo.com/2015/05/13/3631899/cambria-san-simeon-brine-water.html>
The San Luis Obispo Tribune-May 13, 2015

[NOAA ship returns to Santa Cruz after exploring underwater volcano](#)

<http://www.ksbw.com/news/noaa-ship-returns-to-santa-cruz-after-exploring-underwater-volcano/32912026>
KSBW The Central Coast-May 9, 2015

[BBC & PBS to Present 3-Part Live Television Event BIG BLUE LIVE](#)

<http://www.broadwayworld.com/bwwtv/article/BBC-PBS-to-Preent-3-Part-Live-Television-Event-BIG-BLUE-LIVE-20150507>
Broadway World-May 7, 2015

[Volunteers help create 16th annual coastal watershed snapshot](#)

<http://www.santacruzsentinel.com/general-news/20150502/volunteers-help-create-16th-annual-coastal-watershed-snapshot>
Santa Cruz Sentinel-May 2, 2015

[Finding the Independence](#)

http://www.hmbreview.com/news/finding-the-independence/article_f770d9d0-e9db-11e4-854e-8b6634f7f88f.html
Half Moon Bay Review-April 23, 2015

[Scientists find radioactive WWII aircraft carrier off San Francisco coast](#)

http://www.mercurynews.com/breaking-news/ci_27931161/scientists-find-radioactive-aircraft-carrier-off-san-francisco.html
San Jose Mercury News-Apr 21, 2015

[With sea stars gone, urchins and other species are proliferating](#)

<http://www.sgvtribune.com/environment-and-nature/20150411/with-sea-stars-gone-urchins-and-other-species-are-proliferating>
The San Gabriel Valley Tribune-Apr 11, 2015

[Monterey Conference Center Announces Renovation Schedule](#)

<http://www.exhibitoronline.com/news/article.asp?ID=14691>
Exhibitor Online-Apr 9, 2015

[Kudos to supes for opposing oil train scheme](#)

<http://www.thecalifornian.com/story/news/columnists/jeffmitchell/2015/04/07/kudos-supes-opposing-oil-train-scheme/25431977/>
The Salinas Californian-Apr 7, 2015

[Anglers urged to go slow in Elkhorn Slough for otters](#)

<http://www.thecalifornian.com/story/news/local/2015/04/02/anglers-urged-go-slow-elkhorn-slough-otters/70858354/>
The Salinas Californian-Apr 2, 2015

[Boon Edam turnstiles improve crowd management for Santa Cruz ...](#)

<http://www.sourcesecurity.com/news/articles/co-286-ga.16965.html>

SourceSecurity.com-Mar 31, 2015

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

Follow MBNMS on Facebook (<https://www.facebook.com/MBNMS>) and **Twitter** (<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.sanctuarysimon.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/>

MBNMS STAFF

Paul Michel – Superintendent
Dawn Hayes – Deputy Superintendent

Research

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

Education

Liz Love – Education Specialist
Lisa Uttal – Exploration Center Director
Carolyn Skinder – Southern Region Program Coordinator
Chelsea Prindle – Education Specialist
Nick Ingram – Program Assistant (SEC)
Michael Ray – SEC Gift and Bookstore Manager
Catherine Drake – Program Assistant (SEC)
Nicole Uibel – Program Assistant (CDC)

Resource Protection

Karen Grimmer – Resource Protection Coordinator
Scott Kathey – Regulatory/Emergency Response Coordinator
Deirdre Whalen – Government and Community Relations Coordinator & Permit Coordinator
Sophie De Beukelaer – GIS Analyst & Research Permit Specialist
Pamela Krone-Davis – Agriculture Water Quality Coordinator
Bridget Hoover – Water Quality Protection Program Director
Lisa Emanuelson – Citizen Watershed Monitoring Network Coordinator

Program Operations

Raymond Chisolm – Program Specialist
Erin Ovalle – Advisory Council Coordinator
Andrew White – Network Manager and Webmaster
Vacant – SEC Maintenance Specialist



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://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:
<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>

- Contact Information -

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