



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

After a Century Apart, NOAA and Partners Reunite a Former Wetland with San Francisco Bay's Tides

Scooping away the last narrow band of mud, a bright yellow excavator released a rush of brackish water into an area cut off from the tides for more than a hundred years.

The 1,200 acre field now filling with water, known as Cullinan Ranch due to its history as a hay farm, is once again becoming a tidal wetland. On January 6, 2015, more than 100 people celebrated the reintroduction of tide waters to Cullinan Ranch in Solano County, California. For decades before, earthen levees had separated it from the nearby Napa River and San Pablo Bay, a northern corner of the San Francisco Bay Estuary.

Biologist Reveals How Whales May 'Sing' for Their Supper

Humpback whales have a trick or two when it comes to finding a quick snack at the bottom of the ocean. But how they pinpoint that meal at

night, with little or no available light, remains a mystery. Susan Parks, assistant professor of biology in the College of Arts and Sciences, in collaboration with a consortium of other researchers, has been studying these unique feeding behaviors. Her research emphasizes the importance of specific auditory cues that these mammoth creatures emit as they search the deep ocean for their prey. Her findings are the subject of an article in the December issue of *Scientific Reports* ("Evidence for acoustic communication among bottom foraging humpback whales," 2014), co-authored by researchers at Moss Landing Marine Laboratories, Oregon State University, Gerry E. Studds Stellwagen Bank National Marine Sanctuary and the Whale Center of New England.

Navy Seeks Public Comment on Sonar Use in Training with Supplement to Environmental Impact Statement

The U.S. Navy has completed a supplement to an environmental impact statement that examines the proposed increased use of sonar in the Northwest Training and Testing Area. The Northwest Training and Testing Draft Environmental Impact Statement/Overseas Environmental Impact Statement is available for public review and comment online at <http://tinyurl.com/PDN-eissonar>. The Navy is accepting comments through Feb. 2. The draft environmental impact study and supplement for the Northwest Training and Testing Study Area are separate from a controversial electronic warfare training project in the Olympic Military Operations Area for which the Navy is seeking U.S. Forest Service permits. In January, the Navy released a draft environmental impact study of training exercises and use of sonar and explosives in the training zone that includes areas off the North Olympic Peninsula's Pacific Coast — including the Olympic Coast National Marine Sanctuary — off Indian Island and in the Strait of Juan de Fuca. More on this article can be found at:

<http://www.peninsuladailynews.com/article/20141224/NEWS/312249984>.

NATIONAL MARINE SANCTUARY NEWS

Team OCEAN Site Grants to Provide Funding to Each National Marine Sanctuary

Team OCEAN Grants is a mini-grants program initiated by the National Marine Sanctuary Foundation to offer support for the 14 sites in the National Marine Sanctuary System. Team OCEAN Grants center around a central theme, and offer small amounts of funding to support projects and activities that currently have no or limited budget funding available. Provided funding is available, this will be an annual effort, although the theme may change from year to year. The theme for the pilot year for this program is volunteerism in national marine sanctuaries.

NMSF to Host Lionfish Dinner during Seafood Summit in New Orleans

NMSF, in conjunction with ONMS and SeaWeb, is creating a dinner event as part of the Seafood Summit to specifically address the issue of lionfish. Specifically, the event will have the goal of elevate the understanding of the threat of lionfish to sustainable seafood, and introducing a key audience on the possibility and merits of using lionfish as a commodity to raise awareness of the issue, and of ocean health generally. The evening would involve 4-5 chefs preparing dishes using lionfish, with chefs explaining the dishes and participants voting on their favorite. As part of the evening, presentations and materials will be provided on the issue of lionfish as a destructive invasive species and appropriate responses and management/market tools involving national marine sanctuaries to address the issue.

Benthic Survey Training with Partners

The NMSAS Research Coordinator is participating in benthic survey training/standardization with the Coral Reef Ecosystem group in Hawaii. Training involves benthic cover and coral demographic survey methods, several dives to standardize methods among all observers, and discussion of differences in records and gray areas/tough calls. All trainees will be participating in the upcoming RAMP monitoring cruises in American Samoa that include more intensive surveying in sanctuary sites. This is the primary monitoring for the sanctuary and for American Samoa as a whole, providing key information for managing our resources.

Sanctuary Staff Talks Marine Protected Areas with Graduate Students

FKNMS Science Team member Bill Goodwin participated in a discussion of important Sanctuary-related topics with a group of graduate students and faculty members from Duke University on January 7, 2015. The students, who are working on their master's degrees from Duke's Environmental Professionals program, had lively discussions with Bill on a wide variety of Sanctuary-related topics, including management plan development and implementation, coral and seagrass ecosystem restoration, submerged cultural resource management and protection, interagency communication and cooperation, and outreach and education programs. The students, who are working environmental professionals from across the U.S., commented that Sanctuaries are held up as a model for Marine Protected Area management, and that they were very pleased to gain some valuable insights into the program from a senior member directly involved in managing FKNMS resources.

Lake Erie Could Gain "National Maritime Sanctuary" Title

December 9, 2014 - For the first time in 20 years, the National Oceanic and Atmospheric Administration (NOAA) has re-established a process allowing the public to nominate significant maritime and Great Lakes areas, as potential new national sanctuaries. At a public meeting Tuesday, Erie County Executive Kathy Dahlkemper said she thinks Erie is a perfect candidate for such a designation. "We have millions of people going over across interstate 90, if we can find more ways to bring them into our community, that means more business for Erie businesses and just a greater impact to our community in general," said Dahlkemper. "NOAA will not look at our application unless we have a strong grassroots support from the residents of Erie County and the region and so that's what we're trying to gauge. This [sanctuary] would be mostly around our cultural assets - the shipwrecks, the history we have with seagoing vessels whether it be fishing or historical, War of 1812, and really utilizing that as a way to bring in tourism and to help economic development here in our region."



MONTEREY BAY NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES



MANAGEMENT

Monterey Bay International Trade Association (MBITA) Conference

On December 3rd, Superintendent Michel moderated a panel on "Marine Science and Ag Technology" at the 11th annual MBITA conference in Santa Cruz, CA. The conference title was "California's Super Region of Innovation" - presentations posted at <http://www.mbita.org/events/presentations/2014/californiassuperregion.html>. MBITA brings together business interests from around the Monterey Bay Region, Silicon Valley, and the Bay Area to discuss and network international trade opportunities in the Monterey Bay area. MBITA has been working on a new branding effort that incorporates and highlights marine science and the presence of the sanctuary, as well as tourism and agriculture, as what makes this region so unique and special.

MBNMS Conservation Working Group Strategy Session

The Conservation Working Group met on December 3, 2014 at the Elkhorn Slough National Estuarine Research Reserve. All CWG meetings are open to the public and SAC members were invited to attend. The focus of the CWG meeting was to develop a proposed work plan of topics and activities for 2015. In seeking a more integrated relationship with the SAC, the CWG requests that the CWG work plan be agendaized at the February 2015 meeting as an action item for formal input and approval by the SAC. The following items are potential CWG activities based on the capacity and interest of active CWG members - 1. Continued work on Leatherback sea turtle, conservation, 2 - Whale Disentanglement and, 3 - Alternative Energy (wave and/or wind energy) development in the Sanctuary. The CWG has been meeting since before the Advisory Council's inception in 1992, and has always provided a strong conservation perspective and voice for the community. Through these efforts, a number of topics have been brought to the staff's and SAC's attention including issues on acoustics, forage species, and whale entanglement.

RESEARCH AND MONITORING

Monterey Bay Marine Biodiversity Observing Network Meets in Moss Landing

Three demonstration projects to build a national Marine Biodiversity Observing Network (MBON) were recently funded with the goal of providing an integrated picture of what is happening to marine biodiversity in coastal oceans and enhancing the ability of policymakers and natural resource managers to devise effective strategies to address threats to biodiversity. One demonstration project is focused on the Monterey Bay and Florida Keys National Marine Sanctuaries which together encompass a wide range of marine environments, including deep sea, continental shelves, estuaries, and coral reefs. The Monterey Bay-focused MBON project gathered for an all-day meeting Thursday January 15th, 2015 at the Monterey Bay Aquarium Research Institute in Moss Landing. The group reviewed the available monitoring data, discussed innovative uses of new in situ observations and genomic techniques, and explored technology to integrate biodiversity data, make real-time data products available to resource managers, and create education and outreach products. The group decided on a pilot project for the next 6-12 months which will demonstrate how to integrate existing observations of the open-ocean ecosystem ranging from satellite-based sea surface temperature, to net samples of zooplankton, to ship-board observations of marine mammals. The results of the pilot project will be shared using video clips and web-based stories. 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.

SIMoN Staff Serve as Panelist in Beach & Surf Zone Ecosystems Condition Assessments Workshop for State

California has established a statewide network of marine protected areas (MPAs) to protect ocean ecosystems, rebuild depleted marine life populations, and improve ocean health. A central question lies at the heart of MPA monitoring: what is the health of California's ocean, both inside and outside the protected areas? Scientific monitoring produces data that provide the foundation for assessing ocean ecosystem condition, or 'health'. To explore this assessment challenge, California ecologists are working alongside managers to pilot a new approach for sharing monitoring results: a report card for California's ocean ecosystems. Dr. Steve Lonhart participated in a panel of marine ecologists during a two-day workshop held at the Romburg Tiburon Center. Using a series of criteria to evaluate the condition of beaches in the north central coast region, panelists generally agreed on the status and trends for each of the study sites. Participating in the state process to develop a system for assessing the 'health' of particular habitats is helpful to the development and application of our own system used in Condition Reports. In addition, the state learned from the Federal process, both its successes and failures.

SIMoN Photo Library Image Used in Biology of Plants, 8th Edition

Feldman and Associates, Inc., on behalf of the Publisher, W.H. Freeman and Company/Worth Publishers/Macmillan Higher Education, requested permission to reproduce an image for use in the the 8th edition of Biology of Plants, a college-level textbook often used in introductory and advanced botany courses. While he was a Teaching Assistant in graduate school, Lonhart taught plant biology using the 5th edition of this textbook. The photo (see below) was in the SIMoN (Sanctuary Integrated Monitoring Network) Photo Library (<http://sanctuarysimon.org/photos/index.php>). A copy of the textbook just arrived. Providing high quality and interesting photos, both underwater and on land, the SIMoN Photo Library is a widely used resource both by ONMS staff and external users. Access to free images of our sanctuary resources from the SIMoN web site facilitates development of outreach, education, and science materials outside of the sanctuary program and increases ONMS exposure.

SIMoN Staff Assist with Search for Invasive Species at Fitzgerald Reserve

On December 8th, Dr. Steve Lonhart collaborated with scientists from the Smithsonian Environmental Research Center (SERC), to conduct intertidal surveys for marine invasive species at the Fitzgerald Marine Reserve near Half Moon Bay. After exhaustively searching three 30-m long transects, each two meters wide, none of the targeted invasive species were detected. This work is funded by the California Department of Fish and Wildlife through a contract with SERC. Searching for invasive species and creating a baseline of knowledge is important for understanding the timing and pace of future invasions.

Reconnaissance Dive for ARMS Completed

On December 3rd, SIMoN staff (Chad King and Dr. Steve Lonhart) scouted the kelp forest at Hopkins Marine Reserve for several 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." The ARMS were provided by Dr. Jon Geller from Moss Landing Marine Labs, and his group will be conducting genomic analyses. Dr. Steve Litvin, Research Coordinator for the Marine Life Observatory Program at Hopkins Marine Station, Stanford University, has been an integral part of this collaborative project and assisted with ARMS retrieval and small boat operations. The ARMS will be removed in early January, when all organisms will be sampled and prepared for genetic analyses. Scouting for the ARMS and determining if they had moved during the several months soaking period will ensure efficient recovery and processing of the samples in early January.

CSU Channel Islands Students Learn about MBNMS

On November 21, 25 students from California State University Channel Islands visited the main office of MBNMS. Dr. Steve Lonhart provided a 30 min overview of the sanctuary, and then hosted a 20 min question and answer session. Students were mostly in environmental science majors, and were taking part in a class by Dr. Sean Anderson, one of the CSUCI faculty members and an annual visitor to MBNMS. Prior to visiting Monterey, the class had stopped in Cambria

and camped at Big Creek reserve. In addition to talking about marine protected areas, Dr. Lonhart discussed water quality programs and policy-oriented issues. Collaboration with Smithsonian divers featured in local newspaper. In October and November, Dr. Steve Lonhart and Chad King collaborated with scientists from the Smithsonian Environmental Research Center (SERC), to conduct subtidal diving surveys for marine invasive species in central California kelp beds. During a dive at Point Lobos, Chad King was able to capture excellent underwater images of the team collecting data, and these were featured in an article of the Monterey Herald. Although the invasive bryozoan *Watersipora* was found at the Breakwater, McAbee Beach, Hopkins, and Lover's Point, and often in relatively high densities, it was not found at Point Lobos, one of the oldest state marine reserves in California. As the primary field biologist for MBNMS in kelp forest ecosystems, Dr. Steve Lonhart often interacts with different Federal and state agencies, as well as NGOs. SERC has collaborated with MBNMS in the past, primarily conducting surveys and monitoring for invasive species. Lonhart's local expertise helped guide the SERC divers to particular sites, while they used their familiarity with several invasive species to conduct thorough benthic surveys.

Sunken barge *Umpqua II* located in Monterey Canyon

During a research cruise to study an active earthquake fault in Monterey Bay, scientists from the Monterey Bay Aquarium Research Institute (MBARI) discovered the wreck of the sunken barge *Umpqua II*. MBARI's autonomous underwater vehicle (AUV) was the first to detect the wreck using sonar. Scientists used MBARI's remotely operated vehicle (ROV) *Doc Ricketts* to more closely examine the wreck with a video camera. After some sleuthing, MBARI determined the wreck was purposely sunk in 1982 after running aground near Moss Landing, California. The shipwreck rests in 1,662 meters of water in the Monterey Canyon of the Monterey Bay National Marine Sanctuary (MBNMS). Designated in 1992, the MBNMS is protected from the intentional sinking of wrecks. The wreck may be revisited to study the long-term effects of the deep-sea on man-made objects, and the effects of these objects on the marine environment. For additional information and imagery, see: <http://phys.org/news/2014-11-sunken-berge-monterey-canyon.html>. MBNMS staff is currently monitoring a lost shipping container that is providing great insight into the issue of container loss and their impact on the seafloor. In March 2011 and December 2013, MBNMS and MBARI, used a remotely operated vehicle to document the state of a lost shipping container in the deep sea and its impact on the local ecology. The initial study showed an adverse effect to seafloor life of an area greater than 20 times its footprint. The discovery of a sunken barge may provide additional information on the long-term effects of the deep-sea on man-made objects, and the effects of these objects on the marine environment.

RESOURCE PROTECTION

MBNMS and WCR staff participated in Whale Disentanglement Team (WET) Training

Staff participated in Level 1 WET training last week in order to be certified as first responders to whale entanglement incidents. The training qualifies individuals on how to report entanglements, provide shore-based and on-the-water assistance during responses, conduct initial assessments and complete documentation. Approximately 70 people participated in the training including US Coast Guard, NOAA OLE, five commercial whale watch charters, dive charters, professional naturalists, and a variety of nonprofit NGOs such as Save the Whales, Oceana and Marine Life Studies. The training is described in detail in the NMFS policies and best practices document which can be found at this link: http://www.nmfs.noaa.gov/pr/pdfs/health/disentanglement_guidelines.pdf. Entanglement is increasing as one of the major threats to large whales and sanctuary staff participates with a number of partners (WET Team, USCG, NOAA OLE) in the effort in MBNMS to better understand and reduce this threat.

San Benito County Water District Irrigation Management Workshop

The Agricultural Water Quality Coordinator attended an irrigation workshop conducted by the San Benito Water District regarding the lowering of the groundwater table due to drought and the increased importance of conscientious water use in agriculture. Irrigation Management consultants Michael Johnson and Marcus Buchanon provided information regarding how to size and maintain irrigation systems to achieve even distribution uniformity across fields. They also discussed ways to compute the amount of water needed based on drip line sizing, soil holding capacity and evapo-transpiration losses. This session was held in Hollister on January 29 and attended by San Benito County growers and conservation professionals. Through better irrigation management growers can reduce water use, reduce the amount of infiltration of nitrate into

groundwater and reduce polluted runoff to surface water. Through the knowledge gained in attending these sessions and participating with growers and conservation professionals, the Agricultural Water Quality Coordinator can better explain the concepts of irrigation management and its importance. Through increased adoption of irrigation management and water saving practices, farms will use less water and contribute less agricultural pollution to the Monterey Bay National Marine Sanctuary.

Response to Injured Whale in MBNMS

West Coast Regional Office and NOAA OLE Officer Bob Yerena responded to a potential whale entanglement reported from a commercial whale watch charter on January 22. WCRO provided the vessel 4107 as one of the three response vessels, and searched for the humpback whale at the reported location in Carmel Bay on January 23. The injured humpback was not entangled, and upon analysis, a large gash was visible along the right mandible as well as a deep, asymmetrical indentation above the right pectoral fin. This was a known whale – “Big Fin.” She was also emaciated from lack of food, likely due to the mouth damage. The WET team took photos and video to document the situation and is verifying a preliminary conclusion of ship strike with whale experts. A report will be submitted to the Marine Mammal Disentanglement Network. Whale ship strikes are a rising threat to large whales migrating along the coast of California and throughout the ocean. 26 large whale strandings that occurred in California between 2006 and 2012 and are believed to be associated with ship strikes. Sanctuaries, NMFS and other agencies and stakeholders are working together to reduce this threat.

Desalination continues to be a hot topic for Monterey Bay’s Resource Protection Team

On January 12th, members of the Resource Protection Team conducted a second site visit to the CalAm Test Slant Well, along with CalAm and US Fish & Wildlife Service personnel. The visit was to ensure all mitigation measures outlined in the Environmental Assessment were being carried out and to observe drilling operations. They are making good progress drilling the slant well and appear to be on target to complete construction prior to nesting season of the snowy plover. The DeepWater Desal project proponents submitted a revised project narrative on January 21st in response to MBNMS feedback on their permit request. A future meeting is planned to determine next steps. On January 23rd, Water Quality Protection Program Director gave a presentation to Channel Islands NMS’ Sanctuary Advisory Council regarding MBNMS experiences related to desal, specifically our “Guidelines,” federal lead on test slant well project, and involvement in three other potential desalination projects within Monterey Bay. Sanctuaries have limited resources and staff so it is beneficial to share information and learn from each other’s experiences when these opportunities arise.

EcoFarm Conference at Asilomar

Monterey Bay National Marine Sanctuary’s Agricultural Water Quality Coordinator attended the EcoFarm Conference in Asilomar on January 21-24, 2015. The EcoFarm conference provides an opportunity for education and collaboration among researchers, conservation professionals and farmers regarding how agriculture affects the environment in terms of water quality, climate change and social issues. Growers and ranchers share their vision and methodologies with others to create a better future. Researchers discuss the importance of multiple objectives from integrated pest control, greenhouse gas production, energy use calculators and other regarding the climate and water quality impacts of their efforts are shared. Farmers share what works and what doesn’t work to create sustainable agriculture and healthy ecosystems. Attending the EcoFarm Conference provides insight into how the most dedicated and innovative growers and ranchers are improving their practices to make farms into carbon banks and efficient water users. These methods and insights often start on small scale farming systems can be promoted more broadly to larger farms on the watersheds that drain into Monterey Bay National Marine Sanctuary.

Optimizing Irrigation System Design and Scheduling of Strawberries

The Agricultural Water Quality Coordinator attended training sessions conducted by the California Strawberry Commission and UC Cooperative Extension regarding how to increase the efficiency of irrigation systems and how to match irrigation water applied to the water needed by the strawberry plants. This session was held in Salinas on January 14 & 15, and attended by many of the large berry growers in Santa Cruz and Monterey Counties. Through better irrigation management growers can reduce water use, reduce the amount of infiltration of nitrate into groundwater and reduce polluted runoff to surface water. Through the knowledge gained in attending these sessions and participating with farm supervisors and irrigators, the Agricultural Water Quality Coordinator can better explain the concepts of irrigation management and its

importance to other growers. Through increased adoption of irrigation management and water saving practices, farms will contribute less agricultural pollution to the Monterey Bay National Marine Sanctuary.

Santa Rita Meeting- January 10th, 2015

WQPP staff presented the Santa Rita Project Plan to Santa Rita neighbors and interested parties on Saturday January 10th. Attendees to the meeting were presented with all aspects of the Santa Rita Project including funding sources, strategies, partners and objectives: Improve water quality in Santa Rita Creek by reducing nutrients and sediment flowing from farms into the residential areas of Bolsa Knolls and Santa Rita, north of Salinas. The Resource Conservation District of Monterey County, Central Coast Wetlands Group, Return of the Natives and WQPP staff all presented on their organizations responsibilities under the IRWMP and IWRM grant. This project is a holistic approach to improving water quality in a severely impacted urban stream that eventually flows to the MBNMS. Through a collaborative, holistic, watershed based approach such as this one, the Monterey Bay National Marine Sanctuary will benefit from improvements in water quality.

MBNMS issues Letter of Authorization for California Coastal Commission (CCC) Coastal Development Permit (CDP) for the Cal-Am test slant well project

On November 12, 2014 the California Coastal Commission approved a CDP for the California American Water Company. Subsequently, on December 8, 2014, the CCC released the final signed CDP, which essentially allows California American Water to construct, operate and decommission a test slant well and associated monitoring wells at a previously disturbed area within the CEMEX site in the City of Marina. After completing an Environmental Assessment in September, and a Finding Of No Significant Impact in October, MBNMS issued a Letter of Authorization on December 9th that concurred with the CCC decision to move forward with construction and drilling for the slant well. Cal-Am will now use the test slant well to conduct a pumping and testing program over an approximately 24-month period to obtain data regarding the geologic, hydro-geologic, and water quality characteristics in aquifers underlying the project area. The data from the project will help determine whether a subsurface intake system at or near this location could provide source water for a potential seawater desalination facility.

Santa Rita Creek Restoration Project Monitored Post-Flood

WQPP Staff and volunteers monitored the Santa Rita Creek (also known as Little Bear Creek) in the Salinas, CA area as part of a project under the Integrated Regional Water Management (IRWM) grant. Recent rains caused flooding and the compromise of septic system in the watershed. Regular monthly monitoring was conducted post flood for bacteria, nutrients and sediment in the water. On the day of the monitoring a diesel spill was also occurring in the watershed and a local news team interviewed MBNMS staff: (<http://www.kionrightnow.com/news/local-news/salinas-neighborhood-faces-hazmat-situation-after-flooding/30308614>). The Ferrasci Park aspect of the project, conducted by partner Central Coast Wetlands Group, included restructuring and widening of the creek channel which dramatically decreased flooding in adjacent homes and properties despite flooding in other parts of the watershed. Monthly monitoring will continue throughout native plant restoration of the Ferrasci Park area and Best Management Practice (BMP) installation on farms in the watershed. Through collaborative holistic watershed based projects such as this one, the Monterey Bay National Marine Sanctuary will benefit from improvements in water quality.

ASBS Sampling Kicks Off the Rainy Season

On December 12 and 13th WQPP staff and volunteers conducted monitoring for Areas of Special Biological Significance (ASBS) in Pacific Grove, Carmel and Big Sur CA. On December 12, volunteers in San Mateo and Monterey Counties conducted monitoring at 21 outfalls that were between 18 and 36 inches diameter. This sampling was to take place during a storm however the severity of the storm was of concern and sampling was postponed for one day. Samples are analyzed for bacteria, oils and grease, total suspended solids, nutrients and toxicity. On December 13, WQPP staff and volunteer headed to Big Sur to monitor Reference Sites, areas with a 90% or more undeveloped watershed. Reference sites are monitored for bacteria, oils and grease, total suspended solids, nutrients, mercury and toxicity. Four sites were visited but water was collected only at one site, the others were either too dangerous to collect from or roads were impassable due to recent heavy rains. This the second year of a two year program to monitor outfalls and reference areas that flow into ASBS' along the central California coastline. Volunteers are essential to large scale monitoring programs for sample collection as well as information dissemination to the community.

Test Slant Well Breaks Ground

On December 18th, MBNMS Resource Protection staff conducted a site inspection of the California American Water test slant well located in the coastal dunes in Marina, CA. The slant well will be drilled under the sea floor of MBNMS into 3 different aquifers to determine feasibility as a potential source of brackish water for a future desalination facility. MBNMS was the federal NEPA lead and the inspection was to ensure that CalAm is complying with all 30 mitigation and avoidance measures outlined in the Environmental Assessment. The inspection went well and all necessary mitigations had been addressed. As the federal NEPA lead, MBNMS is responsible to ensure that all necessary actions are taken to prevent any disturbance of critical habitat or threatened or endangered species in the area. MBNMS will continue to monitor construction activities over the next two months.

First Annual Statewide MPA Collaborative Forum

December 1st and 2nd, was the first meeting of the MPA Collaborative Network, which was held in conjunction with the Ocean Protection Council's meeting on December 2nd. The Network is coordinated through the OPC Collaborative Implementation Project and representatives of all fourteen MPA collaboratives were in attendance to share information about collaborative projects and to discuss opportunities and challenges moving forward. The California Department of Fish and Wildlife, Ocean Science Trust, Ocean Protection Council, and State Parks were also in attendance to hear the concerns of the collaboratives and to answer any questions pertaining to their coordination. MBNMS staff participated as Co-Chairs for the Monterey and Santa Cruz Collaboratives participated and presented on each Collaborative as well as a panel for event based outreach. The Monterey Collaborative has proposed state funding support for valuable volunteer Bay Net and Team Ocean programming to integrate state MPAs into the training and outreach materials. In addition, both Monterey and Santa Cruz will be coordinating on a business and tourism ambassador program that will hold an event in each location. The Sanctuary continues to support the State MPAs and having sanctuary personnel involved in the efforts provides opportunities to coordinate and integrate both state and federal MPA messaging, share information on research and monitoring, and ensure members are aware of enforcement efforts.

EDUCATION, VOLUNTEER AND OUTREACH PROGRAMS

Energy Audits for Sanctuary Exploration Center

The Sanctuary Exploration Center is happy to be partnering with an engineering group from University of California, Santa Cruz to create a model of the building's energy use and compare it to the projected energy demands used to qualify for California's Title 24 guidelines and "Gold" LEED certification. The group will analyze two years of utility usage records as well as the records of the energy collected through the solar and rainwater collection systems. The Heating Ventilation and Cooling at the Exploration Center is controlled by Building Management System software which will provide historical usage and temperature data from seven different zones in the building, as well as weather records. The original architecture firm is collaborating with the engineering group to explore additional solar arrays to improve our yield, wind power as an additional supplement and a live time display screen in the exhibit area which would reflect the systems and real time usage. Image to the right shows the Thin-film Solar Array on the roof of the Sanctuary Exploration Center. The Sanctuary Exploration Center enjoys almost 70,000 visitors per year and has been operation for two and one half years, it is a LEED Gold building and strives to exemplify environmental stewardship by setting a good example with respect to the building's energy use.

MBNMS Presentations Continue in the Southern Region

Sanctuary Staff addressed 60 docents from California State Parks, SLO Coast Sector and Oceano Dunes District at a semi-annual meeting held at Rancho El Chorro on December 6, 2014. The presentation focused on an overview of MBNMS and the role of the Coastal Discovery Center at San Simeon Bay. Interest from the group was reflected by many follow-up questions on overlapping resource protection and education topics. Public presentations play a key role in increasing awareness of MBNMS, and its role in the southern region community, as well as forging partnerships for future outreach and education events and projects.

New interpretive sign at Coastal Discovery Center

A mural depicting kelp forest and sandy bottom habitats of San Simeon Cove on the outside of the Coastal Discovery Center now has an interpretive sign naming all of the marine inhabitants in the mural. The mural on the outer wall of the Coastal Discovery Center is enjoyed by thousands of tourists who come to visit the MBNMS and CA State Parks, where the Center resides. The new interpretive panel will enhance the educational element for visitors and school groups who wish to learn more about the undersea life of San Simeon Cove.

Coastal Discovery Center to host 4 Cal Poly interns

Starting in January 2015, students from California Polytechnic State University's marine biology and conservation departments will be working on projects to improve curriculum and interpretive exhibits located inside and outside the Coastal Discovery Center and CA State Parks. Most students have taken a class on developing curriculum in marine science for informal audiences, in accordance with COSEE. Curriculum topics include underwater bioacoustics and updating existing curricula such as harmful algal blooms and climate change. Other project topics include the history of shore whaling in San Simeon Bay and updating the Ranger Guide to be used by the general public. Internship programs at MBNMS' Coastal Discovery Center enhance educational programming while cultivating significant partnerships with academic institutions.

Highest visitation at the Coastal Discovery Center yet in 2014!

Monterey Bay National Marine Sanctuary's Coastal Discovery Center reached a record of number of 17,000 visitors, 1,000 students and over 2,000 people at outreach events in 2014. The Center is open on weekends and holidays throughout the year, and caters to students on weekdays during the school year. There are several non-guided programs offered to the general public, and guided programs offered to school children and to the public in the summer. Since opening in the summer of 2006, the Center has reached over 100,500 visitors and over 6,000 students. The Coastal Discovery Center in San Simeon Bay serves as the southern portal to MBNMS and plays an important part to increase ocean literacy to visitors from San Luis Obispo County and world-wide.

MBNMS joins multi-agency advisory committee on visitor/elephant seal management in San Simeon

Every year, millions of visitors come to visit Piedras Blancas along highway one to see northern elephant seals during pupping and mating season. Protecting these animals in accordance with the Mammal Protection Act (MMPA) takes a community effort on the part of agencies that enforce the MMPA, and NGOs that educate the public. This year, a new advisory committee was formed with members from CA State Parks, NOAA's Monterey Bay National Marine Sanctuary, BLM's Piedras Blancas Light Station and Friends of the Elephant Seal. The goals of the group are to better direct the public to the Piedras Blancas rookery and viewing site, prevent elephant seals from moving into parking lots and onto the highway, increase the range of interpretation efforts and to invite the local media to assist in educating the general public. Since 1992, the elephant population in San Simeon has grown from a few seals to over 23,000. Elephant seals attract millions of tourists causing great concern for traffic safety, human safety and the safety of the seals. A partnership approach is essential to the management of seals in this area.

NEWS COVERAGE

[Dan Haifley, Our Ocean Backyard: Creating more marine sanctuaries](http://www.santacruzsentinel.com/environment-and-nature/20150130/dan-haifley-our-ocean-backyard-creating-more-marine-sanctuaries)

<http://www.santacruzsentinel.com/environment-and-nature/20150130/dan-haifley-our-ocean-backyard-creating-more-marine-sanctuaries>

Santa Cruz Sentinel-Jan 30, 2015

[A Brief History of the Elephant Seals at Piedras Blancas](http://www.kcet.org/news/define/revisit/commentary/golden-green/a-brief-history-of-the-elephant-seals-at-piedras-blancas.html)

<http://www.kcet.org/news/define/revisit/commentary/golden-green/a-brief-history-of-the-elephant-seals-at-piedras-blancas.html>

KCET-Jan 28, 2015

[Whalefest Monterey Celebrates Sea Life](http://www.montereyherald.com/environment-and-nature/20150124/whalefest-monterey-celebrates-sea-life)

<http://www.montereyherald.com/environment-and-nature/20150124/whalefest-monterey-celebrates-sea-life>

Monterey County Herald-Jan 24, 2015

[Panel Tackles Contamination at Santa Cruz's Cowell Beach](http://www.santacruzsentinel.com/environment-and-nature/20150123/panel-tackles-contamination-at-santa-cruzs-cowell-beach)

<http://www.santacruzsentinel.com/environment-and-nature/20150123/panel-tackles-contamination-at-santa-cruzs-cowell-beach>

Santa Cruz Sentinel-Jan 23, 2015

[Why The Heck Do You Live In Petaluma? Here's Why: VIDEO](http://patch.com/california/petaluma/why-heck-do-you-live-petaluma-heres-why-video-0)

<http://patch.com/california/petaluma/why-heck-do-you-live-petaluma-heres-why-video-0>

Patch.com-Jan 19, 2015

[Save the Whale-Watching Dates!](http://www.thereporter.com/lifestyle/20150112/save-the-whale-watching-dates)

<http://www.thereporter.com/lifestyle/20150112/save-the-whale-watching-dates>

The Reporter-Jan 12, 2015

[What to do in CA: Whalefest Monterey, Southwest Arts Festival](http://www.sfgate.com/travel/article/What-to-do-in-CA-Whalefest-Monterey-Southwest-6003060.php)

<http://www.sfgate.com/travel/article/What-to-do-in-CA-Whalefest-Monterey-Southwest-6003060.php>

SFGATE-Jan 8, 2015

[Ensuring the Safety of Marine Mammals a Crucial Task along Coast](http://www.sanluisobispo.com/2014/12/12/3395622_ensuring-the-safety-of-marine.html?rh=1)

http://www.sanluisobispo.com/2014/12/12/3395622_ensuring-the-safety-of-marine.html?rh=1

The Cambrian-Dec 12, 2014

[Monterey Bay: Scientists Seek out Invasive *Watersipora* in Kelp Forests](http://www.montereyherald.com/environment-and-nature/20141210/monterey-bay-scientists-seek-out-invasive-watersipora-in-kelp-forests)

<http://www.montereyherald.com/environment-and-nature/20141210/monterey-bay-scientists-seek-out-invasive-watersipora-in-kelp-forests>

Monterey County Herald-Dec 10, 2014

[OCEANS '15 Announces Honorary Co-chairs](http://www.marinetechologynews.com/news/oceans-announces-honorary-cochairs-505008)

<http://www.marinetechologynews.com/news/oceans-announces-honorary-cochairs-505008>

Marine Technology News-Dec 8, 2014

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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