



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, the 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

National Marine Sanctuary News

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

More than 150 years ago, the Civil War ironclad USS *Monitor* sank off the coast of North Carolina, taking the ship's 16 crew members with her. In 1975, the area around the shipwreck became the country's first national marine sanctuary. In 2002, the remains of two sailors were recovered when the ship's gun turret was raised in an operation conducted with the U.S. Navy. For the next ten years, Sanctuaries staff worked with the Joint POW-MIA Accounting Command to identify the sailors. In 2012, forensic reconstructions of the sailors' faces were released. Efforts to identify the remains are ongoing. Last Friday, these two unknown sailors were buried with full military honors at Arlington National Cemetery. Director Rear Admiral Gerd Glang served as the NOAA Corps escort officer, accompanying the caisson carriage procession to the grave site. The event was a moving tribute to the sailors who served on the *Monitor* and a rich addition to our country's history.

MPA Center Publishes Common Language of Ocean Uses

The National Marine Protected Areas (MPA) Center has developed a comprehensive terminology to describe the diverse range of human uses of the oceans. Based on six years of experience mapping ocean uses, the Common Language supports place-based ocean planning and management by providing a straightforward, transparent, and consistent framework for planners to understand different uses, compare "apples to apples", and make informed decisions about the expanding set of co-occurring ocean uses in U.S. waters. The Common Language is the first of several analytical products on human uses of America's oceans that will be published on the MPA website. Currently, the site provides links to finalized products and data as well as overviews of ongoing efforts to identify potential conflicts and compatibilities among uses.

California Sanctuaries and Partners Develop New Sighting Network for Marine Mammals

Cordell Bank National Marine Sanctuary, in collaboration with PRBO Conservation Science (PRBO) and financial support from the Cordell Marine Sanctuary Foundation, has developed a voluntary sightings program known as Whale Aware. The Whale Aware program is a new system for gathering near real-time data on whale distribution and abundance. To help establish a baseline of quality data for this effort, PRBO biologists are conducting daily marine mammal surveys from the lighthouse on the Farallone Islands. Data will be integrated into a regional database that also contains crowd sourced data from the maritime community, data from the Applied California Current Ecosystem Studies (ACCESS), and dedicated over flights in partnership with the United States Coast Guard (USCG). With this data, NOAA and partners hope to work with the USCG Vessel Traffic Service to decrease the co-occurrence of ships and whales

Channel Islands Boating Center "Presentation of the Keys" Ceremony

A "presentation of the keys" ceremony was held to celebrate the completion of the newly constructed Channel Islands Boating Center, located at the Channel Islands Harbor in Oxnard, California. Nearly 200 attended the event, including several local elected officials, representatives from supporting agencies, private donors, the Chumash community, and a local Boys and Girls Club. The new waterfront facility supports the California State University Channel Islands' boating

and sailing education courses, and will also be open to the general public. The center offers a new hub for advancing sanctuary partnerships with the harbor and university.



MONTEREY BAY NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES



MANAGEMENT

Monterey County Business Council

MBNMS staff attended the regular monthly evening session of the MCBC. The MCBC is diligently moving forward with development and implementation of an 'Ambassador Program' which will provide a regimented educational opportunity for hotel and restaurant staff to partake in a program which results in a more educated workforce. These staff will be especially able to articulate the unique opportunities for enjoyment of the area to guests. MBNMS is prominently highlighted in this program.

Monterey County Convention and Visitors Bureau & Your Sanctuary

MBNMS staff and the Executive Director of AMP Media met with the Executive Director of MCCVB to solicit ideas and strategies to better promote the 'Your Sanctuary' television show and channel. The meeting was fruitful and resulted in several positive possibilities for future development.

Santa Cruz Chamber of Commerce Business Fair

MBNMS staff attended the annual Santa Cruz Chamber of Commerce Business Fair this week. This event is a premier opportunity to connect businesses, organizations, and the Santa Cruz County community face-to-face. Every year, more than 100 businesses and nonprofit organizations introduce their products and services to the more than 2,000 attendees at this function.

Coastal Commissioner Meet & Greet at Monterey Bay Aquarium

MBNMS staff attended an invitation-only convening of influential leaders, elected officials, and state & federal agencies to meet the new California Coastal Commissioner Carole Groom. The Monterey Bay Aquarium hosted the event, which included a round-table format for mayors of local cities to introduce themselves and highlight issues. Although much of the meeting revolved around land-use strategies, Ms. Julie Packard did highlight the ocean and National Marine Sanctuary as a topic worthy of follow-up conversations.

Monterey County Convention & Visitors Bureau

MBNMS staff met with the Marketing Director of the MCCVB to discuss possible ideas for cross-promotion. The MCCVB is very interested in promoting the area as an ecotourism destination, and are planning on better highlighting the presence of MBNMS in their marketing materials. In addition, they are interested in utilizing social media in creative ways.

Santa Cruz Chamber of Commerce, Women in Business Luncheon

MBNMS staff attended the quarterly meeting of the Santa Cruz Chamber of Commerce 'Women in Business' luncheon. This is a prime networking opportunity, as many local influential leaders use this forum to connect and promote their businesses.

Constituent Building with Hospitality Industry

MBNMS staff met with the Marketing Director of the Intercontinental Clement Monterey to discuss a myriad of topics

related to the MBNMS, and opportunities for the hotel to better promote their unique proximity to the NMS. The meeting was very fruitful; the staff were very interested in the MBNMS SeaPhoto app, and have begun sharing it with their guests on their Facebook page. (<https://www.facebook.com/ICTheClement>) In addition MBNMS staff had an opportunity to give a brief overview to the concierge, and may give a presentation to their front-line staff shortly.

Hospitality Segment - *Your Sanctuary*

MBNMS staff interviewed a select key business, Santa Cruz Sea Glass for the business segment of the Your Sanctuary Program, at the Sanctuary Exploration Center. The interview revolved around a linkage to maritime history, tourist serving qualities, sustainability, and other topics. Tune in shortly to view the next episode.

RESEARCH AND MONITORING

SIMoN staff earns NOAA Divemaster certification

From January 21st through February 1st, Sanctuary Integrated Monitoring Network (SIMoN) staff attended NOAA Divemaster training in Key West, Florida. NOAA Dive Center, staff used the campus of Florida Keys Community College, which has its own diving school program, to train 16 NOAA Working Divers and 4 Divemasters. In addition to extensive time in the classroom learning diving policies, procedures, and proper documentation of diving activities, divemasters spent most of the second week supervising the Working Diver class and participated in drills for a variety of dive emergencies, including decompression illness, embolisms, and unconscious divers.

Alcosta Dive Club in Orinda, CA invites SIMoN staff to give presentation

On February 4th, Sanctuary Integrated Monitoring Network (SIMoN) staff served as the featured speaker for a meeting of the Alcosta Dive club. Twenty-four divers were in attendance for the evening lecture, which focused on general sanctuary information and two more detailed presentations on invasive species. The first invasive species talk was on the Asian kelp *Undaria pinnatifida*, whereas the second talk highlighted recent research on the invasive bryozoan *Watersipora subtorquata*. During the course of the 90-minute lecture, dive club members asked a variety of insightful questions and were very engaged.

Scotts Valley High School invites SIMoN staff to present at Career Day

On February 7th, Sanctuary Integrated Monitoring Network (SIMoN) staff spoke at Career Day for Scotts Valley High School students. With 5 faculty and 25 students in attendance, staff showed slides about the sanctuary and the variety of tasks undertaken by marine biologists working for MBNMS. After a 20-minute slide show, students asked a number of questions, including several about the sanctuary and the health of our ecosystem.

Reef Environmental Education Foundation hosts SIMoN staff for a webinar series on invertebrate identification

On February 6th and 7th, REEF (Reef Environmental Education Foundation) hosted a 2-hour webinar from 7-9 PM on California Invertebrate identification. SIMoN staff used slides to describe all 65 species targeted by REEF's California Invertebrate monitoring program, highlighting diagnostic features and adding tidbits of natural history. This two-part class was free to REEF members and a recording is available for a limited time on the REEF web site (scroll down to the archives at: <http://www.reef.org/resources/webinars>). On the first evening, 43 people attended the webinar from throughout California, including a few from Oregon. On the second evening, 34 people attended and over two-thirds were returning viewers. This high turnout was especially exciting for the REEF staff that facilitated and ran the GoToMeeting from behind the scenes.

High Resolution Geomorphologic Surveys Completed of Elkhorn Slough

Elkhorn Slough is the second largest estuary in Northern California and part of Monterey Bay National Marine Sanctuary. In the last century, Elkhorn Slough has been dramatically affected by human actions causing reduction of freshwater influence, restriction of tidal flow in some areas, and increasing of tidal scour in the main channel after the

opening of Moss Landing Harbor in 1946. Terrestrial laser scanning was used between 2007 and 2012 to develop 3D time series of habitat changes through time. All habitat types have experienced erosion, with mudbanks and marsh edges experiencing the highest rates. MBNMS is participating in a multi-agency Tidal Wetland Plan to address the tidal erosion problem.

SIMoN staff reviews manuscript submitted to CalCOFI Reports

On March 4, staff reviewed a manuscript submitted to the California Cooperative Oceanic Fisheries Investigations (CalCOFI), which is a unique partnership of the California Department of Fish & Wildlife, NOAA Fisheries Service and Scripps Institution of Oceanography.

Japan Tsunami Marine Debris page updated on SIMoN

The Japan Tsunami Marine Debris information web page has been updated on the Sanctuary Integrated Monitoring Network (SIMoN) and can be found at:

<http://sanctuariesimon.org/news/index.php/2013/02/noaa-tracks-tsunami-debris-updated-6712/> Updated information includes confirmed large tsunami debris (docks, boats) deposited on the beaches of Washington and Oregon, with supplemental links to additional debris spotted in Hawaii and Alaska. SIMoN staff plan to periodically update this page with the most recent information and links. Japanese officials estimate that 5 million tons of Japan Tsunami Marine Debris (JTMD) washed into the Pacific after the March 11, 2011, earthquake and tsunami, according to the National Oceanic and Atmospheric Administration (NOAA). About 70% of that sank, leaving about 1.5 million tons floating. Scientists expect more debris to hit Alaska and the West Coast of North America in coming months and through 2014.

Davidson Seamount corals featured in the San Francisco Ocean Film Festival

On March 9, "Exploring Corals of the Deep" is being screened at the San Francisco Ocean Film Festival, held at the Bay Theatre, Pier 39, next to the Aquarium of the Bay. This film examines corals and their role in the ocean. Based largely on two Sanctuary cruises to Davidson Seamount, the film provides excitement about deep-sea exploration while teaching about resource management issues. The ten minute film, produced by KQED's Quest program, can be viewed at: <http://science.kqed.org/quest/video/exploring-corals-of-the-deep/>.

3rd Biennial Ocean Climate Summit attended by SIMoN staff

On February 20, SIMoN staff attended the 3rd Biennial Ocean Climate Summit at the Golden Gate Club in The Presidio of San Francisco. The goal of the summit was "to connect information, resources, and people across disciplines to collaboratively sustain north-central coast and ocean ecosystem health through fostering awareness, promoting action, and advocating climate smart conservation." In particular, resource managers, scientists, educators, and public relations specialists involved in climate change science met to 1) discuss collaborative partnerships and successes in addressing climate change science; 2) share new information and tools across disciplines on climate change science; 3) highlight new education and outreach efforts that inspire action within the community; 4) hear about resources for climate adaptation planning/climate smart conservation; and 5) build upon existing collaborations and forge new partnerships. The meeting was attended by more than 100 local scientists, educators, and natural resource managers.

Moss Landing Marine Lab graduate student dives in Monterey Harbor

On February 21, SIMoN science divers led an orientation dive for Stephen Loiacono, a 2nd year masters student at MLML. Stephen is planning to deploy settling plates in the Monterey Harbor and track which species colonize the plates. The interesting aspect of this study is that the plates will be temperature controlled at 2 degrees C above ambient. Stephen was originally looking at how increased SST may affect settlement and recruitment of southern CA species and introduced species from warmer regions. After discussions with Steve Lonhart, an external member on his thesis committee, Stephen will also assess how the thermal increase may affect settlement and growth rates of native species, particularly if the increase moves certain species closer to their thermal optimum.

State of the California Central Coast

Monterey Bay Sanctuary staff attended the conference "State of the California Central Coast: Reflecting on the First Five Years of MPA Monitoring and Management." Overall, partnerships are building in this huge collaborative effort of management, science and education. Signs of marine reserve benefits were presented over this three-day conference. From the MBNMS office, Paul Michel provided opening remarks, Dr. Steve Lonhart and Chad King co-authored a poster on kelp forests along the Big Sur coast, and Dr. Andrew DeVogelaere co-authored a presentation on using Sanctuary resources like the R/V *Fulmar* and camera sled in collaborations to address marine reserve monitoring needs.

MBNMS Research Activity Panel Meets at NOAA Fisheries Santa Cruz

On March 8th, the MBNMS Research Activity Panel (RAP) will meet at NOAA Fisheries Service, in Santa Cruz, CA. Agenda items include: NOAA Fisheries Research Update; Draft RAP Protocol for Interacting with MBNMS SAC, other SAC Working Groups, and Staff; State of California Central Coast Symposium; and Spatial Knowledge of Research Activities in MBNMS.

SIMoN staff reviews class of 2013 Hollings Undergraduate Scholarship applications

Staff reviewed 7 applications on March 6, 2013. Undergraduates applied to the Ernest F. Hollings Undergraduate Scholarship, which is in turn reviewed by NOAA staff. The purposes of the program include: (1) increase undergraduate training in oceanic and atmospheric science, research, technology, and education and foster multidisciplinary training opportunities; (2) increase public understanding and support for stewardship of the ocean and atmosphere and improve environmental literacy; (3) recruit and prepare students for public service careers with the National Oceanic and Atmospheric Administration and other natural resource and science agencies at the federal, state and local levels of government; and (4) recruit and prepare students for careers as teachers and educators in oceanic and atmospheric science and to improve scientific and environmental education in the United States. The program provides selected undergraduate applicants with awards that include academic assistance (up to a maximum of \$8,000) per academic year for full-time study; housing assistance; a 10-week, full-time internship position (\$650/week) during the summer at a NOAA or partner facility. The internship occurs between their junior and senior year and provides "hands-on" multidisciplinary educational training experience involving the scholars in NOAA-related scientific, research, technological, policy, management, and education activities.

SIMoN staff continues invasive species study in Monterey Harbor

On March 11, SIMoN staff (Chad King and Steve Lonhart) continued to collect photo quadrat data from a series of cement pier pilings in Monterey Harbor. These pilings are infested with multiple invasive species, including the invasive bryozoan *Watersipora subtorquata*. Taken monthly, this time series of digital images from the same locations provides insight on the community dynamics of both invasive and native species, as both algae and invertebrates compete for limited space. Turnover and changes in percent cover, particularly for invasive and cryptogenic species, have been surprisingly fast, operating at scales of days to weeks. The following week, SIMoN staff dove on a project for an undergraduate at CSU Monterey Bay who is studying invasive species in Monterey Harbor under the supervision of Dr. Lonhart. She is studying the same invasive bryozoan, a species native to Asia. She began an experiment on detached adult colonies, called bryoliths, which appear to be the targets of native crabs (*Cancer gracilis*). She is interested in determining if bryolith destruction by the crabs is due to predation or is a result of the native crabs targeting other species (e.g., annelids, sipunculans) that live within the bryolith. Her team placed cages with different experimental treatments and will monitor them for the next couple of days.

MBNMS Research Staff Publishes Paper on Nearshore Sediment Dynamics of Rocky Reefs in Continental Shelf Research, March 2013

Monterey Bay National Marine Sanctuary Research Staff co-authored a study entitled "Burial and exhumation of temperate bedrock reefs as elucidated by repetitive high-resolution sea floor sonar surveys: Spatial patterns and impacts to species' richness and diversity" in the peer-reviewed journal Continental Shelf Research. To understand how chronic sediment

burial and scour contribute to variation in the structure of algal and invertebrate communities on temperate bedrock reefs, the dynamics of the substrate and communities were monitored at locations that experience inundation and adjacent areas that do not. Co-located benthic scuba-transect surveys and high-resolution swath-sonar surveys were completed on bedrock reefs on the inner shelf of northern Monterey Bay, CA. Areas with chronic burial and exposure were less diverse than adjacent, stable areas.

SIMoN staff presents to Save Our Shores Sanctuary Stewards training program

On March 7th, SIMoN staff was invited to speak to 40 members of the Save Our Shores (SOS) Sanctuary Stewards training program. Dr. Lonhart spoke for 90 minutes, providing an introduction to ONMS and MBNMS, resources on the SIMoN web site, and discussed the natural history of several iconic marine organisms that live in the sanctuary. Save Our Shores (SOS) is a non-profit marine conservation organization in Santa Cruz, California with a mission of caring for the marine environment through ocean awareness, advocacy, and citizen action. Stewards participate in a six-month long course that provides information on local marine resources, organisms, and habitats. These volunteers assist with beach clean-up programs, provide information to boaters as part of a dock-walker program, and assist SOS staff with public outreach and education.

SIMoN staff attends Science Advisory Council meeting for Save Our Shores

On March 12th, Sanctuary Integrated Monitoring Network (SIMoN) staff participated in a meeting of the Science Advisory Council (SAC) for Save Our Shores (SOS), a non-profit marine conservation organization in Santa Cruz, California whose mission is caring for the marine environment through ocean awareness, advocacy, and citizen action. SAC members reviewed and advised SOS staff and Executive Director Laura Kasa on the revised SOS goals for CY2013. Dr. George Leonard of the Ocean Conservancy has recently taken over as SAC chair, and part of the meeting was spent reviewing past SAC input and how the SAC can support future efforts by SOS staff and volunteers.

SIMoN staff deposits historical images with UCSB Special Collections Library

On March 13th, Sanctuary Integrated Monitoring Network (SIMoN) staff (Chad King and Steve Lonhart) transported thirty boxes of historic intertidal slides and photographs to the Davidson Library at UC Santa Barbara. The materials were from the collection of Drs. Mark and Diane Littler, intertidal marine ecologists formerly at UC Irvine and more recently at the Smithsonian. In the 1970s, the Littlers along with other southern CA ecologists conducted extensive surveys along the California coast, from Point Conception to the Mexican border. The Smithsonian was preparing to destroy the materials, but intervention from HQ sent the boxes to MBNMS, and then staff found a suitable home for these valuable resources at the UCSB Special Collections Library. Librarians were very excited to receive the materials, and eventually they will be available to researchers and the public.

SIMoN Staff Reviews its Website and Tools with the Sanctuary Education Panel

On March 21, Chad King gave a presentation to teachers and representatives from the Sanctuary Education Panel (SEP) at the Monterey Bay Aquarium. The main purpose of the discussion was to review the tools that www.sanctuariesimon.org offers, including a robust species database, photo library, monitoring project information, and interactive maps. The representatives will be asked to brainstorm how to apply these tools and available data to lesson plans for students from elementary through high school.

Staff representative attends UC Santa Cruz dive control board meeting

On March 18, the UC Santa Cruz Dive Control Board (DCB) held its quarterly meeting. Dr. Steve Lonhart serves on the DCB as a voting representative for NOAA MBNMS. Items related to NOAA divers included a report on the status of UCSC cylinder contaminated by the R/V FULMAR compressor (the cylinders have been cleaned) and corrective actions

to the FULMAR compressor system and operating protocols. Items related to the Pacific Grove hyperbaric chamber were also discussed, including local institutional support in coming years (e.g., \$1000 per institution, per year).

Planning underway to install ARMS in kelp forest at Hopkins Marine Station

On March 20, staff met with Dr. Steve Litvin, Research Coordinator for the Marine Life Observatory Program at Hopkins Marine Station, to discuss the placement of nine Autonomous Reef Monitoring Structures (ARMS). These stacks of PVC settling plates are used in metagenomics, which is the study of metagenomes (i.e. genetic material from many species) recovered directly from environmental samples. This is part of an effort by Dr. Jon Geller (Moss Landing Marine Labs) to establish a Genomic Observatory (GO; <http://www.genomicobservatories.org>) in central California. The GO mission is "to build a global network of premier research sites working to generate genomic observations that are well contextualized and compliant with global data standards. To coordinate a set of long-term, place-based, DNA-centric programs that quantifies biotic interactions in an ecosystem and develops models of biodiversity to predict the quality and distribution of ecosystem services." Geller has the lab equipment to do next generation sequencing and is very interested in sampling kelp forest reefs. The ARMS will likely be co-located with other sampling equipment (e.g., ADCPs, larval collectors) that is in place or soon will be emplaced for other, unrelated research. Deployment of the ARMS will likely take place in mid-April.

MBNMS and MBARI staff meet to discuss permitted activities and recent research

MBNMS and MBARI staff met to discuss recent research activities as part of annual MBNMS permit meeting. Discussion included research activities related to ocean acidification, Davidson Seamount, Monterey Accelerated Research System (MARS), Sanctuary Ecologically Significant Areas (SESAs), and public outreach.

Western Regional Panel on ANS meets via teleconference

On March 21, Sanctuary Integrated Monitoring Network (SIMoN) staff participated in a conference call for the Western Regional Panel (WRP) on Aquatic Nuisance Species (<http://www.fws.gov/answest/>). Last fall Dr. Steve Lonhart was asked to serve as the alternate representative for NOAA, one of several Federal agencies represented on the WRP. This was his first meeting, and topics covered a broad range of ANS issues, including quagga mussels, boat filtering systems, Japanese Tsunami Marine Debris (JTMD), environmental DNA sampling to detect ANS, and recent budget cuts to all of the Federal partners. The teleconference was highly informative.

Staff invited to Carmel High School Career Day

On March 22, staff once again participated in the biennial Career Day at Carmel High School. CHS invited members of the community, from a wide array of career fields, to the school to talk with students about their careers. Dr. Steve Lonhart was a presenter at the event two years ago and was asked to return as part of a panel on careers in "Marine Sciences". Panel presentations with speakers from similar career fields in marine science offered details and insights about their profession and career path. Three separate groups of about 30 students attended the panel over the course of the morning.

SIMoN staff lectures volunteer docents about kelp forest and rocky intertidal organisms on display at SEC

On March 23, Sanctuary Integrated Monitoring Network (SIMoN) staff lectured for two hours on kelp forest and rocky intertidal organisms that are on display at the Sanctuary Exploration Center (SEC). This second 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.

RESOURCE PROTECTION

Coordination Talks with Central Coast Regional Water Quality Control Board Positive

On February 6, the WQPP Director traveled to San Luis Obispo with partners from Cal State Monterey Bay and the Central Coast Wetlands group for a series of meetings with Regional Board staff and managers. Topics of conversation included the Central Coast Action Tracker, Regional Monitoring, Riparian Zone mapping, Water Resource Project Coordination and lastly the formation of Agriculture Cooperatives to satisfy the newly adopted Agriculture Order. The staff were very supportive and grateful for the many collaborative efforts on the Central Coast.

Central Coast Action Tracker Alpha-version Released

On February 19, WQPP staff and the Central Coast Wetlands Group hosted a webinar with Green Info Network (web designers) to release the first version of the Central Coast Conservation Action Tracker. This web portal has been in development for over a year working with Central Coast Resource Conservation Districts to create a database to track management practices that will improve water quality in watersheds flowing to the sanctuary. The goal of the Tracker is to have an online accessible data set to better understand where practices are installed, the pollutants they are removing and the level of effort and funding that is occurring in particular watersheds. The tracker includes sophisticated mapping tools, summary data and queryable report generation. The final version will be released in summer 2013.

Educating graduate students on the Ag-Water Nexus

On February 16, MBNMS staff presented to graduate students at the Monterey Institute of International Studies. The course was on the Ag-Water Nexus. Staff provided an overview of the sanctuary's interest in water quality stewardship, and a history of agricultural water policy, regulation and collaboration on California's central coast. Topics included sanctuary partnerships with farmers through the Agriculture Water Quality Alliance and the Farm, Food Safety & Conservation Network. Staff summarized the different policy tools available to address agricultural pollutants, and the current status of regulations in the region. Class discussion explored ideas for improving the policy process to achieve results. The students later toured field sites demonstrating solutions in the Pajaro River watershed.

EPA releases new criteria for Beach Water Quality

On February 21, WQPP staff attended the Northern California Beach Water Quality Monitoring Group meeting. Discussion included a summary of the State of the Science workshop held in Southern California and recommendations for follow up actions. The bulk of the conversation focused on US EPA Recreational Water Quality Criteria recommendations released in November 2012. The last issued recommendations by US EPA were in 1986. Recent epidemiology studies were conducted and compared to the 1986 studies. The illness rates, as they relate to the indicators, were very similar in both studies. The State of California must adopt some version of the recommendations for it to become law. The recommendations include two levels of protection for human health and several ways to calculate it. Fecal indicators remain enterococci for marine and fresh water systems and *E. coli* for fresh water. It is yet to be determined how the criteria will be applied and how it will affect the number of beach postings in the future.

First Flush Results Presented to Stormwater Group

On February 27, WQPP staff presented summary Dry Run and First Flush results to the Monterey Regional Storm Water Management Program (MRSWMP). The MRSWMP program includes the cities of Pacific Grove, Monterey, Seaside, Carmel, Del Rey Oaks, Marina and Monterey County. Since 2006, MRSWMP has funded four storm drain outfall monitoring events annually through their storm water program. The 2012 Dry Run occurred on September 23rd with the help of 23 volunteers that checked all 23 sites but only 4 had flowing water and were subsequently monitored. The First Flush event occurred on October 22, with 18 volunteers monitoring 11 sites during a strong rain storm that passed over Central California.

Irrigation Nutrient Management Program to Begin in the Salinas Valley

After many years of negotiations with the State and Regional Water Quality Control Board, a \$1.25M contract has been finalized to develop and implement a regional irrigation and nutrient management program in the Salinas Valley. The

WQPP in partnership with Coastal Conservation and Research, Central Coast Wetlands Group, RCD of Monterey County and UC Cooperative Extension, will begin conducting assessments of growing operations to determine if irrigation and/or fertilizer efficiencies are possible while ensuring successful crop yields. Once assessments are complete, best management practices will be implemented and infrastructure installed as appropriate. It is our intention that this program will become a model for other Central Coast watersheds and will increase our knowledge on the effectiveness of practices and improvements to water quality.

Second Flush another flowing success!

In the early morning hours of March 6, staff with the MBNMS' Water Quality Protection Program (WQPP) and the assistance of 5 volunteers sampled 7 storm drain outfall sites as part of the Monterey Regional Storm Water Management Program (MRSWMP) monitoring program. The location of monitored outfalls extended from Pajaro to Carmel and included areas not covered under the new Areas of Special Biological Significance (ASBS) Special Protections. Field measurements were collected for temperature and conductivity and samples were collected for lab analysis of bacteria (*E. coli*, enterococcus), metals (total copper, total zinc, total lead), nutrients (nitrate, phosphate, urea) and total suspended solids. Data collected assists local cities to comply with regulations as part of their National Pollution Discharge and Elimination System (NPDES) permits. This is the first time a second, late season storm has been monitored for the MRSWMP program. Significance: This is the 13th year of First Flush which assists local cities with information on the quality of water running off city streets into the Monterey Bay National Marine Sanctuary during the winter season. Monitoring a late season storm will give an indication of pollutant concentrations and how they may change over the course of a winter season.

Hollings Scholars Visit MBNMS

On March 11 and 12, two Hollings Scholars conducted site visits to the MBNMS office. One is an Environmental Engineering student at the University of South Florida and will be working with our Agriculture Water Quality Coordinator and partners at UC Cooperative Extension to monitor three different field installed bio-reactors to measure and document the effectiveness of nitrate removal from surface water and agriculture tile drains. The second Hollings Scholar is an Environmental Science major at the University of North Carolina at Chapel Hill and will work with our Volunteer Monitoring Coordinator on multiple monitoring programs in Salinas and Pacific Grove. Both were very enthusiastic and we're excited for their help.

Annual Permit Reporting to NMFS for Fireworks

MBNMS staff completed the annual reporting requirements pursuant to the Marine Mammal Protection Act Letter of Authorization. This NMFS LOA allows for harassment of seals and sea lions as a result of fireworks discharges within or adjacent to the MBNMS. During the 2012 calendar year, three permit holders conducted fireworks celebrations within their communities.

New volunteers learn about Team OCEAN and Bay Net programs

On the evening of March 14, 25 new and returning volunteers attended an informational meeting about the Bay Net Shoreline Naturalist and Team OCEAN Kayaker Naturalist programs. Topics covered were how to get started with training, kayak safety classes, weekend field trips and mentoring. Both programs focus on the incredible wildlife in Monterey Bay and how to appropriately view it without causing a disturbance.

Proposal for International Leatherback Sea Turtle workshop

The Conservation Working Group's leatherback sea turtle subcommittee met with participants from NMFS and Indonesia to discuss a proposal for hosting an international workshop in October 2013 in Monterey. The proposal is to fund a four-day bi-national conference on Pacific leatherback sea turtle conservation in which invited leaders from Tambrauw-Indonesia and California come together to reinvigorate discussions and agreements to protect nesting habitat and other threats to this critically endangered species. Since 2000, NMFS has spearheaded local training, monitoring, patrolling, and managing efforts to protect nesting sites, despite limited financial capacity. A number of NGOs have also been working on this effort,

yet sometimes the efforts have not been cohesive resulting in confusion for the local villagers and stakeholders. The recent critical habitat and California state marine reptile designations are positive steps toward achieving conservation goals and restoring sea turtle populations. However, this Pacific population continues to decline at a rate of 6% a year, and the need for implementing conservation actions has become critical. Enhanced cooperation between Tambrauw-Indonesia and California conservationists would strengthen the work of both sides by connecting the two regions critical to the leatherback's life cycle.

Site Visit by Department of Water Resources

On March 6th, WQPP staff, MBSF Executive Director, and several partners met with three staff from the Sacramento office of the Department of Water Resources Integrated Regional Water Management program to review the status of the Planning Grant that is being managed by MBSF. Many topics were discussed, but emphasis was placed on outreach to disadvantaged communities and the effort in Salinas to develop an effective watershed strategy to facilitate a common vision for a severely impaired watershed that drains to Moss Landing Harbor and ultimately the Elkhorn Slough and MBNMS. The Planning Grant is approximately 2/3 complete and the meeting was productive.

Federal Partners Share Activities Related to America's Great Outdoors Initiative

On March 14, Resource Protection staff met with fellow federal agency staff to update each other on activities pertaining to the Monterey Bay America's Great Outdoors White House initiative. Present were staff from USDA's Natural Resources Conservation Service, NOAA Fisheries, US Geological Society, National Parks Service and the District Director for US Congressman Sam Farr. MBNMS staff presented numerous sanctuary programs related to the major themes in the Monterey Bay AGO work plan including Information/Outreach, Inter-agency Coordination, Public/Private Sector Watershed Planning, and Socio-economic Benefits of Conservation. We plan to follow up with agencies not represented at the meeting and continue the work through a Working Group and theme based sub-committees.

Agriculture Water Quality Coordinator Recruitment

The WQPP currently has an opening for an Agriculture Water Quality Coordinator. This position coordinates the Agriculture Water Quality Alliance (AWQA), a partnership between USDA's Natural Resources Conservation Service, UC Cooperative Extension, Central Coast Resource Conservation Districts and the Coalition of Monterey Bay Area Farm Bureaus. The AWQA partnership began in 2000 and has since leveraged millions of dollars of state and federal funding to provide technical support, best management practice implementation and nationally renowned programs such as Livestock and Lands, Rural Roads, and Irrigation Nutrient Management. All AWQA efforts are designed to implement actions and strategies identified in the WQPP Agriculture and Rural Lands Action Plan.

Pajaro River Cleanup Operation

NOAA OLE and MBNMS conducted a site visit to lower Pajaro River between the Main Street bridge and downstream railroad bridge in Watsonville. The Monterey County Sheriff's Department and CDFW found high levels of debris partially blocking the river due to garbage from homeless encampments, which are a threat to steelhead as well as to sanctuary waters as the debris will travel downstream to the ocean. The Sheriff's Department is working with the nonprofit group Coastal Habitat Education & Environmental Restoration (CHEER) to implement clean ups along the Monterey County side of the upper and lower Pajaro River. CHEER has been providing support for the folks in the encampments by directing them to free services, as well as encouraging them to assist in the clean-up. Overall, it appears to be a fairly extensive and hopefully productive effort that will continue over the next few days and MBNMS will continue to track progress.

MBNMS staff gives Davidson Seamount lecture to Sanctuary Exploration Center docents

On the evening of March 26, MBNMS staff gave a presentation to 30 new docents of the Sanctuary Exploration Center in Santa Cruz. The presentation "Davidson Seamount: A Remarkable Feature In Your Sanctuary," included an introduction to seamounts, exploration and characterization of Davidson Seamount, and recent protections of the seamount.

Meeting with NGOs on Sanctuary Ecologically Significant Areas (SESAs) and a Collaborative Essential Fish Habitat (EFH) Proposal

Staff met with TNC, EDF, NRDC, Ocean Conservancy and Oceana to discuss how to move forward with a collaborative EFH proposal for the Central Coast. This was the first group discussion and they concurred that the Sanctuary should play a lead role for the proposal development process in order to facilitate input from both fishermen and the conservation community. Next steps are to develop overall objectives for the joint proposal and develop a meeting schedule.

Ag Expo Promotes Healthy Watersheds

On March 19, WQPP staff tabled with Agriculture Water Quality Alliance (AWQA) partners at a primarily Spanish speaking Agriculture Expo for approximately 100 technical service providers, growers and farm workers. An AWQA partner gave a presentation on the opportunities related to the Irrigation Nutrient Management programs on the Central Coast. MBNMS educational materials were distributed.

TNC Land-Sea Project in the Salinas Valley

On March 21, WQPP staff met with The Nature Conservancy's Director of Central Coast Working Lands to talk about the initiative they are scoping in the Salinas Valley. The WQPP Director was asked to be a Land-Sea Strategic Advisor. This is a multi-phased effort beginning with convening a science panel of researchers to identify the issues and possible solutions that TNC can bring to the region. They hope to have results and decisions within six months.

Students & MBNMS

MBNMS staff hosted a guest lecture to CSU Monterey Bay's Oceanography class this week. This class, in the upcoming weeks, will be using the MBNMS as a model for studying much about the ocean and protected areas. Staff gave a presentation on various components of our program including resource protection, regulations, education, constituent involvement & and research. The feedback from the Professor & students was positive.

The MBNMS CWG met the Elkhorn Slough to prep for the upcoming April SAC meeting.

Agenda topics included beta testing the Sanctuary Ecologically Significant Areas online GIS tool, a discussion on the steps forward for an Essential Fish Habitat proposal, a Leatherback subcommittee update on funding for an international meeting, review of the February SAC agenda, and a great presentation from Bridget Hoover on the Sanctuary's Water Quality Protection Program.

EDUCATION AND OUTREACH PROGRAMS

State Parks Interpretive Managers and their staff Tour the Exploration Center

California State Parks Staff made a special trip from Monterey to the Sanctuary Exploration Center and received a presentation from Director Lisa Uttal about the sanctuary and the Exploration Center facility and exhibits construction. In particular, the group was interested in learning about the exhibits process for the Exploration Center from conception to final construction and opening day on July 23, 2012. The Center has been open for just over 6 months and has received close to 44,000 visitors, conducted 24 tours, 17 special events and meetings. 50 docents have been trained and are a tremendous help at the center. Groups from NOAA,



Coastal Commission, Chamber of Commerce, Rotary Clubs, Triathlon Association and the public are some of those that have already held events at the center.

Students explore Monterey Bay fisheries at the Monterey Commercial Wharf

Twenty students from Highland Elementary School in Seaside, CA participated in a fisheries field trip to the Monterey commercial wharf on Feb 13, 2013. This field trip was part of the *Voices of the Bay* fisheries education program, which engages students in hands-on curriculum introducing California's rich fishing heritage as well as the relevance and value of today's fisheries. Students participated in the *Balance in the Bay* fisheries activity and conducted a personal interview of local salmon, crab, and rockfish fisherman Jane De Lay and Mike Ricketts while aboard the F/V *Seahawk*.

Santa Cruz community members attend informational meeting to volunteer

On February 14th and 16th, community members from near and far came to two Sanctuary Exploration Center informational meetings for the 2nd Docent Training Course. The 35-hour docent training course will run for five weeks on Tuesday evenings and Saturday mornings starting the first week in March. To date, 31 applications have been submitted for the next training. Topics covered will be about the Sanctuary System, Watersheds, Davidson Seamount and the deep sea as well as the incredible biodiversity of the Monterey Bay National Marine Sanctuary and individual's role in sanctuary protection.

MERITO Academy students explore habitats between the tides and Life in the Mud at Moss Landing

MERITO Academy students from Olson Elementary School in Marina, CA explored the Moss Landing mudflats on Feb 15th, and students from Highland Elementary School visited The Great Tidepool at Pt. Pinos on Feb 20th. Five Sanctuary Exploration Center Docents and MBNMS staff taught students about the life that has evolved to live between the tides, both in the mud and on the rocks. Both Highland and Olson Elementary schools will embark on all four of the MERITO Academy field trips this year (mudflats, tidepools, fisheries and Elkhorn Slough), providing a comprehensive learning experience for their students. On February Feb 27th and March 6th MERITO students from Highland and King Elementary schools in Seaside, CA explored the mudflats habitat in Moss Landing. Led by MBNMS staff and volunteers, students conducted mud cores to uncover worms, clams, shrimp and fish. The trip culminated in group-presentations of the animals they discovered complete with skits and songs!

Monterey Bay and Regional staff take first place in Chowder Cook-Off

Monterey Bay Monterey Bay National Marine Sanctuary and West Coast Regional Sanctuary staff teamed up to compete at the 32nd annual Clam Chowder Cook-Off in Santa Cruz at the Boardwalk on Saturday February 22nd. Sanctuary staff and Exploration Center volunteers took this opportunity to educate the thousands of chowder enthusiasts on Monterey Bay Sanctuary and the Exploration Center, which is located in close proximity to the Santa Cruz Boardwalk. Seventy-two individual and professional teams competed for best Manhattan and Boston Clam Chowders. With help from sanctuary staff, volunteers and a recipe from head chef Lisa Wooninck, the team brought home 1st place for best Individual Manhattan Chowder!

MBNMS Promotion via Social Media

MBNMS staff met with the Marketing Director of The Portola Hotel & Spa to discuss opportunities to provide content to the Portola Blog, which would further alert their guests to the beauty of the MBNMS and the opportunities for wildlife viewing just steps away from the hotel. Currently the Portola runs a MBNMS-produced video in all of their 300+ rooms, but there remain additional creative ideas for additional focused-awareness efforts.

MBNMS Exploration Center holds their first ever book signing with author David Helvarg

David Helvarg, author and Executive Director of the Blue Frontier Campaign did a presentation and book signing of his new publication *The Golden Shore* in the



Fly Through theater at the Sanctuary Exploration Center. Part History, part travelogue, part investigative love letter, *The Golden Shore* reveals how the Pacific Ocean defines itself and enriches California. Mr. Helvarg also stresses the importance of sanctuaries along our coast and how California is doing their part to protect such an incredible resource. This book is now available in the Exploration Center bookstore (signed autographed copies available).

Students from MERITO Academy Explore Life in the Mud at Moss Landing

On February Feb 27 and March 6 MERITO students from Highland and King Elementary schools in Seaside, CA explored the mudflats habitat in Moss Landing. Led by MBNMS staff and volunteers, students conducted mud cores to uncover worms, clams, shrimp and fish. The trip culminated in group-presentations of the animals they discovered complete with skits and songs!

Cabrillo College Marine Archeology Club participated in Voices of the Bay Fisheries Education Program

On March 27 sanctuary staff gave a presentation to the Marine Archeology club at Cabrillo College in Aptos, CA on the current commercial fisheries in the Monterey Bay and led students through the Balance in the Bay fisheries education activity. In Balance in the Bay students participate in a simulated squid fishery where they learn the challenges involved in extracting and managing a marine resource. This activity is one of three modules in the Voices of the Bay fisheries education curriculum. The Marine Archeology club is working on a project where they are analyzing the effects of historical fishing techniques on the marine habitats. They will use information from this presentation and from the Voices of the Bay website to relate current fishing techniques to those conducted throughout history.

MBNMS Participates in Santa Cruz Warriors' Ocean Warriors Night

Monterey Bay National Marine Sanctuary participated in Ocean Warriors night during the Sancta Cruz Warriors March 22nd game. This event was a collaboration between MBNMS, Save our Shores, O'Neill Sea Odyssey, and the Seymour Center. The game featured a marine education resource table, video and audio PSAs, and audio advertisements for all four organizations. The Sanctuary Exploration Center was highlighted in an audio announcement and a slideshow on the scoreboard viewed by 2,500 people. Additionally, the halftime show featured a skit illustrating the challenges the Warriors sea turtle mascot, Maverick must face when migrating across the Pacific Ocean to come to Monterey Bay to feast on jellies.

WEB SITE (<http://montereybay.noaa.gov/>)

Recent Updates

Visit the web pages listed below to see recently updated sections of the MBNMS web site.

- New Report on Coastal Erosion Study
<http://montereybay.noaa.gov/new/2012/erosion.html>
- Monterey Bay National Marine Sanctuary Twentieth Anniversary Celebration
<http://montereybay.noaa.gov/new/2012/20th.html>

Follow the MBNMS on Facebook and Twitter!

*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

NOAA Online Media Library

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

Encyclopedia of the Sanctuaries

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

Oceans Live

<http://www.oceanslive.org/portal/>

SIMON

www.sanctuarysimon.org

Office of National Marine Sanctuaries

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

NOAA Ocean Explorer

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

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/>

Thank You Ocean

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

Learn More About Your Sanctuary

The Sanctuary Office Report is produced bi-monthly by the Monterey Bay National Marine Sanctuary 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

The 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/educate/internship.html>

Sign up for the MBNMS listserv to receive email notices about upcoming Sanctuary events, and public meetings of the Sanctuary Advisory Council and its Working Groups:
<http://montereybay.noaa.gov/discussiongroups/disgroups.ht>

MBNMS Staff

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Dawn Hayes – Acting Deputy Superintendent
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Erica Burton – Research Assistant
Jennifer Brown – Research Associate
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Chad King – SIMoN Data Analyst
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Lisa Uttal – Interim Exploration Center Director
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Chelsea Prindle – Fisheries Education Specialist
Craig Jutson – Exploration Center Operations Specialist
Jeff Rosaler – Exploration Center Education Specialist
Karen Grimmer – Resource Protection Coordinator
Scott Kathey – Regulatory Coordinator
Deirdre Whalen – Community and Government Relations Coordinator
Sophie De Beukelaer – GIS Analyst
Lisa Lurie – Agriculture Water Quality Coordinator
Bridget Hoover – WQ Protection Program Director
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