



Monterey Bay National Marine Sanctuary Sanctuary Office Report



Volume 10, Number 3

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

Shipwreck of Coast Survey steamship *Robert J Walker* Identified

The Office of National Marine Sanctuaries (ONMS) Maritime Heritage Program, in cooperation with the Office of Coast Survey and the NOAA Central Library conducted a sonar and dive reconnaissance of an historic shipwreck off Absecon Inlet (Atlantic City) New Jersey from June 21 to June 23. After a thorough evaluation, the wreck was clearly identified as the Coast Survey steamship Robert J. Walker, lost with 20 hands on June 21, 1860 when it was rammed by the schooner Fanny 12 miles off Absecon Inlet. The disaster remains the greatest loss of life for NOAA through a predecessor agency. The partnership with Coast Survey to commemorate the loss of Walker on its 153 anniversary brought together the ships *Thomas Jefferson* (OCS) and SRVX (ONMS) for a comprehensive multibeam and side scan sonar survey followed by dives to the wreck in 85 feet of water. The wreck possesses a high degree of historical and archaeological significance and is likely eligible for listing on the National Register of Historic Places. It is also a sovereign wreck of the United States and remains the property of the government and specifically NOAA. ONMS is working with OCS on a communications strategy of community engagement in interpretation of the wreck, and supporting public access through enhancing the dive experience with historical context, a wreck-dive orientation "dive slate", and a

programmatic agreement with various stakeholders in the ongoing preservation of the site. A media announcement of the identification will be forthcoming along with images of the wreck and a historic portrait of the steamer from the collections of ONMS' partner, The Mariners' Museum of Newport News, Virginia.

Ocean for Life: Students from Middle East and U.S. Immerse in Field Studies in National Marine Sanctuaries

Thirty high school students from Middle Eastern countries and the United States are participating in *Ocean for Life*, an initiative that unifies cultures connected by the global ocean, from June 22-July 4. NOAA's Channel Islands National Marine Sanctuary in California will host the students during their field study. *Ocean for Life* increases cultural understanding through ocean science by providing high quality, immersive ocean field studies and subsequent education programs to students of diverse cultures and backgrounds to promote ocean conservation and cultural understanding. *Ocean for Life* is a unique program that brings together Middle Eastern and U.S. high school students of diverse cultures and backgrounds to study marine science, and in the course of that, break down stereotypes and strengthen our global relationships. The premise is simple but powerful: we are all connected by the ocean, and by studying the ocean, we can learn about improving stewardship of the planet and ourselves: one world, one ocean. *Ocean for Life* is made possible by a partnership of U.S. government agencies and private entities. Partners include the NOAA Office of National Marine Sanctuaries, The GLOBE (Global Learning and Observations to Benefit the Environment) Program and the National Marine Sanctuary Foundation. The lead sponsor for the 2013 *Ocean for Life* field study to Channel Islands National Marine Sanctuary is Qatar Foundation International (QFI).

NOAA Seeks Public Comments on New Sanctuary Nomination Process

The proposed rule to re-establish the sanctuary nomination process was published in the Federal Register on June 28 (78 FR 38848). The proposal would replace the currently inactive Sanctuary Evaluation List (SEL) with a new process for local communities and other interested parties to provide NOAA's Office of National Marine Sanctuaries with robust, criteria-driven proposals for new sanctuaries. NOAA is soliciting public comment on the proposed rule and amendments to its regulations, with comments due by Aug. 27. Once the public comment period has closed and NOAA has reviewed the comments, the agency may solicit nominations for new areas of America's ocean and Great Lakes waters that satisfy the criteria for possible designation as a national marine sanctuary.

National Marine Sanctuary News

Chanel Islands NMS

Three successful flights of a Puma Unmanned Aerial System were launched and recovered from the R/V *Shearwater* as part of Coastal Trident 2013 from June 18-20 in southern California. The Center for Asymmetric Warfare conducted the Coastal Trident 2013 Regional Maritime Security and Response Exercise, which featured participation by over 100 agencies, departments, and organizations, including NOAA. The exercise focused on the threat of mines and underwater improvised explosive devices to port and maritime safety, and included the evaluation of a number of Unmanned Aerial Systems in the detection and characterization of maritime threats and the protection of commercial shipping. All three Puma flights were launched from the *Shearwater's* upper deck and were recovered in the water directly by the *Shearwater* without the use of a skiff. The Army Puma system that is in NOAA custody was used for the operations. It was thoroughly inspected and tested before and after the operations, and was deemed to be complete and in perfect working order when it was packed and returned to storage. All Puma flights were conducted in and controlled by the Navy's Point Mugu Sea Range. There were no incidents or anomalies.

Flower Garden Banks NMS

G.P. Schmahl attended a public meeting of the Gulf Coast Ecosystem Restoration Council in Galveston on June 10th. The purpose of the meeting was to obtain input on the "Draft Initial Comprehensive Plan for Restoring the Gulf Coast's Ecosystem and Economy", as required under the RESTORE Act. The RESTORE Act provides for civil penalties received for violations of the Clean Water Act resulting from the Deepwater Horizon blowout to be used for restoration and enhancement of marine and coastal environments of the Gulf of Mexico.

Hawaiian Islands Humpback Whale NMS

Sanctuary Science Specialist, Jonathan Martinez, has been collaborating on a research cruise aboard the NOAA ship *Oscar Elton Sette* with the NOAA Pacific Islands Fisheries Science Center to advance objectives of the NOAA Kona Integrated Ecosystem Assessment (IEA). The Kona IEA overlaps with the Hawaiian Islands Humpback Whale National Marine Sanctuary. Cob trawl surveys at mesopelagic depths between 15-200 m have revealed many unique species, such as the dragon fish shown below. One of the most remarkable observations is the diversity of coral reef fish larvae found in the mesopelagic depths offshore and broadens the discussion for inter-island larval transport. Studies such as these advance the understanding of how different sanctuary units are interconnected.

NMS of American Samoa

As part of the Hollings project assessing nearshore climate impacts, Sarah Seabrook and Wendy Cover have done nearshore benthic surveys in Fagatele Bay, Fagasa, and Faga'alu over the last few weeks. Surveys will be applied to projections of change in coral composition with climate change. They also retrieved and re-deployed small reef-attached temperature loggers that monitor conditions at two depths in shallow reef areas of the Sanctuary, part of a climate monitoring project. While in the field, they contributed to a multi-agency effort to assess and remove benthic cyanobacteria in Faga'alu.

Thunder Bay NMS

On June 1, 2013 Thunder Bay National Marine Sanctuary's visitor center opened *Journey Stories*, a traveling exhibit from the Smithsonian that examines the ways transportation and increased mobility has shaped American History. The exhibit complements the visitor center's permanent exhibit on Great Lakes maritime transportation: the Shipwreck Century. Over 40 sanctuary volunteers signed up to be docents in the Smithsonian traveling exhibit. When *Journey Stories* leaves Alpena at the end of July the 40 sanctuary volunteers will have provided over 320 hours of service as docent "Guides" in the exhibit. Along with the volunteers, sanctuary staff are working with two local high school students to collect oral histories within the community of Alpena, Michigan. The students will interview members of the community on their stories of living in a small town and their personal family journeys. These interviews will be compiled in a digital database archived at the Smithsonian with stories from sites across the country. Working with the Michigan Humanities Council, the interviews will also be archived on a dedicated website featuring just stories recorded in Alpena, a collaborative effort between sanctuary volunteers and other local arts and culture organizations, the University of Michigan, and the Humanities Council.

Olympic Coast NMS

Olympic Coast National Marine Sanctuary (OCNMS) partner, Dr. Julia Parrish, Executive Director of the citizen science COASST program will receive the Champion of Change award for excellence in citizen science. The Champions of Change program, sponsored by the President's Office of Science and Technology Policy, highlights transformative people and programs across the country. This month they are focusing on citizen science, and COASST has come to light as an exemplary program. Dr. Julia Parrish is also the Associate Dean of Academic Affairs and Diversity for the College of the Environment at the University of Washington. OCNMS is very proud to be partners with the University of Washington COASST program!



MONTEREY BAY NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES



MANAGEMENT

Monterey Bay National Marine Sanctuary Advisory Council Welcomes 10 new members at April Meeting

On April 18, the MBNMS Advisory Council met in Salinas CA. Ten new Advisory Council Members and Alternates were sworn in and participated in the meeting. Of note on the agenda were two proposed resolutions: one supporting the expansion of the Gulf of the Farallones and Cordell Bank NMSs and the second in support of the proposed Introduced Species Regulation, both of which passed. An update on the recent *State of the California Central Coast* symposium was provided by the CA Dept. of Fish & Wildlife representative and MBNMS staff updated the council on their progress with the identification of Sanctuary Ecologically Significant Areas (SESAs) and an interactive mapping tool developed for public use.

Monterey Bay Advisory Council presentation on Sanctuary Ecologically Significant Areas (SESAs)

At the April 18th SAC meeting, staff provided a presentation on the process to identify SESAs and a demo on a new public outreach tool, a GIS online map. The SESAs can now be viewed online by anyone who wants to learn and better understand the criteria and data layers used to select these areas. This is part of the effort to make the identification process as open and transparent as possible, as well as better connect the Council to the sanctuary's resources. The SESAs will be finalized by mid May, and rolled out formally as part of the next Deepwater Characterization cruise on the R/V Fulmar which will focus on these sites. Products to date include a [fact sheet](#), webpages on MBNMS and SIMoN, as well as a detailed data matrix with information and data listed for each area. A technical report is in the works, as is planning for a research workshop in fall. Lastly, the SESAs will be used and applied in the Pacific Fisheries Management Council's Essential Fish Habitat process.

New Staff Member at Monterey Bay NMS

MBNMS staff are pleased to welcome Sara Hutto as their new Sanctuary Advisory Council Coordinator, replacing Jackie Sommers. Sara comes to Monterey via Channel Islands NMS (as their most recent California Sea Grant Fellow) and Gulf of the Farallones (as a member of their current Climate team). Sara's experience with the SAC at CINMS and her involvement with the Climate Center make her a wonderful asset to the sanctuary team. Welcome Sara!

Ocean Health Awareness

MBNMS staff supported Save Our Shores Executive Director Laura Kasa, and the Crew of "Beyond the Circle" ashore at Monterey Harbor after their 7-hour row across the bay (on a 17-ft rowboat!) from Santa Cruz. They traveled with a message of Sanctuary Stewardship & Ocean Awareness. Later this summer the 2-man crew will navigate their rowboat through the Northwest Passage Arctic circle in an effort to highlight problems the ocean is facing.

Building Relationships with Local Government

MBNMS staff met with Watsonville Mayor Hurst this week to discuss a myriad of issues, including: MBNMS role in agriculture efforts, Branding Monterey Bay region, Water Quality, Education & Outreach to students, Sanctuary Symposium and City - Sanctuary issues.

Santa Cruz County Conference & Visitors Council

The SCCVC hosted a reception and presentation in honor of National Tourism Week. The SCCVC unveiled their first-ever destination brand development for broad use in attracting & promoting tourism and recreation. In addition, they highlighted the latest social media solutions ease integrating marketing and communication efforts into everyday manageable tasks.

Outreach to State Assemblymember Stone

MBNMS staff met with California State Assemblymember Mark Stone to provide him an update on sanctuary issues. Assemblymember Stone has been working on reduction of marine debris & plastics in our oceans, and is interested in ensuring a linkage with MBNMS in this initiative. Staff also highlighted the dedication of our volunteers in measuring and improving water quality.

Hospitality & Community Partners Reception

MBNMS staff participated in a reception at the Monterey Bay Aquarium for the hospitality industries and community partners to meet, mingle, and enjoy the grand-opening of the Aquarium's new dining experience. The event was very well attended, and offered more in-roads for conversation promoting the MBNMS.

Resource Protection - in Partnership with City of Pacific Grove

MBNMS staff and NOAA Enforcement hosted a meeting with the Pacific Grove Mayor, City Manager, Public Works Director, and Police Officer to address the issue of Harbor Seal pupping along the City's waterfront within MBNMS. This meeting identified a myriad of challenges (access, permitting, enforcement, role of volunteers) related to the recent birthing season, and developed a series of key steps forward that will align both the City & MBNMS during future breeding events.

Update for Monterey County Supervisor Potter

MBNMS staff met with Monterey County Supervisor Dave Potter to provide a general program update. Supervisor Potter's region includes Big Sur, Pebble Beach, Carmel, Carmel Valley & Monterey.

Monterey Bay National Marine Sanctuary is proud to announce new website!

Monterey Bay National Marine Sanctuary is pleased to announce the release of our new website, designed with a fresh new look and easy navigation. The homepage features upcoming events & news, and quick links to get you where you want to go with one click. The new website contains the latest information about our programs as well as new content, like "Things to Do" featuring fun ways to experience your sanctuary, from tide pooling and fishing to whale watching. We hope you enjoy browsing our new site!

Management Plan Updated for Davidson Seamount Management Zone

Monterey Bay National Marine Sanctuary (MBNMS) expanded to include Davidson Seamount in 2009. The updated plan is an expanded version of the original Davidson Seamount Action Plan in the MBNMS Final Management Plan (2008), and serves as a living document (i.e., periodically updated) with background information on the Davidson Seamount, and the activities necessary for effective understanding and protection of this unique area. Highlights include recent aerial and shipboard marine mammal surveys, threats assessment report and other recent publications, species new to science, profile of George Davidson, and special conditions for research and education permits.

Fireworks Coordination in MBNMS

MBNMS staff has been coordinating with area permit holders to ensure that all requirements for two upcoming July fireworks events are in order. Refreshers on MBNMS monitoring requirements have been conveyed. In addition, the City of Monterey, at urging of staff, has completed a public service announcement that makes mention of the importance of keeping our beaches clean this season. This message will ideally reduce the amount of garbage that enters the sanctuary.

Connecting with local Convention & Visitor Bureau

MBNMS staff are pleased to accept the nomination and subsequent appointment to the Monterey County Convention and Visitors Bureau's Community Relations Committee. This Committee is an ad hoc working group of the MCCVB. The purpose is to ensure good relations & active participation with local jurisdictions, businesses, associations, and other community groups on the positive economic and social impacts of tourism in Monterey County. The appointment on this committee will serve through June 30, 2014.

Monterey County Hospitality Association (MCHA) Government Affairs meeting

MBNMS staff participated in the MCHA Government Affairs meeting, this sub-group of the MCHA meeting regularly to discuss potential items of concern to local business, particularly those on the Monterey Peninsula. Agenda items from this most recent meeting included: Desalination, Conference Center plans, Homeless Issues and traffic challenges.

Santa Cruz Chamber of Commerce

MBNMS staff attended the Women in Business sub-group meeting of the Santa Cruz Chamber of Commerce. This is an excellent forum to meet area leaders in business as well as convey information about the ocean in our backyard and national marine sanctuaries.

RESEARCH AND MONITORING

SIMoN staff participates in workshop to develop ocean climate indicators

GFNMS staff, lead by Dr. Benét Duncan, is developing a set of linked physical and biological climate change indicators for the north-central California coast to track and address the effects of climate variability and change on the region. Phase I of the project includes a comprehensive review of existing literature, a review of available regional climate models, and determination of indicator selection criteria. In Phase II, a targeted set of environmental and biological climate change indicators will be identified by project mentors, workshops with regional experts, data analysis, and regional climate modeling. SIMoN staff is participating in the Indicators Working Group, which is headed by Dr. Jaime Jahncke (PRBO Conservation Science; SAC member), facilitated by Dr. Benét Duncan, and co-organized by Kelley Higgason (GFNMS). On Monday, April 8th, SIMoN staff attended the first of three workshops.

CSUMB student makes second attempt to initiate experiment with invasive bryozoan and native crab

On April 12th, SIMoN staff dove on a project for Emily Aiken (CSU Monterey Bay), an undergraduate at CSU Monterey Bay who is studying invasive species in Monterey Harbor under the supervision of Dr. Steve Lonhart. Emily is studying the invasive bryozoan *Watersipora subtorquata*, a species native to Asia. Her experiment involves 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. Strong surge dislodged cages and an insufficient number of adult crabs were found, although an astounding number of new recruits have just arrived, in the tens of thousands.

New NOAA Integrated Ecosystem Assessment Program Website

NOAA's Integrated Ecosystem Assessment (IEA) Program's new website is now live: www.noaa.gov/iea. The website is intended to be a 'living site' where new and exciting developments at the national and regional level be regularly updated. You can use the website to gain a better understanding of how IEAs are helping to inform and improve Ecosystem-Based Management. The website provides portals to the 8 regional IEA programs, including the California Current IEA. MBNMS and the West Coast Regional office have been working with the CCIEA science team since 2007 and a summary of these past collaborations is available on the CCIEA regional website: <http://www.noaa.gov/iea/regions/california-current-region/action/west-coast-national-marine-sanctuaries.html>. Also coming soon to CCIEA regional website will be the 2012 CCIEA report.

SIMoN staff continues invasive species study in Monterey Harbor

On April 12 and June 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.

Collaborating with the Marine GIS community

Staff attended the Monterey Bay Marine GIS User Group meeting to collaborate with data and GIS tool developers and learn about new tools and data that are available. The Monterey Bay Marine GIS User Group supports GIS training, capacity building and increased awareness of marine spatial data sets among the broader GIS science community in Monterey Bay. Started in January 2012, the group aims to foster collaboration among academic, private, state and federal agencies and NGO's in the Monterey Bay marine GIS science community. The next meeting will be in the Spring of 2014.

SIMoN staff guest lectures for Moss Landing Marine Lab subtidal ecology class

On April 11th, SIMoN staff provided a guest lecture on the natural history of commonly occurring invertebrates in central California kelp forests. Invited by Drs. Scott Hamilton and Diana Steller, instructors for this graduate-level course, Dr. Steve Lonhart discussed invertebrates and their ecological interactions with 10 graduate students, many of whom had already used the SIMoN web site and iPhone app (SeaPhoto) in support of their individual and class projects. Students asked excellent questions and were fully engaged during the 2.5 hr class period.

MBNMS and West Coast Region discusses future collaboration with California Current Integrated Ecosystem Assessment

Monterey Bay National Marine Sanctuary (MBNMS) and the West Coast Regional Office (WCRO) met with Mindi Sheer, California Current Integrated Ecosystem Assessment (CCIEA) Coordinator to discuss the 2013 CCIEA priorities and potential intersections with needs of MBNMS and other west coast sanctuaries. One topic with the potential for strong collaboration between MBNMS and the CCIEA is the development of key indicators of ecosystem status and trend. These indicators could be used for both updating resource assessment in the condition report and identifying long-term monitoring needs. In addition, future conversations between MBNMS and the CCIEA team will explore ways to apply CCIEA tools and analyses to management plan review.

Circulation model under development for nearshore Moss Landing area

On April 18th, TENERA Environmental facilitated a working group to determine potential source waters for any intake pipes for desalination in the Moss Landing area. A combination assessment of internal tides, regional currents, and surface currents determine where larvae in the system come from and move towards. Participation by CeNCOOS and Moss Landing Marine Labs provided extensive data for developing a model for both deep water and shallow water components of the area.

SIMoN staff gives lecture on kelp forests to MBNMS volunteers

On the evening of April 18th SIMoN staff lectured on kelp forest ecology and dynamics along the central coast of California. Volunteers from BayNet and Team Ocean attended the lecture, which is part of volunteer training program led by Lisa Emanuelson. The participants (about 25) learned about giant kelp and viewed images of the diverse species inhabiting a central California kelp forest.

Sanctuary Ecologically Significant Areas (SESA) Interactive Map - BETA Release

Monterey Bay National Marine Sanctuary has publicly released BETA v 1.0 of the Sanctuary Ecologically Significant Areas (SESA) Interactive Map. This map has been in development for months and built from the ground up by MBNMS staff. SESAs encompass remarkable, representative and/or sensitive marine habitats, communities and ecological processes. They are primarily focal areas for facilitating research to better understand natural and human-caused variation. SESAs are located in offshore Federal waters, including portions of MBNMS to the west of state waters, and the Davidson Seamount Management Zone. Currently the SESA process is focused on benthic habitats (the seafloor).

New discoveries shared with Hollister Rotary

On April 22, SIMoN staff presented new research technology and discoveries in the Monterey Bay Sanctuary to the Hollister Rotary Club. Seventy-five Rotarians were present at the lunch meeting and had a number of questions. While inland 20 miles from the coast, the community in Hollister feels connected to the Sanctuary and individual Rotary members have visited the Sanctuary Exploration Center.

SIMoN staff gives lecture on climate change in Cambria

On May 3rd SIMoN staff lectured on climate change and climate adaptation efforts along the central coast of California. This was the first talk of the 2013 Lecture Series hosted by Carolyn Skinder and MBNMS for the general public in Cambria. As part of the series, a variety of speakers visited the southern end of MBNMS and lectured for an hour on a variety of topics. Over 30 audience members at the veteran's hall listened attentively and asked insightful questions about both the science of climate change and how humans are working to confront the impending challenges of more extreme weather, sea level rise, and ocean acidification.

SIMoN staff initiate new monitoring program

On May 9th, SIMoN staff (Chad King and Dr. Steve Lonhart) deployed 9 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 affects 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. Stephen Palumbi, Director of Hopkins Marine Station, and his staff facilitated deployment in the adjacent kelp forest by providing a small boat and divers. The ARMS have been co-located with other sampling devices that are being used by Dr. Kerry Nickols, a post-doc at HMS, to monitor localized currents and larval recruitment.

Stanford science divers conduct survey for whelks in the Lovers Point MPA

On June 21st, Sanctuary Integrated Monitoring Network (SIMoN) staff supervised 6 volunteer divers from Stanford University. Freya Sommer, the Diving Safety Officer at Hopkins Marine Station, is training undergraduate divers in a one-week, intensive science diving methods course. She offered the services of the students, who were given a brief lecture the previous evening on the target organism (Kellet's whelk) and an introduction to MBNMS and the sanctuary system. Divers surveyed over 300 square meters of habitat in a kelp forest located within Lovers Point State Marine Reserve.

MBNMS Research Activity Panel Meets at Long Marine Lab Santa Cruz

On July 12th, the MBNMS Research Activity Panel (RAP) met at Long Marine Lab, in Santa Cruz, CA. Agenda items included: California Sea Grant Research Update, CeNCOOS Update, 2014 Currents Symposium Theme, Integrated Ecosystem Assessment (IEA) Conceptual Models, System-wide Monitoring, and Natural Resources of MBNMS: A Focus on Federal Waters. For information, see <http://montereybay.noaa.gov/sac/rap/rapma.html>.

The Natural Resources of Monterey Bay National Marine Sanctuary: A Focus on Federal Waters published in ONMS Conservation Series

The natural resources assessment synthesizes the current scientific knowledge of the physical and biological resources in the offshore habitats of Monterey Bay National Marine Sanctuary (MBNMS). The main body of this report is organized into sections by offshore habitat category. Benthic habitats categories were defined by substrate type (hard and soft) and depth: shelf I (30-100 m), shelf II (100-200 m), slope (200-3,000 m), and rise (>3,000 m). Additional offshore habitat categories included in this report are open ocean, submarine canyon, seamount, oxygen minimum zone, chemosynthetic biological communities, and macrophyte detritus. For each of these habitat categories, information was compiled on topics spanning many levels of ecological organization (e.g., population, species, community) and various ecological processes (e.g., productivity, dispersal). Information sources included primary literature, unpublished data, and expert interviews. The purpose of this document is to identify sources of regional information, and describe natural resources and processes in federal waters of Monterey Bay National Marine Sanctuary. The document can be viewed and downloaded at: http://sanctuaries.noaa.gov/science/conservation/mbnms_res13.html.



One-Spot Fringehead displaying aggressively to a conspecific. The blue ocellatus ringed by yellow is a diagnostic characteristic of the species. They are infrequently seen outside of the burrow they inhabit.
Photo Credit: Steve Lonhart

MBNMS Staff Completes "Mapping With Google" Virtual Course

MBNMS staff completed "Mapping With Google," an online course that covered skills pertaining to Google Maps, Google Earth, and Google Maps Engine Lite. The course comprised of tutorial videos, followed by activities within each medium. The course certificate required several independent projects created from each application. The Google Maps project required data import, advanced symbolization, multimedia embedding, and content sharing and distribution. The Google Earth project required placemark creation and editing, multimedia embedding, and the creation and sharing of tours that included imagery, video and narration.

SIMoN staff provides diver training for Great Annual Fish Count

On the evening of June 19th, Sanctuary Integrated Monitoring Network (SIMoN) staff gave a 2 hr presentation to the Dive Club of Silicon Valley in Santa Clara. Dr. Steve Lonhart was invited to speak to club members about identifying invertebrates that are surveyed by Reef Environmental Education Foundation (REEF) citizen scientists. Club members were preparing for the July 6th Great Annual Fish Count (GAFC). The GAFC (fishcount.org) has expanded to include sampling targeted species of invertebrates and algae. These divers almost exclusively dive in the Monterey Bay National Marine Sanctuary when making local dive trips. Educating these divers (n=15) to conduct ecological surveys using the protocols developed by REEF fosters a sense of stewardship and supports the growing number of citizen scientists..

SIMoN staff train university research divers to monitor state MPAs

From July 8-12 and 15-18, Sanctuary Integrated Monitoring Network (SIMoN) staff (Lonhart and King) trained 28 new science divers volunteering for the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) at the University of California at Santa Cruz (UCSC). Research divers in the first session were from UCSC, University of Hawaii, UCLA, and Oregon State. The diversity of university divers is due to a lack of funding to hire subtidal technicians to complete MPA monitoring, and therefore there is a strong reliance on volunteer science divers from multiple institutions. As part of the training program, students learned to identify hundreds of invertebrates and algae. Research divers in the second session were from UCSC and will collect data on over 40 species of fishes that commonly occur in central California kelp forests over the next 6 weeks. Divers spent an entire day in the classroom during both sessions, then four and three days, respectively, diving in the Lovers Point State Marine Reserve, with shore access from Stanford's Hopkins Marine Station. This training is part of a close and long-term collaboration between PISCO UCSC and MBNMS, and contributes significantly to continuing the longest and largest dataset on kelp forests in central California.

SIMoN updates monitoring project: "Archival of Midwater and Benthic Survey Data" Moss Landing Marine Laboratories (MLML) assisted SIMoN staff in updating their monitoring project, "Archival of Midwater and Benthic Survey Data." Since the early 1970s, faculty and students in Marine Ecology, Invertebrate Zoology, and Ichthyology courses at MLML have participated in class cruises aboard several research vessels to survey the fishes and invertebrates in shallow-benthic, deep-benthic and midwater habitats in Monterey Bay. All fishes and invertebrates were identified to the lowest possible taxon. This SIMoN-funded project allowed Dr. Cailliet and his students to enter the survey data into a Microsoft Access database and to scan many of the maps and charts used over the last 40 years. All project information, including up-to-date data and methods can be found at http://sanctuarysimon.org/projects/project_info.php?projectID=100170.

Proposal submitted to study the energetics of deep-sea wood fall communities

Wood is transported to the oceans via rivers, and after drifting in oceanic currents and becoming saturated with water, eventually sinks to the seafloor. The total input of wood debris and associated carbon input into the oceans is sizable. For example, half of the trawls taken during the Galathea Expedition contained woody material. In collaboration with the National Evolutionary Synthesis Center, the sanctuary has submitted a proposal to the National Science Foundation to study the ecosystem role of wood fall communities in the deep-sea.

REEF data on MBNMS fishes published in CalCOFI Report Vol 54, 2013

Two peer-reviewed papers have been posted on CalCOFI's website (<http://www.calcofi.org/publications/ccreports.html>) based on monitoring conducted by Reef Environmental Education Foundation (REEF) in Monterey Bay. For over 10 years, MBNMS divers have supported REEF surveys within MBNMS, primarily in Monterey and Carmel bays. One of the long-time REEF citizen scientists, John Wolfe, and REEF Director of Science Dr. Christy Pattengill-Semmens co-authored two papers. The first paper, entitled "Estimating fish populations from REEF citizen science volunteer diver order-of-magnitude surveys" provides several models to convert order-of-magnitude count data to a numeric mean and demonstrate that with a sufficient number of surveys, estimates of the mean with a reasonably small confidence interval can be attained. The companion paper, entitled "Fish population fluctuation estimates based on fifteen years of REEF volunteer diver data for the Monterey Peninsula, California" uses data collected in over 3000 REEF surveys between 1997 and 2011. Variations in relative density over time are reported for 18 fish species, including several fisheries-targeted species. .

Potential for DOJ funding to support west coast marine mammal protection and science

HQ recently notified MBNMS research staff that funding from the Department of Justice (DOJ) might be available for marine mammal protection and research. DOJ occasionally contacts NOAA seeking assistance to identify appropriate projects that can be connected to legal settlements. A project suggestion from MBNMS, which specifically focuses on the protection of Harbor Seals, included increased signage associated with Harbor Seal pupping areas in Pacific Grove and seasonal infrastructure that would prevent public harassment of the seals during parturition and weaning. .

RESOURCE PROTECTION

MBNMS vessel traffic analysis presented

Staff presented vessel traffic density analysis of the International Maritime Organization (IMO) recommended tracks in MBNMS to Steve Shimek, Chief Executive of The Otter Project and Monterey Coastkeeper who is a concerned stakeholder. Staff collaborated with Christopher Miller, a researcher at the Naval Postgraduate School (NPS) in Monterey, to analyze Automated Information System (AIS) ship traffic data for 2009-2012 for both cargo vessels and tankers. The analysis found that very few ships (in the single digits for each year) deviate shoreward from the recommended tracks.

MBNMS Response Team HAZWOPER Training

On April 15, MBNMS emergency response personnel completed annual Hazardous Waste Operations and Emergency Response (HAZWOPER) refresher training to maintain credentials to participate in field response activities associated with environmental emergencies such as oil spills, vessel and aircraft casualties, etc. HAZWOPER is an OSHA requirement for anyone engaged in such response activities. The MBNMS currently has 9 personnel certified in HAZWOPER.

CCAT Presented at Annual Resource Conservation District Meeting

On April 24th, WQPP staff gave a presentation on the utility of the Central Coast Action Tracker (CCAT) at the Resource Conservation District's (RCD) Spring meeting in Hollister, CA. In attendance were staff from the RCD and NRCS offices from San Mateo to Santa Barbara. The CCAT is an online web portal in which all water quality related projects can be entered, mapped, and reports developed. It will be a valuable tool for the public, technical assistance providers and resource managers to better understand where projects are occurring, the level of effort by watershed and investment. The CCAT was well received by the audience and they were encouraged to test out the tool while it is still in development and provide feedback to ensure the final product is most effective. The CCAT is being developed with funding from the Integrated Regional Water Management Program fund being administered by the MBSF.

Watershed Restoration Training at the SEC

On May 8th and 9th, WQPP staff hosted a two-day workshop on watershed restoration at the MBNMS Sanctuary Exploration Center. The facility was an ideal location and the exhibits provided great background and supporting information. Participants came from as far away as San Luis Obispo county. These workshops are being held around the state and are funded by the State Water Resources Control Board and facilitated by the Sacramento River Watershed Program.

Presenting Sanctuary Ecologically Significant Areas to an international community of GIS Conservationists

Sophie De Beukelaer presented “Designing Sanctuary Ecologically Significant Areas for Management and Research” at the 2013 Society of Conservation GIS meeting in Monterey, CA. The presentation focused on how GIS tools supported the process of delineating boundaries and fit well under this year’s conference theme “Marine and Freshwater Conservation.”

Stakeholder meetings held for Essential Fish Habitat proposal

In early May, the Pacific Fishery Management Council announced the availability of a Request for Proposals (RFP) to modify Pacific Coast Groundfish essential fish habitat (EFH), and proposals are due by July 31, 2013. The RFP provides an opportunity for local communities to evaluate and incorporate the new information into a proposal that increases protections for important essential fish habitat and better meets local fishing needs. As part of the MBNMS process, staff has convened a series of stakeholder meetings to discuss and plan collaboration on a sanctuary-led EFH proposal. The most recent meeting was May 24th with the key NGOs including, Oceana, The Ocean Conservancy, National Resources Defense Council, The Nature Conservancy and Environmental Defense Fund. The meeting was very positive as we discussed planned approaches, proposal objectives and data to be used for the upcoming meeting in early June with the central coast trawl fleet and NGOs.

Fishermen, Conservation NGOs and Sanctuary staff convene to develop EFH proposal

On June 3, MBNMS staff organized a meeting for a diverse group of stakeholders that included the local trawl fleet and conservation NGOs to discuss boundary modifications to Essential Fish Habitat Conservation Areas, under PFMCs 5-Yr review process. There are a number of shared objectives this group has identified to help guide an EFH proposal, including the goals of working to build relationships, enhanced protections for EFH habitat as well as looking for opportunities to increase access to valued fishing grounds. A subgroup will be meeting next week to refine and finalize areas of interest in MBNMS south of Año Nuevo, as well as explore other potential areas in the northern region. The subgroup will continue to meet regularly to help guide the proposal development. MBNMS resource protection and research staff are leading the stakeholder input process and the proposal development process, and the full package is due to PFMC by July 31st.

MBNMS holds 5th meeting with Trawl Fleet on developing an Essential Fish Habitat proposal

For the past six months, MBNMS staff has been meeting regularly with the local trawl fleet to work on a proposal to the Pacific Fisheries Management Council on modifying boundaries to Essential Fish Habitat (EFH). Fishermen from Monterey, Moss Landing, and Morro Bay, the Monterey Harbormaster, and a PFMC member are participating in this working group, as they see unique opportunities for all parties to benefit. Fishermen would like to gain access to historically valuable fishing grounds that were closed under EFH in 2006. MBNMS would like to see high value habitat that is currently not included in EFH – added. NGOs would also like to see current protections to biogenic habitat increased. Joint objectives for the proposal have been developed, as well as an initial analysis of data layers that are served through the NMFS new data portal. Sanctuary Ecologically Significant Areas are being applied in the EFH process as they share similar elements to EFH protected habitats (i.e. hard substrate). The west coast sites are coordinating proposal elements through the Regional office. The EFH RFP opens May 1st and proposals are due July 31st.

Monterey Bay National Marine Sanctuary submits a community Essential Fish Habitat (EFH) proposal to the Pacific Fishery Management Council (PFMC) to modify Pacific groundfish EFH boundaries

On July 31, MBNMS submitted a collaborative EFH proposal to PFMC to modify boundaries for groundfish EFH conservation area. The proposal represents the product of an eleven-month stakeholder process that began in August of 2012 with meetings among several stakeholders to discuss opportunities for refining boundaries. MBNMS recently completed a new management tool, [Sanctuary Ecologically Significant Areas](#) (SESAs), which identifies high value and/or sensitive benthic habitat. SESAs served as the basis for the sanctuary’s initial areas of interest for modifying the EFH boundaries in discussions with fishermen and environmental groups. The completed proposal eventually included the Alliance of Communities for Sustainable Fisheries, Monterey Bay trawl fishermen, the City of Monterey, Oceana, Natural Resources Defense Council, Ocean Conservancy, The Nature Conservancy, the California Risk Pool and Environmental Defense Fund. The collaborating organizations developed and designed a suite of spatial management tools including modifications to EFH designations that: 1. add additional area to existing EFH Conservation Areas to protect groundfish EFH, 2. include new designations of Habitat Areas of Particular Concern (HAPC) “Areas of Interest”, 3. re-open of certain areas from existing EFH Conservation Areas to allow access to key historically bottom trawled areas of economic importance’ 4. include “Voluntary Management Areas,” non-regulatory areas to be adopted by fishermen as no bottom trawl zones and 5. implement changes to enforcement of spatial areas. If accepted and approved, the comprehensive proposal will increase habitat protection for hundreds of known corals and sponges, as well as provide back some key historical fishing grounds to trawl fishermen in Monterey Bay National Marine Sanctuary.

Water Quality Protection Program goes Chiquita

On May 24th, WQPP staff, Monterey Bay Sanctuary Foundation Executive Director and partners met with the CEO and other high level management of the Chiquita/Fresh Express Corporation. The goal of the presentation and discussion was to encourage Chiquita to invest and provide corporate leadership in a significant project in the Salinas Valley. Details are yet to be worked out, but the proposed project would help improve water quality, help agriculture meet regulatory obligations, and address some of the social and economic challenges that Salinas is facing such as youth violence, obesity and disadvantaged households. This was an exciting opportunity for Central Coast partners and was well received by Chiquita management.

Lover's Point Beach Microbial Study

On May 30th, Water Quality Protection Program staff met with staff from City of Pacific Grove (PG), Monterey Bay Aquarium, Hopkins Marine Station, State Water Resources Control Board and Stanford University researchers to comment on a study design being conducted this summer by Dr. Ali Boehm of Stanford University. Lover's Point Beach is a popular destination for local families and tourists. Over the past 10 years it has had many beach postings due to high levels of indicator bacteria. In 2003, the City of PG installed a dry weather diversion (April through October) to capture dry weather runoff and send it to the wastewater treatment plant rather than the runoff going directly to the bay. Even with the diversion, the beach continues to have regular exceedences of the water quality objective for fecal indicator bacteria (FIB). WQPP staff have provided historical water quality data and will contribute to the study with upstream source tracking with volunteers as part of the Urban Watch program. Stanford researchers will monitor ocean, outfall and sand at the beach for ten weeks measuring FIB, human marker and gull marker.

WQPP leads discussion on Corporate Social Responsibility

On June 4th, WQPP staff participated in a stakeholder meeting in Salinas for an effort called Water Resource Project Coordination, funded by a grant that we are administering from the CA Department of Water Resources. Approximately 30 people attended representing local government, agriculture industry, academia, private consultants and conservation organizations. WQPP staff led a discussion aimed at funding a workshop later this summer to engage the agriculture industry in corporate social responsibility and sustainability. We also made a formal offer for a Monterey Bay Sanctuary Foundation contractor for the Agriculture Water Quality Coordinator position, which has been vacant since March. The Ag Coordinator will lead this effort once on board in mid-July.

AWQA featured in Marine Ecosystems and Management Publication

The Agriculture Water Quality Alliance is featured in the June/July edition of a publication that highlights news and analysis on ocean planning and ecosystem-based management. The article is titled *Integrated land-and-sea management: Examining three cases where marine practitioners are looking upstream*. The MBNMS case focuses on the work with farmers to restore conservation practices after the 2006 *E.coli* scare while ensuring they mitigate any food safety concerns. The article can be accessed at <http://depts.washington.edu/meam/MEAM31.html> Vol.6 No. 6. This publication also contains other valuable information and articles on sustainable ocean planning and management.

WQPP Leads Irrigation Nutrient Management Program (INMP) Kickoff Meeting for the RWQCB

On June 26th, sanctuary staff traveled with 6 partners to the Regional Water Quality Control Board office in San Luis Obispo to give a presentation to Waterboard staff on the \$1.25M Irrigation and Nutrient Management Program grant that we've just begun. The format was a brown bag lunch meeting so there were over 20 Waterboard staff representing many different programs such as Agriculture, Stormwater, Non-Point Source, TMDLs, and permitting. The Executive Officer and other high level managers were also present. The INMP team described the scope of work, how it relates to other work we are doing and how it will achieve Waterboard priorities. There was good discussion and all were very excited about the effort.

Dry Weather Water Quality Monitoring to begin in Pacific Grove

On Tuesday June 25th WQPP staff members Bridget Hoover and Lisa Emanuelson met with City of Pacific Grove staff Sarah Hardgrave and Pilar Chavez to finalize monitoring plans to take place in the City of Pacific Grove over the next year. One of the water quality monitoring efforts in Pacific Grove will be Urban Watch, a dry weather monitoring program of urban runoff that has been conducted in the City since 1997. Volunteers assist in the collection and testing of outfall samples for detergents, ammonia, chlorine and orthophosphate. A new trash assessment will be piloted in Pacific Grove starting this year to help assess the types and sources of trash found at particular beaches and storm drain outfalls in the city. The training for volunteers will be on Monday July 1st. Water quality monitoring will also take place as part of a Proposition 84 grant in two of the city's drainages. WQPP staff will monitor to determine if a new dry weather diversion pump is operating as expected. It will also include sampling for bacteria analysis, pesticides, and other urban pollutants in another drainage receiving sanitary sewer improvements.

Good Media on Water Quality Grants - Grants spur solutions to address nitrate issues

http://www.thecalifornian.com/article/20130709/BUSINESS/307090018?nclick_check=1

No one likes excess nitrates in Central Coast water. Not farmers, not environmentalists and certainly not those charged with stemming the problem. Nitrate contamination is present in many places across the country, but the Salinas Valley ranks toward the top in terms of the amount present in groundwater. The primary source of nitrates is from agricultural practices, a fact not even growers argue with. These nitrates carry serious health and marine wildlife implications for the valley and Monterey Bay (See related story). So, armed with recent grants totaling more than \$1.25 million, the Water Quality Protection Program of the Monterey Bay National Marine Sanctuary is undertaking two separate projects to address the problem. One will help disseminate crucial information and the other will provide assistance with nitrate monitoring systems for growers. The projects are a collaboration among key partners — including nonprofit groups and agricultural interests — to cut down on the amount of nitrate contaminated runoff water coming from farming in the Salinas Valley.

Monterey Bay National Marine Sanctuary Leads Kickoff of a Watershed Scale Project to Improve Habitat and Water Quality in Salinas, CA

On July 17th, MBNMS' Water Quality Protection Program (WQPP) staff and Monterey Bay Sanctuary Foundation's Executive Director organized a kickoff meeting for a \$413,000 grant project to improve water quality and stream habitat in an urban drainage in Salinas, CA. Santa Rita creek was monitored by the WQPP's Clean Streams program in 2006 and samples indicated severe impairment by nutrient and sediment contamination. This stream flows to Moss Landing Harbor and ultimately into MBNMS. The Resource Conservation District of Monterey County will work on farming operations upstream to reduce nutrient and sediment contaminant loading to the stream while the Central Coast Wetlands Group will oversee stream restoration on two stretches of the creek. WQPP staff will be responsible for community outreach and involvement in weeding and water quality monitoring.

WQPP Staff Participate in Desal Workshop Hosted by MPWRA

On April 25th, WQPP staff participated in a special workshop hosted by the Monterey Peninsula Water Resources Authority to prepare for an upcoming hearing by the Ca Public Utilities Commission on the proposed CalAm desalination project. The workshop brought together many of the organizations that will testify at the CPUC hearing to better understand the issues and concerns of the different organizations and potentially establish working groups to deal with the concerns. The daylong workshop addressed such issues as contribution of public funds, governance, surcharges, test wells/permitting, contingency plans, access to state funds (SRF), Environmental Challenges, brine discharge, and others. MBNMS staff participated in the test well and brine discharge discussions.

MBNMS Comments on Santa Cruz Desalination Project

For the past several weeks MBNMS staff have been evaluating the Draft Environmental Impact Report (DEIR) for the Proposed scwd2 Regional Seawater Desalination Project planned in Santa Cruz. This nearly 10-pound document was filled with critical key information. Staff compiled substantive comments, and highlighted a myriad of issues of potential concern including: the NEPA process; placement of intake structures; open-water intake; seafloor disturbance; acoustic impacts; brine discharges; marine biological resources; impingement/entrainment; mitigation measures; and boundary discrepancies.

ENFORCEMENT

Sinking of 89-ft tug DELTA CAPTAIN

On Saturday, April 13, the 89-ft tug DELTA CAPTAIN was pulling a 225-ft construction barge south through Monterey Bay National Marine Sanctuary when sudden catastrophic flooding occurred in the tug's engine compartment. The tug quickly sank, and its 4-man crew was recovered from a life raft by a Coast Guard helicopter an hour later. The tug went down in 2,400 feet of water with an estimated 18,000 gallons of diesel aboard, but no evidence of a spill or oiled wildlife was detected by response aircraft or vessels. Rescue tugs arrived on-scene the following day, secured the drifting barge and towed it to its final destination in Los Angeles. MBNMS and NOAA Office of Law Enforcement are collecting information about the likely position of the tug on the seafloor. Notification and response by the US Coast Guard was timely and effective, allowing MBNMS to track the situation real-time and provide input to incident command.

Abandoned Panga in Big Sur

On June 3, 2013, the MBNMS was notified that a panga had been found abandoned on a remote beach in Big Sur with two new outboard engines, 60 gallons of gasoline in its internal tanks, and approximately 80 gallons of gasoline in portable containers. US Coast Guard and CA Dept of Fish & Wildlife secured the vessel and external fuel containers. The Department of Homeland Security arranged removal of the vessel. This intentional grounding and abandonment of a contraband vessel is the latest in a continuing trend of such activity within the sanctuary.

Monterey Bay National Marine Sanctuary Staff Participate in "Worst Case Discharge" Oil Spill Drill (THIS WAS A DRILL)

On August 7 and 8, MBNMS Staff participated in a simulated oil spill exercise, sponsored by BP Shipping and Alaska Tanker Company (ATC) in Burlingame, CA. Over 300 people from six countries and countless organizations and companies participated in this drill. The design of the exercise was a joint effort of BP Shipping, ATC, California Office of Spill Prevention and Response (OSPR), the U.S. Coast Guard, Marine Spill Response Corporation, The Response Group and NJ Resources. MBNMS staff served as local knowledge experts in the Environmental Division, specifically Resources at Risk, as well as the Liaison department. Local knowledge played a critical role when prioritizing areas of the Monterey Peninsula shoreline to be protected through various oil deflection or capture strategies. The two-day, Command Post Style exercise intended to simulate the initial response to a "Worst Case Discharge" scenario. The scenario was based on a collision at sea between a fictitious ATC oil tanker and a fictitious bulk carrier. The fictitious collision caused a release of 300,000 barrels of Alaskan North Slope Crude Oil at approximately 32 miles East Southeast of Pillar Point, CA. The projected trajectory of the slick had it heading directly for the Monterey Peninsula. The exercise was complete with fictitious newscast videos, "injects" (changing scenarios and events), and even press conferences. Overall, the exercise closely simulated the first 48 hours of a real spill and was extremely valuable and informative to MBNMS. MBNMS was also consulted heavily regarding local intertidal and subtidal ecosystems as well as regulations. MBNMS staff also ensured that Command was held to previously established agreements regarding wildlife observers associated with any dispersant release. MBNMS participation was highlighted as essential when the Environmental group evaluated its performance.



The Command Center during the BP Shipping Simulated Oil Spill Exercise. Photo Credit: Chad King.

EDUCATION, VOLUNTEER AND OUTREACH PROGRAMS

MERITO Academy kicks off spring with a trip to Elkhorn Slough

Twenty-four MERITO students from Highland Elementary kicked off spring with a field trip to Elkhorn Slough. Students were led on a hike through the slough by MBNMS staff and received a tour of the visitor center from slough docents. This spring four additional schools and over 250 students will go to Elkhorn Slough as part of the MERITO Academy. They will learn about the unique slough ecosystem by hiking, conducting plankton labs, dissecting owl pellets, and touring the visitor center.

MBNMS staff participate in Stevenson School's Ocean's Summit

Stevenson Schools Ocean's Summit was held on April 3rd 2013 in Pebble Beach, CA. The event hosted several marine science organizations that organized workshops for the students throughout the day. MBNMS staff led three fisheries education workshops, which featured the Balance in the Bay 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. Fifty high school students selected to participate in these workshops based on their interest in marine biology and fisheries careers.

Your Sanctuary public access TV series production continues

The week of April 15th Monterey Bay and ONMS staff initiated their first try to fully produce an episode of *Your Sanctuary* in house. The "Central Coast Experience" episode will feature the many ways to recreate and enjoy the central CA coast from Marin to Cambria. To date, filming has occurred in Monterey, Santa Cruz and Moss Landing. MBNMS' Sanctuary Integrated Monitoring Network (SIMoN) staff assisted with film operations related to a SCUBA diving segment. Divers were filmed swimming through a kelp forest, collecting data, and taking underwater images. Next week, filming will continue in Cambria, San Simeon, San Francisco, Half Moon Bay and Big Sur. As a key component of MBNMS' contribution to the ONMS Campaign, *Your Sanctuary* programming highlights the natural and cultural history of the region, relevant research and monitoring and volunteer activities as well as activities the public can undertake to directly experience MBNMS.

Coastal Discovery Center at San Simeon Bay now a Geocach Site

The Coastal Discovery Center is proud to announce that it now has a geocach site located at San Simeon State Park! Geocaching has become a popular hobby with 2,043,400 active geocaches and over 5 million geocachers worldwide. This new location will be a fun, educational addition to the Park. The geocach site was created by Tara Ashley DeVore, a sanctuary intern and Parks and Rec major from Penn State, in cooperation with Monterey Bay National Marine Sanctuary and CA State Parks.

2013 Snapshot Day a Success with 216 Volunteers!

On May 4th, volunteers from across the watersheds draining to the Monterey Bay National Marine Sanctuary gathered for the 14th annual Snapshot Day. This annual one-day water quality monitoring event focuses on monitoring creeks and rivers flowing into MBNMS. Volunteers collect field measurements for pH, air and water temperature, electrical conductivity, dissolved oxygen, and transparency. Lab samples are collected for analysis of bacteria (*E. coli* and total coliform) and nutrients (nitrate and phosphate). This year, 216 volunteers helped to monitor 182 sites stretching from Pacifica near San Francisco, south to Morro Bay.

Sanctuary Classic Planning

MBNMS staff are working closely with our SAC- recreational fishing representatives, to kick-off the summer-long photo & fishing contest known as the Sanctuary Classic. This is a opportune event to build a stronger constituency with recreational fishermen. MBNMS will be hosting a booth on Saturday, June 8th with a dual message focusing on World's Ocean Day & the Sanctuary Classic.

MERITO Students from Marina explore Elkhorn Slough

Eighty students from Olson Elementary School in Marina, CA explored the Elkhorn Slough on May 9th and 10th. Two CSU Monterey Bay student interns assisted in the field trips and led the students on a hike through the Slough. Students also participated in a plankton lab and tour through the visitor center. Olson Elementary School also learned about Monterey Bay watersheds, participated in a mudflats field trip, and utilized the MERITO curriculum during the 2012/2013 school year.



Beach COMBERS volunteers social held at Moss Landing Marine Labs

On the evening of May 17th, new and seasoned volunteers of the Beach COMBERS (Coastal Ocean Mammal / Bird Education and Research Surveys) program met for a potluck social at Moss Landing Marine Laboratories to share volunteer experiences and get to know their fellow volunteers. Coordinators of the program highlighted recent program developments including an impacts study of plastics on seabirds, new funding sources, and online data entry improvements. Since 1997, trained volunteers have surveyed beached marine birds and mammals monthly at selected sections of beaches throughout the Monterey Bay area, with the specific goal of using deposition of beach cast carcasses as an index of the health of the sanctuary (<http://www.sanctuarysimon.org/monterey/sections/beachCombers/index.php?l=n>). As of May 2013, more than 65 volunteers (each of whom received at least 20 hours of training) survey 45 km of beaches in the MBNMS. The next volunteer training sessions will be held June 29 and 30 at Moss Landing Marine Labs.

Students Immersed in Monterey Bay Fisheries at the Monterey Commercial Wharf

100 students from Bayview Middle School in Marina, CA and Main Street Middle School in Soledad, CA participated in fisheries field trips to the Monterey commercial wharf on three separate dates in May and Early June 2013. These field trip were 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. During the field trip, students participated in the *Balance in the Bay* fisheries activity and simulated fishing for squid, received a tour of the Royal Seafoods facility led by commercial fisherman Jiri Nozicka, and conducted a personal interview of local salmon, crab, and rockfish fishermen Jane De Lay and Mike Ricketts.

Students Interview Abalone Farmer in Davenport, CA

Twenty students from Natural Bridges High School in Santa Cruz, CA interviewed an abalone farmer from American Abalone in Davenport, CA. During the field trip students received a tour of the abalone farm, then interviewed the owner, on the water about his life as an abalone farmer and how he chose this unique profession. Students from this school have participated in the *Voices of the Bay* Fisheries Education Program, for four years and have built a Santa Cruz fisheries oral history collection.

MERITO Academy Completes the 2013 Season With a Trip to Elkhorn Slough

The MERITO Academy hosted the last field trip of the season with a trip to Elkhorn Slough on May 23rd with 75 students from Monte Vista Elementary. Students were led on a hike through the slough, participated in a plankton lab, and received a tour of the visitor center from slough docents. Two MERITO interns led this trip from CSUMB and Environment for the Americas with help from three Sanctuary Exploration Center Docents.

20 volunteer divers survey kelp forests as part of REEF

On May 17th, the 11th annual survey of MBNMS kelp forests by REEF (Reef Environmental Education Foundation) divers kicked off with surveys in Point Lobos State Marine Reserve. Later that evening, Sanctuary Integrated Monitoring Network (SIMoN) staff provided a 2.5-hour overview of all 58 invertebrates and algae surveyed by REEF divers during their May 18-21st visit. Many of the volunteer divers were from Oregon and Washington, and somewhat unfamiliar with several of the local, species. Staff also dove 8 of 10 sites in Carmel Bay, where conditions were excellent (>30 ft visibility, 48 F).

REEF has conducted annual monitoring with the Pacific Advanced Assessment Team (AAT) at Monterey Bay NMS since 2003. The AAT spent 5 days conducting surveys at specific sites within MBNMS while chartering the Monterey Express, a local dive charter vessel. These targeted efforts complement year-round REEF surveys that volunteers collect on their own. This year was characterized by a super-abundance of young-of-the-year (YOY) rockfishes, along with several other species (e.g., cabezon, lingcod, kelp greenling, painted greenling, and senorita). This may be among the biggest YOY recruitments in the last 25 years; concurrent surveys by NMFS vessels offshore also mirror this super-abundance of YOY. REEF data and summary reports are freely available online through the REEF website. A summary of MBNMS data can be found at <http://www.reef.org/MBNMSdata> and REEF provides raw data to scientists and resource agencies upon request.



Young of the year (YOY) rockfishes were very abundant in central California kelp forests, more so than any other time in the last 25 years. Photo Credit: Chad King.

Outreach to Media

MBNMS staff attended the Annual Alliance of Community Media regional meeting in San Francisco this week. This meeting brings together more than 200 community access stations from NY - Hawaii, and beyond. Superintendent Michel presented in the panel discussion "A Sense of Place" and described the partnership and success of the television show *Your Sanctuary*. In addition, Access Monterey Peninsula, ONMS HQ, Cordell Bank and Gulf of the Farallones NMSs hosted a both to discuss the launch of the *Your Sanctuary TV* channel as well as to bring awareness to Sanctuaries across the nation.

Beach COMBERS featured on the radio and with a web slide show

The Beach COMBERS program, started by Sanctuary staff in 1996, has citizen scientists that monitor the health of the Sanctuary by assessing beach cast birds and mammals. The program was featured on KUSP 88.9 and can be heard, with an associated slide show, at the following web site: <http://blogs.kusp.org/news/2013/05/08/that-dead-bird-on-your-beach-holds-clues-to-ocean-health/>.

Seabird Protection Network activities training

The Coastal Discovery Center is hosting an activities training by the Seabird Protection Network for its docents on June 21st from 5-6:30p. The activities will enhance visitor and student awareness of seabird protection along the CA Coast, as well as complement the Center's new seabird exhibit.

Summertime "Discover San Simeon Saturdays"

The Coastal Discovery Center will be advertising their summer offerings in conjunction with those offered through CA State Parks, Friends of the Elephant Seal and Piedras Blancas Light Station. "Discovery Saturdays" at the Center will offer programs on the History of San Simeon Bay, Marine Mammals of the Central Coast, Wildlife Viewing from the Pier, Plankton Exploration and a lab on Rocky Intertidal Invertebrates on alternating Saturdays of each month from July through September.

Sanctuary Classic in MBNMS!!!

MBNMS staff have been coordinating with organizers from the Sanctuary Classic, as well as the Sanctuary Advisory Council members, and other appropriate entities to support this summer-long fishing & photo contest. On World Ocean Day, June 8th, MBNMS staffed a booth at Fisherman's Wharf to kick-off this effort. Many individuals and families stopped by to get more information on the contest.

Exhibit upgrades at the Coastal Discovery Center

The Coastal Discovery Center has something new to offer its summer visitors with updated exhibits which display current NMS maps and partnering agencies in resource protection; a rotating display wall which currently features a mini-plankton lab supported by California's DHS biotoxin monitoring project; a new robotic manipulator arm in the Delta Sub; and 14 new talking tidepool messages recorded by the fifth grade class at Los Osos Elementary School. MBNMS also partnered with the Seabird Protection Network to add an interpretive seabird mural.

Fort Ord Dunes State Park Master Planning Session

Education staff attended the Fort Ord Dunes Interpretation Master Planning Workshop to discuss and propose interpretive content, exhibits, signage and programs for the newest park added to California's State Park system. CA State Parks is planning a myriad of interpretive opportunities for the new park that will eventually include a campground, campfire amphitheater and small visitor center. Fort Ord Dunes State Park overlooks the sanctuary and will include interpretive information about the sanctuary.

New docents at the Coastal Discovery Center

The Coastal Discovery Center is proud to graduate 8 newly trained docents as of May 2013. As Coastal Discovery Center volunteers, docents represent both CA State Parks and MBNMS, and are required to be proficient in a number of topics as well as act as liaisons for both agencies. Our new docents already came with a great deal of knowledge about intertidal invertebrates, history of San Simeon Bay, oceanography, marine ecology and diving, and attended a 50 -hr training session.

Beneath the Waves Film Festival at the Sanctuary Exploration Center

Thirty-five professional, amateur and student films chosen from over 100 reviewed submissions were shown, 922 people came through the doors of the center and partners from California State Parks, California Coastal Commission, SC Natural History Museum, Watsonville Wetlands Watch and Elkhorn Slough National Estuarine Reserve were present with booths providing activities to the public.

MBNMS Lecture series in Cambria 2013

MBNMS' Discover Your Central Coast Lecture Series, co-sponsored by UC Ken Norris Rancho Marino Reserve in Cambria, held 5 lectures during the month of May on Climate Change, Tsunami Marine Debris, the application of genetics in Grey Whale research, the status of Steelhead Trout on the Central Coast and Diving Technology and experiences from 40 years and over 5,000 dives using the Delta Sub. All talks were well attended by 60-100 people per lecture. Attendees represented 8 other volunteer programs within a 60 mile radius.

School groups at the Coastal Discovery Center

Located in beautiful San Simeon Cove at the southern end of Big Sur Hwy and close to the largest elephant seal rookery in mainland US, the Coastal Discovery Center has become a popular destination for school groups. The Center hosted over 350 students during its 2012-2013 school year from grade 2 to college. Program offerings ranged from CA State Parks' Jr. Ranger activities to rocky intertidal and beach exploration, wildlife viewing from the pier, history of old San Simeon, plankton studies and the Coastal Discovery Center itself!

Long-term monitoring of MBNMS beaches by Beach COMBERS volunteers

As of June 2013, there are 66 active Beach COMBERS (Coastal Ocean Mammal / Bird Education and Research Surveys) volunteers who collectively survey 45 km of beaches for beach-cast seabirds and marine mammals in the Monterey Bay National Marine Sanctuary (MBNMS). Each volunteer received at least 20 hours of training, and are insured by the government during surveys in the event of an injury. Since 1997, trained Beach COMBERS (Coastal Ocean Mammal / Bird Education and Research Surveys) volunteers have surveyed beached marine birds and mammals monthly at selected sections of beaches throughout the Monterey Bay area, with the specific goal of using deposition of beach cast carcasses as an index of the health of the sanctuary (<http://www.sanctuariesimon.org/monterey/sections/beachCombers/index.php?l=n>). The next volunteer training sessions will be held June 29 and 30 at Moss Landing Marine Labs. .

Coastal Discovery Center Hosts Workshop on Seabirds

On Friday, June 21st, the Coastal Discovery Center hosted a workshop on seabirds led by Dani Nicolson, wildlife rehabilitation expert, and Cara O'Brien from the Seabird Protection Network. A live pelican was used to educate docents about the life history and proper wildlife viewing etiquette of seabirds, followed by a demonstration of interactive lessons on seabird adaptations and conservation. The activities complemented a seabird mural recently added to the Coastal Discovery Center, funded by the Seabird Protection Network.

Sanctuary Exploration Center Hosts Guest Speaker, Tom O'Reilly from MBARI

On Wednesday, June 26th, The Sanctuary Exploration Center monthly volunteer enrichment series featured Tom O'Reilly from the Monterey Bay Aquarium Research Institute (MBARI). Mr. O'Reilly's talk titled "Robots in the Ocean" described how autonomous machines play an increasing role in ocean exploration and monitoring. The Exploration Center enrichments are offered on the fourth Wednesday of the month and are open to volunteers of MBNMS and local partner organizations. Thirty five volunteers attended this month's talk from the Exploration Center, Seymour Marine Discovery Center and Save Our Shores.

MERITO Academy Wraps up the 2012/2013 School Serving 455 Students

The MERITO Academy continued to serve historically disadvantaged communities in the Monterey Bay area during the 2012/2013 school year. In fall of 2012 MERITO staff gave watershed presentations at seven schools and 455 students in Monterey and Santa Cruz counties. In spring of 2013 five schools participated in 12 field trips led by sanctuary staff and partner organizations.

MBNMS Exploration Center converts to LED lighting

On July 2nd, Sanctuary Exploration Center operations staff completed conversion of the exhibit hall and lobby lighting from incandescent halogen to new energy saving LED (Light-emitting Diode) lamps. The Toshiba LED 16.3 watt replacement lamps will save 78% of the energy formerly required to power the 75 watt halogens placed in the SEC during original construction. LED technology has advanced significantly and today's LED's ability to deliver similar lumens and color temperature to halogen incandescents are critical characteristics, making LED's a viable option for museum-like application such as the SEC visitor center. In the big picture, it is estimated that conversion from incandescent to LED will cut facility electrical energy use by 27%, approximately 20,146 kWh per year and reduce electrical energy costs by \$3,243 annually.

Fourteen new Beach COMBERS volunteers

Fourteen new volunteers have joined the Beach COMBERS program. Having completed their training, they will now survey Sanctuary beaches for beach cast organisms. Data from the Beach COMBERS has been used in internationally recognized scientific journals. On average, the Beach COMBERS detect two events per year, where baseline numbers of dead organisms are significantly surpassed. These could be natural events (e.g., a low productivity year for food) or human caused (e.g., an oil spill). For more information on the program, see http://www.sanctuarysimon.org/projects/project_info.php?projectID=100143&site=true.

Santa Cruz Boys & Girls Club Participates in Sanctuary Exploration Center Fisheries Education Program Pilot

On July 19th the Santa Cruz Boys & Girls Club participated in a *Voices of the Bay* program at the Sanctuary Exploration Center in Santa Cruz. Students, ages 9-12, were part of a week-long science-based summer camp who wrapped up their week with a lesson on the sanctuary and Monterey Bay fisheries. This program served as a pilot for implementing the *Voices of the Bay* program through the Sanctuary Exploration Center. The group was led on a tour through the center where they completed a scavenger hunt for fisheries information, then participated the Balance in the Bay fisheries education activity in the Exploration Center classroom. In Balance in the Bay, students simulate a squid fishery where they learn the challenges involved in extracting and managing a marine resource.

Eighth Annual Ocean Fair hosted in San Simeon, CA

The eighth annual Ocean's Fair at the Coastal Discovery Center was held on July 29th by Monterey Bay National Marine Sanctuary and CA State Parks and Recreation, and co-sponsored by the local San Simeon Tourism Alliance. The purpose of the annual fair is to recognize and celebrate over 20 partnering agencies and non-profit groups with shared missions related to ocean education and citizen stewardship. Over 800 visitors from around the world and US enjoyed 19 exhibitors in ocean conservation, ocean exploration and technology, water quality protection, wildlife rehabilitation, sea otter research and citizen safety. Children worked on a special fabric mural featuring the leatherback sea turtle, and made an ocean pledge. The endangered leatherback sea turtle was also represented in a costume made by Save the Whales, which was accompanied by 2 costumed jellyfish! Ocean-themed songs were played throughout the day and lots of faces were painted as we celebrated CA State Park's 150th anniversary!

Sanctuary Exploration Center Docents Participate in Beach Cleanup Captain Training

On July 31st five Sanctuary Exploration Center Docents participated in a Beach Cleanup Captain Training hosted by Save Our Shores. These docents will be able to lead Exploration Center sponsored beach cleanups on Cowell's and Main Beach in Santa Cruz; promoting the sanctuary and the Center. During the upcoming Coastal Cleanup Day (September 21st), these docents will lead beach cleanup stations on behalf of the sanctuary.

Sanctuary Exploration Center Pilots Guided Tours

On Wednesday August 7th Sanctuary Exploration Center staff and volunteers piloted the guided tour program with two visiting summer camps. During the tours, fifteen middle school girls from Camp Sea Lab and 18 6-8 year old campers from the City of Santa Cruz participated in original presentations and activities focused around the exhibits. These two pilot tours were an opportunity for staff and volunteers to practice activities and presentations they have developed for specific audiences. Guided tours will be launched September of 2013.

NEWS COVERAGE

7/9/2013 – Grants spur solutions to address nitrate issues

<http://www.thecalifornian.com/article/20130709/BUSINESS/307090018?gcheck=1>

The Californian

7/1/13 – Whales are Vacationing in Santa Cruz County

http://napavalleyregister.com/lifestyles/whales-are-vacationing-in-santa-cruz-county/article_8087b4cc-dbcf-11e2-81d2-001a4bcf887a.html

Napa Valley Register

6/26/13 – A Bright, Neon Creature Found in the Monterey Bay

<http://www.kionrightnow.com/story/22699422/a-bright-neon-creature-found-in-the-monterey-bay>

KION 46 Central Coast News

6/24/13 – A Whale of a Tail for Santa Cruz New Bench

<http://www.kionrightnow.com/story/22675867/a-whale-of-a-tail-for-santa-cruz-new-bench>

KION 46 Central Coast News

6/18/13 – Top Destinations for Science Geeks

<http://www.foxnews.com/travel/2013/06/18/top-destinations-for-science-geeks/>

Fox News

6/16/13 – Your Town: Fishing Photo Contest for Youths Opens

http://www.montereyherald.com/news/ci_23472739/your-town-fishing-photo-contest-youths-opens

Monterey County Herald

6/5/13 – Garbage Piling up Beneath Monterey Bay, says MBARI

http://www.santacruzsentinel.com/localnews/ci_23398793/study-finds-garbage-littering-monterey-bay

Santa Cruz Sentinel

6/1/13 –The Path to Your Tap: What you need to know about the water supply project

http://www.montereyherald.com/local/ci_23371623/path-your-tap-what-you-need-know-about

Monterey County Herald

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

Recent Updates

Monterey Bay National Marine Sanctuary is pleased to announce the release of our new website, designed with a fresh new look and easy navigation. The homepage features upcoming events & news, and quick links to get you where you want to go with one click. The new website contains the latest information about our programs as well as new content, like “Things to Do” featuring fun ways to experience your sanctuary, from tide pooling and fishing to whale watching. We hope you enjoy browsing our new site!

Follow 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

<http://www.sanctuariesimon.org>

Office of National Marine Sanctuaries

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

Thank You Ocean

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

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/>

MBNMS Staff

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Dawn Hayes – Deputy Superintendent

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Erica Burton – Research Specialist
Jennifer Brown – SIMoN Ecosystem Scientist
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Chad King – SIMoN Data Analyst

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Liz Love – Acting Education Coordinator
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Carolyn Skinder – Southern Region Program Coordinator
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Craig Jutson – Exploration Center Operations Specialist
Kaitlin Graiff – Exploration Center Gift and Bookstore Manager
Brittany Cooper – Coastal Discovery Center Docent Coordinator

Resource Protection

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Scott Kathey – Regulatory/Emergency Response Coordinator
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Pamela Kron-Davis – Agriculture Water Quality Coordinator
Bridget Hoover – Water Quality Protection Program Director
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Sara Hutto – Advisory Council Coordinator
Andrew White – Network Manager and Webmaster



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.html>.

- Contact Information -

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