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 use of this national treasure.

National Oceanic and Atmospheric Administration (NOAA) and Office of National Marine Sanctuaries (ONMS) News

Ocean for Life: Enhancing Cultural Understanding Through Ocean Science
Twenty-eight high school students from six countries in the Greater Middle East visited 12 locations across North America, including American Samoa and Canada participated in *Ocean for Life*, an initiative to increase cultural understanding through ocean science, from July 14-26, 2011. NOAA's Channel Islands National Marine Sanctuary in California hosted the students during their field study. Ocean for Life was made possible by a partnership of U.S. Government agencies and private entities. *Ocean for Life* provides high quality, immersive ocean field studies and subsequent education programs to students of diverse cultures and backgrounds to promote ocean conservation.

Assisted by National Geographic photographers and American University film students, the participants took 54,000 photos and countless videos to document what they learned and developed five "youth media projects." The youth media projects are a tool to help *Ocean for Life* participants share what they have learned to promote ocean conservation and cultural understanding among their classmates, friends, families and communities back home.

The *Ocean for Life* program is a partnership between the National Oceanic and Atmospheric Administration's Office of National Marine Sanctuaries, The GLOBE (Global Learning and Observations to Benefit the Environment) Program, SCUBAnauts International and the National Marine Sanctuary Foundation. For more information visit, http://oceanforlife.org and http://sanctuaries.noaa.gov/education/ofl.

Several staff from the NOAA Office of National Marine Sanctuaries traveled to Doha, Qatar to conduct several days of Ocean for Life marine science, ocean conservation and stewardship activities. The Qatar Foundation International—the primary sponsor of the 2011 Ocean for Life Field Study to Channel Islands National Marine Sanctuary—hosted a student exchange in Qatar along the Persian Gulf. High school students from a math and science academy in Chicago worked with students from one all girls and one all boys school to learn more about the topic of water. Students visited local desalination plants and Exxon Mobile facilities in Doha, as well as conducted hydrology data collection, performed mangrove and sandy beach monitoring and learned more about ocean acidification. The Ocean for Life team engaged students in several ocean literacy activities, including a hands-on activity that took them on a tour of the National Marine Sanctuary System.

Signage Trail at Pillar Point Harbor Celebrates Fishing, Marine Sanctuaries
On August 2, San Mateo's Coastside community gathered to celebrate the unveiling of seven interpretive signs at the Pillar Point Harbor, Half Moon Bay. The fishing community initiated the project to portray the lives and work of those who make their living from the sea. The signs feature fishing vessels whose designs are specialized to their catch – from salmon to squid, from crab to cabezon. Recreational fishing and whale watching boats, and the NOAA research vessel *R/V Fulmar* are also depicted. This collaboration reflected the talents of high school students who interviewed fishing folks and sanctuary staff, and drafted the initial signage text. Situated partly on the main Coastal Trail at the "Gateway to the National Marine Sanctuaries" the signs will greet all harbor visitors attending the Fisherman's Market, using pedestrian and bicycle trails, or just enjoying the salt sea air. The Chamber of Commerce will promote it as an official ecotourism destination.

National Marine Sanctuary News

Channel Islands NMS
From August 13-19, 2011, the Channel Islands National Marine Sanctuary (CINMS) Research Department performed a field operation to evaluate the potential impacts of ship strikes to blue whales off California. This work is a collaborative effort by Cascadia Research, Scripps Institution of Oceanography, and CINMS. Support for this work came from the Office of Naval Research, and a NMFS' Office of Science and Technology grant to CINMS. Field operations included the deployment of the R/V *Shearwater* and Cascadia Research Collective's RHIB, the *Ziphid*. This study is designed to look at the behavioral responses of large whales to the close approach of large shipping. Whales are tagged with a variety of instrumentation and then surveyed as they interact with container ships, tankers and bulk carriers. Past efforts focused on the Santa Barbara Channel where shipping lanes pass through areas of frequent use by blue whales. Predicting locations of ship and vessel interactions became more difficult following a California Air Resources Board ruling in 2008 that limits ship fuel use within 24 nm of the coast. This field effort represented our first major attempt to examine ship and vessel interactions immediately off Los Angeles and Long Beach where vessels taking varied routes reconverge but are generally traveling slower (12 knots) than in areas further from the ports. Over the 7 days of field effort, 14 deployments of four different suction cup tag types were successfully made on blue whales. In all 7 days of field work whales were sighted in and around shipping lanes, confirming that this region was an important area of potential risk of ship strikes.

Florida Keys NMS
On July 23, 2011, Florida Keys National Marine Sanctuary and Florida Fish and Wildlife Conservation Commission staff completed a trip to the Dry Tortugas National Park to replace key sensors and download fish movement information. The crew of 6 managed to retrieve and replace 52 underwater sensors which were collecting fish movement data in and around FKNMS and Dry Tortugas National Park Reserves. The crew conducted 104 dives in water depths ranging from 43' to 100'. This data will be used to improve management of the ecosystem through increased information on resource connectivity, fish distribution, and the relationships between fish distribution and multi-scale habitat characteristics. Operationally, the crew experienced some challenges with catastrophic engine failure on the R/V *Dante Fascell* necessitating a tow to shore and causing a two day delay in sensor retrieval. Due to the outstanding planning and coordination of FKNMS operations staff, the science team moved supplies to a second vessel. the P/V *Peter Gladding*, and completed the mission one day ahead of schedule.

Gulf of the Farallones NMS
Staff from the Gulf of the Farallones National Marine Sanctuary's Seabird Protection Network (SPN) and California Fish and Game collaborated with Fitzgerald Marine Reserve in preparing the docents for the launch of their Marine Protected Area Visitor Use Watch program. Staff participated in a training for docents in this new program. Meeting highlights included: 1) An overview of the Marine Life Protection Act and how local Marine Protected Areas (MPAs) were developed; 2) Training on visitor use data collection and estimating GPS locations (via triangulation) of vessels – focus is on illegal activities within Montara State Marine Reserve (i.e., fishing) but will collect information on all activities in the reserve; 3) An update on incidents reported to Cal-TIP (14-months → approximately 200 TIPS→ 80 warnings→ 20 citations); and 4) SPN will help inform boaters about MPAs through the dissemination of an informative letter when vessels are observed fishing in Montara State Marine Reserve.

Hawaiian Islands Humpback Whale NMS
This year marked the second year of Oahu's Science and Technology Education Partnership (STEP) science show at the Hawaii Convention Center and attracted nearly 4,000 students and their teachers from public schools. The STEP program, sponsored amongst others by the Department of Education, was established to raise awareness for science and technology among Oahu's 4th, 6th and 8th graders. All kids attended an interactive science show - presented by General Atomics - and visited exhibits, including the sanctuary's exhibit about humpback whales and its efforts to disentangle humpback whales. Through the presentation of video footage and the demonstration of tools such as buoys, a special knife used to cut entanglement off the whale, and a VHF transmitter, students learned about threats humpback whales and other ocean creatures are facing and what the sanctuary does to mitigate the impacts. This program is a great event to raise awareness among students about marine science and the sanctuary's efforts. It is a tremendous opportunity to reach out to a significant number of kids during the 4 day period.

Olympic Coast NMS
Staff from NOAA's Olympic Coast National Marine Sanctuary joined forces with partners from NOAA's Southwest Fishery Science Center, NOAA's National Centers for Coastal Ocean Science, Washington State University and Oregon State University on a mission to survey deep-sea corals and sponges. Based out of Newport, Oregon, OSU's R/V *Pacific Storm* used a NOAA Fisheries remotely operated vehicle to take a closer look at areas in Olympic Coast National Marine Sanctuary that had been previously mapped with sonar. These hard-bottom areas are likely habitats for deep-sea coral communities, as well as Essential Fish Habitat. This investigation is being funded by the Deep Sea Coral Research and Technology Program under NOAA's Coral Reef Conservation Program.

MONTEREY BAY NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES

MANAGEMENT

Pacific Voyagers arrive in Monterey Bay National Marine Sanctuary
MBNMS and WCRO staff partnered with the National Marine Sanctuary Foundation to welcome the Pacific Voyagers to the shores of the Sanctuary. The Pacific Voyagers have traveled by traditional style canoe vessels from New Zealand to the California Coast. There was significant interest from the community and media as a result of this welcome ceremony. Sanctuary Deputy Superintendent provided a Star of the Sea award honoring their achievement and thanking them for carry their message of ocean health to the people of California, and the West Coast Director presented a map of the MBNMS. The local Essalen tribe and Congressman Farr's staff also participated in the welcome ceremony. For photos and videos from the event check our facebook page at: http://www.facebook.com/MBNMS and the Pacific Voyagers blog on the Monterey landing.

The Pacific Voyagers in traditional "vacas" approaching Del Monte Beach.

Photo Credit: Nicole Capps, MBNMS NOAA

MBNMS attends Taste of the Harbor in Santa Cruz in support of ocean conservation in Monterey Bay
O'Neill Sea Odyssey provides a hands-on educational experience to encourage the protection and preservation of our living sea and communities by engaging 4th - 6th grade youth with 3-hour lessons in navigation, sailing, conservation, and marine science on a 65-foot catamaran sailing Monterey Bay, and in a shore-side education center. The program is free, and each group completes a community service project to participate. Their mission is to provide a hands-on educational experience to encourage the protection and preservation of our living sea and communities. OSO offers a stimulating environment in which students learn practical applications for the subject matter, including geography, mathematics, natural science, and conservation. The fundraiser event was well attended by local citizens, NGOs and local agencies, including MBNMS Thursday, September 8th.

RESEARCH AND MONITORING

Marine Protected Area (MPA) monitoring continues on R/V *FULMAR*
From July 29 - August 2, SIMoN staff and research divers from UC Santa Cruz's Partnership for Interdisciplinary Studies of Coastal Oceans (UCSC-PISCO) sampled 5 sites along the Big Sur coastline. To determine the effectiveness of the MPAs established in 2007, one team of divers count a subset of mobile invertebrates and stipitate kelps, as well as percent cover of sessile invertebrates and turf algae. A second team of divers counts and estimates the size of targeted fish species along benthic and midwater transects, and the kelp canopy, which serves as nursery habitat for young of the year (YOY) rockfishes. Scientists completed 127 dives totaling 6,449 minutes spent underwater (51 min per dive, on average) without incident.

Results from 10 years of beach surveys published
The Coastal Ocean Mammal and Bird Education and Research Surveys (Beach COMBERS) program was initiated in 1997 to assess ecological trends with trained volunteers counting beachcast organisms. This program has detected 14 natural and human caused events over a 10-year period, including fishery bycatch and oil spill events. Data indicate fewer oiled animals compared to earlier beach survey records, and will be critical as a baseline if there is a major oil spill. A 63-page report describing the program and resource

management implications is now available in the ONMS Conservation Science Series at: http://sanctuaries.noaa.gov/science/conservation/pdfs/beachcomber.pdf.

Nancy Foster Scholar to study Sanctuaries with ROV imagery
Heather Kelley, an incoming student at California State University Monterey Bay (CSUMB), has been awarded one of the coveted Nancy Foster Scholarships from NOAA. Heather has been working at the CSUMB Institute for Applied Marine Ecology since March on the North Central Coast MPA Baseline Characterization and Monitoring Project, which is funded by California Sea Grant. Her successful proposal to NOAA leveraged her involvement in that project due to the fact that several sample sites occur in the Monterey Bay and Gulf of the Farallones National Marine Sanctuaries. The scholarship will provide Heather with two years of salary and supplies for her work on the project, as she focuses on the application of data derived from ROV imagery to the management of the National Marine Sanctuaries. It will also support Heather on at least one trip to New England to work with our colleagues at Stellwagen Bank National Marine Sanctuary and University of Connecticut.

Leatherback turtles high-use areas include the Monterey Bay and Gulf of the Farallones National Marine Sanctuaries
With partial personnel, financial, and plane support from the Monterey Bay National Marine Sanctuary (MBNMS), a seminal paper on Pacific leatherback turtles has been published in the July issue of *Ecosphere*, "Large-scale movements and high-use areas of western Pacific leatherback turtles, *Dermochelys coriacea*. Scott Benson et al. found that in the California Current LME, mesoscale eddies, coastal retention areas, current boundaries, and stationary fronts congregate jellyfish prey and correlate with leatherback distribution patterns. Results from 126 telemetry deployments indicate that leatherback turtles in the MBNMS migrate for multiple years between foraging grounds before returning to western Pacific nesting beaches.

Study of the Hook and Line Fishery for California Halibut in Monterey Bay Now Underway
On August 3, the first study day of a collaborative research project profiling a hook and line fishery for halibut in Monterey Bay was completed. The study will take place during August and September, and involves three small-scale Santa Cruz fishermen who target California halibut. Each fisherman will receive a stipend for collecting data about their effort, landings, bycatch, and sales on a series of five fishing days over this time period. The study will also involve interviews with each fisherman. Results from this pilot project are expected to shed light on this little-understood fishery in the context of the debate about re-opening the Monterey Bay halibut trawl grounds. The hook and line study is a partnership between MBNMS and Oceana, and the study is an outcome of both groups' participation in the Halibut Research Design Project of Assemblyman Bill Monning's Sustainable Fishing Group.

Momentum Building for a Community Supported Fishery in the Monterey Bay Area
On August 4, a *Monterey County Weekly* article discussed an ongoing effort supported by the Sanctuary to establish a community supported fishery (CSF) for the Monterey Bay area. The print edition of the *Weekly* mentioned the effort on its 'Edible' page, and a longer story was featured on the publications online Food Blog at http://www.montereycountyweekly.com/weblogs/edible-complex/2011/aug/03/community-supported-fish-readies-for-debut/. In addition, the movement toward creating a CSF has been showcased on the website of the Monterey Institute of International Studies at http://www.miis.edu/about/newsroom/node/23623. A CSF is a seafood version of popular community supported agriculture (CSA) programs. The model has proven to be successful in increasing consumer access to local seafood and offering a predictable demand and higher prices to fishermen in coastal communities. MBNMS is supportive of this effort as a means to encourage sustainable uses of Sanctuary resources, consistent with the Sanctuary's Ecosystem Based Management Initiative.

Science divers continue to assess the Alder Creek slide in Big Sur
On August 4th and 5th, Sanctuary Integrated Monitoring Network (SIMoN) staff and UC Santa Cruz science divers used the R/V *FULMAR* to conduct subtidal surveys at the Alder Creek land slide, which closed Highway 1 in scenic Big Sur for two months. Biologists surveyed a section of kelp forest immediately in front of the slide, collecting species richness and relative abundance data for invertebrates, algae and fishes. Chad King videotaped stretches of the dive and added dozens of wide-angle digital images. A second dive was made to the south, near Villa Creek, just beyond the immediate influence of the slide. Unfortunately, poor surface conditions and a malfunctioning compressor prevented divers from making all of the planned dives.

Davidson Seamount Featured on NOAA's Coral Reef Conservation Program Web Site
Video imagery from the Davidson Seamount was shared with Congress in 2010, and can now be viewed on NOAA's Coral Reef Conservation Program Web Site (see http://coralreef.noaa.gov). The video can be found in the Coral Reef Video section, entitled "Deep Corals." Davidson Seamount is populated with a diversity of deep-sea corals and sponges, most of which have other species associated with them. The Davidson Seamount is a protected undersea mountain habitat off the coast of central California within the Monterey Bay National Marine Sanctuary, 80 miles to the southwest of Monterey.

SIMoN staff interviewed by URS Corporation for America's Cup

On September 7, 2011 Dr. Steve Lonhart spoke with Nicole Rucker, a scientist with URS (www.urscorp.com) regarding invasive species and the America's Cup Finals (www.americascup.com). The 34th America's Cup "brings the competition for the oldest trophy in international sport back to the United States for the first time in 18 years. In 2013, the race for the America's Cup will finish in San Francisco, the host city of the 34th America's Cup Finals (Sept 7-22)." URS is working pro bono for the San Francisco Port Authority to determine best practices that will minimize movement of invasive species into and out of SF Bay. This invasive species control plan will guide participants and regional authorities on how to reduce the risk of moving invasive species via mobile marine structures (e.g., barges, docks) and boats. Ms. Rucker was particularly interested in the invasive kelp *Undaria pinnatifida* and other potential invasive algae.

Research staff participates in Elkhorn Slough habitat restoration planning

On September 12th, Drs. Andrew DeVogelaere and Steve Lonhart participated in a planning meeting focused on habitat restoration in Elkhorn Slough, a National Estuarine Research Reserve and part of MBNMS. Paleoecologist Dr. Beth Watson and spatial ecologist Eric Van Dyke presented results of recent research efforts to characterize Elkhorn Slough salt marsh distributions over the last 3000 yr. Discussions of past distributions can inform current and future management efforts by sanctuary and reserve managers. The group also discussed how geospatial modeling of long-term trends in habitat change can be used by managers and the impacts of future sea-level rise scenarios on current estuarine habitat conservation efforts. Finally, the group discussed potential sediment addition projects in newly acquired property within the estuary.

SIMoN staff supports kelp forest ecosystem model

On September 21, Rodrigo Beas, a Ph.D. student at the University of California at Santa Cruz (UCSC), met with SIMoN staff to present an update on a model of trophic interactions within California kelp forest communities. A 3-yr, 600K CAMEO grant from NOAA was awarded to Drs. Mark Carr, Jim Estes, Tim Tinker, Phil Levin and Jen Caselle. Entitled "Comparative Approaches to Predicting the Consequences of an Impending Re-Invasion: Top Predator Effects on Californian Nearshore Fisheries", this grant investigates "the establishment of Marine Protected Areas and the impending re-establishment of sea otter populations across large portions of the California Coast, creating the potential for dramatic changes to kelp forest ecosystem dynamics, and fisheries yields. Researchers will employ empirical data and comparative analysis of three ecosystem modeling approaches to generate predictions of ecosystem response under the interacting effects of MPAs and otter predation. Insights gained from this study will potentially inform management decisions and help balance the conflicting objectives of protecting both sea otters and nearshore fisheries." For more information on the project, go to: http://cameo.noaa.gov/pres_mcarr.html. Beas provided an update on the database that manages species, interactions, and literature supporting estimates of abundance, interaction strengths, etc. Currently a subset of scientists from universities (UBC, UCSC, Stanford, UCSB) and agencies (MBNMS) are testing the structure of the data management system, from input to output.

Young and healthy red abalone in Point Lobos State Park.

Photo credit: Dr. Steve Lonhart, MBNMS NOAA.

SIMoN News posts article on massive mortality event on coast north of San Francisco

The California Department of Fish and Game (DFG) confirmed reports of dead red abalone and sea stars inside coves along the coast in Sonoma County beginning on August 27, 2011. Reports of dead abalone, mussels, gumboot chitons and other marine mollusks include coastal areas such as Bodega Bay, Russian Gulch, Fort Ross, Timber Cove and Salt Point State Park. DFG biologists and game wardens have collected abalone, mussels and water samples and are continuing to document reports from the public.

According to DFG biologists, these abalone deaths coincided with a phytoplankton bloom (commonly called a red tide) that developed in late August 2011 during calm ocean conditions. Oxygen-poor waters have caused similar die-offs along the coast of Oregon in recent years. On September 15, 2011 the California Fish and Game Commission took emergency action to close the abalone fishery along part of the northern California coast. Specifically, the Commission voted 3-0 to close the fishery in the entirety of Sonoma County. For more information about this visit SIMoN News at: http://sanctuarysimon.org/news/index.php/2011/09/abalone-fishery-closes-after-die-off-observed-in-sonoma/

SIMoN staff supports ESNERR staff during field surveys of Elkhorn Slough
On September 26 and 27th, Sanctuary Integrated Monitoring Network (SIMoN) staff and Dr. Andrew DeVogelaere assisted staff at the Elkhorn Slough National Estuarine Research Reserve (ESNERR) during the biennial assessment of bank erosion at 30 permanent sites within the estuary. At these same sites, researchers also conduct rapid assessments of invertebrate and algal communities, capturing an estuary-wide snapshot of major biotic changes, including new invasions. Due to human management practices, the tidal prism of the slough has changed dramatically and is currently in an erosive state. This project contributes to our understanding of how to better manage water within the slough, and the data are being used by the Tidal Wetlands Project, which has been tasked with restoring the slough and its habitats.

SIMoN staff gives guest lecture to UCSC kelp forest ecology class
On September 28, Sanctuary Integrated Monitoring Network (SIMoN) staff was invited to give a guest lecture to UC Santa Cruz's kelp forest ecology class. Biology 161L is a 10 unit undergraduate course, combining weekly lectures with weekly diving projects at Stanford's Hopkins Marine Station. 31 upper division students are selected through a competitive application process, and all must be AAUS science divers in order to take the class. The presentation introduced several ecological topics, including trophic interactions and species-specific information on the inhabitants of local kelp forests. Students were then given a one hour primer on identification of 64 invertebrates, all of which they must memorize for field studies.

Lost shipping container study featured in Bay Nature
Bay Nature is a magazine that explores nature in the San Francisco Bay Area. The MBNMS study of a lost shipping container was featured by Aleta George in the section on "News from the community and the natural world." The article describes the role of a Sanctuary, deep-sea habitats, and potential impacts of continually losing shipping containers. The two-day research cruise was in March 2011 with MBARI as a partner, and this project has had more sustained media interest than any other MBARI project.

Cal State Monterey Bay University students assessing value of marine protected areas
Staff spoke to the conservation science class at CSUMB, informing their group project to develop a scoring system for assessing the value of the marine and coastal protected areas of the Monterey Bay National Marine Sanctuary. Example criteria to form the basis of the assessment include permanence of protection, seasonality of protection, levels of protection, and size. This approach has been used in the Gulf of Maine in 2001.

MBNMS and California Academy of Sciences Research Divers Explore Monterey Peninsula
On September 13, 14 and 22, research divers from the MBNMS and California Academy of Sciences conducted six dives around the Monterey Peninsula. Scientific data collection and specimen collection objectives at specific dives sites could not be met due to swell and weather conditions, but dives in alternate locations were still conducted off of the R/V 4107. High definition video, macro and wide angle photographs were recorded during all dives, including species yet to be captured on film by MBNMS divers. Eventually, many of these photos will be indexed and available for download from the SIMoN photo library at http://www.sanctuarysimon.org/photos, where currently over 3,700 photos are available for non-commercial use.

RESOURCE PROTECTION

Integrating Lost Fishing Gear Recovery Cruise products in 3D
MBNMS staff have been working with an intern, Elizabeth Pardieck, at California State University at Monterey Bay (CSUMB) to produce unique projects to help visualize ROV transects in 3D in combination with HD video. The data used for these projects were collected at the Portuguese Ledge State Marine Conservation Area in Monterey Bay during the 2010 Lost Fishing Gear Cruise in an effort to help qualify and quantify lost fishing gear and potentially correlate it to habitat types. The Professional Science Masters program at CSUMB requires a student to allot 400-plus hours to an internship which will lead to a Masters in Coastal Watershed Science and Policy so it provides a great collaboration opportunity; the student is armed with new GIS, video processing, and 3D software skills in addition to learning about the Sanctuary while the MBNMS has had access to powerful computers, software and a dedicated intern to process more complicated data. Outreach products using these 3D data will be developed.

Reported Gray Whale Entanglement in Fishing Gear
On August 25, the MBNMS received a report of a gray whale entangled in fishing gear 4.5 miles SSW of Pillar Point Harbor. NOAA OLE and NOAA Protected Resources Division had been notified that a Whale Entanglement Team (WET) was on standby. MBNMS staff made attempts to identify several vessels or aircraft that could confirm the position of the whale, with no success. GFNMS staff are now coordinating with WET coordinators to verify the whale's current location and condition. The incident is ongoing.

MBNMS focuses efforts on understanding socio-economic contribution of sanctuary to local economies.
MBNMS is working with social scientists and economists from headquarters to better understand the contribution of MBNMS to the local economy. Collaborations between local, federal and state agencies are being investigated to collect the information needed to understand how healthy ecosystems contribute to local sustainable coastal economies.

Return of 100+ Year-Old Anchor to Sea
On August 11, the MBNMS supervised return to sea of a 100+ year-old admiralty style anchor that had been removed from its resting place during a commercial purse sein fishing operation on July 7 in northern Monterey Bay. The anchor weighed from 3000 - 4000 pounds and was approximately 11 feet long. The MBNMS could not identify the anchor's original position with precision or any particular wreck with which it may have been associated. After consultation with multiple agencies, the sanctuary chose a retirement site in 30 feet of water off Del Monte Beach in Monterey. Returning the anchor to sea will help provide a new curiosity for recreational divers, while providing the best available means of preserving the artifact.

This 100+ year old anchor was returned to sea in the very area seen in the background of this photograph.

Photo Credit: Scott Kathey, MBNMSNOAA

MBNMS staff briefs the Pacific Fishery Management Council (PFMC) on the Ecosystem Based Management Initiative (EBMI)
Paul Michel and Dr. Rikki Dunsmore briefed the PFMC Wednesday September 14th on the EBM Initiative, including its goals and process, its research and data collection programs, the role of the Integrated Ecosystem Assessment and the proposed coordination between the Sanctuary, the Council, the National Marine Fishery Service, fishing communities and other stakeholders. The purpose of the briefing was to enhance collaboration to facilitate research in the sanctuary. The MBNMS seeks PFMC's advice on how to: 1) identify intersection points between the EBM Initiative research needs and PFMC's fishery ecosystem plan, and 2) Ask for the participation of PFMC members in the EBM Initiative process to identify joint research needs related to ecosystem-based management and ecosystem based fishery management.

EBM Initiative Workshop summary published in ONMS Conservation Series Publication
On September 23rd a report titled "Facilitating Research in Monterey Bay National Marine Sanctuary: Summary of the 2010 Workshop to Inform the Ecosystem-based Management Initiative" was published in the ONMS Conservation Series. The workshop, which occurred on October 26th, 2010, was the first in a series of workshops to gather information for the Ecosystem-based Management Initiative. The report contains an overview of the workshop, including the goal, agenda, a summary of notes from discussion sessions, key findings, and next steps. Additional information, such as maps and tables summarizing the regulated areas in the central CA region and a list of workshop participants, are available as appendices. The report is available online at http://sanctuaries.noaa.gov/science/conservation/mbnms_research.html.

Southern MBNMS volunteers consider First Flush.
On September 15th Lisa Emanuelson gave a presentation on the citizen-monitoring program First Flush to Greenspace board members and concerned citizens of Cambria and San Simeon. Greenspace is interested in implementing the First Flush program in the Cambria area. The presentation covered logistics, site selection, analytes, and volunteers. Greenspace hopes to get one site monitored this winter season. If Greenspace conducts First Flush the extent of this program will be MBNMS wide, extending from Montara in the north to Cambria in the south.

MBNMS Volunteers conduct the Dry Run in preparation for First Flush on Monterey Peninsula and San Mateo Coast.
On September 14th and 17th, volunteers attended a training and conducted the Dry Run on the Monterey Peninsula in preparation for the First Flush, the first major rainstorm monitoring program focused on urban areas. Volunteers went out to all 25 sites looking for flowing water. On September 18th, eight volunteers attended the First Flush training and conducted a Dry Run for all eight Half Moon Bay area sites. Half Moon Bay First Flush volunteers are coordinated in partnership with the San Mateo County Resources Conservation District. Samples were collected where water was present and are being tested for indicator bacteria, metals and nutrients. This is the 12th year of the First Flush program.

San Mateo County Initiates Pollution Reduction Program
On September 21, the WQPP Director participated in a kick-off meeting for an exciting effort on the San Mateo Coast to improve beach water quality and protect an Area of Special Biological Significance while testing different structural and non-structural practices that will be implemented to remove pollutants from storm water runoff. This is a 3-year, multi-faceted approach led by San Mateo County Public Works Department to improve water quality through community education and determination of effective techniques that can be utilized in watersheds throughout the Central Coast of CA.

Monterey Harbor Dredge Disposal
MBNMS staff have issued a letter to the US Army Corps of Engineers and others on the Monterey Harbor Dredge disposal project. Staff met with the City of Monterey Harbormaster & regulatory agencies two years ago to discuss various elements of the project, which entails the deposit of 10,000 cubic yards of dredged sediment annually at two onshore locations above mean high water at Del Monte Beach, for the purpose of beach nourishment. The MBNMS does not object to this project, only the manner in which it was facilitated by the applicant, and ultimately approved without monitoring requirements.

CA Water Plan Incorporates Marine Waters
On September 29th, WQPP Director gave a presentation at the Central California Water Plan forum. The CA Dept. of Water Resources has historically been focused on water supply issues. In the 2009 Water Plan update, they began to incorporate water quality and flood information. The 2013 Water Plan will expand to include coastal waters. This forum was the first attempt at engaging and enhancing regional participation through webinar technology with meeting locations in Watsonville, Paso Robles and Buellton, CA. This forum highlighted the Integrated Regional Watershed Management planning efforts, which sanctuary staff have helped to coordinate on the Central Coast.

Filming via MPWC's requested
MBNMS was contacted by Congressman Sam Farr's office and the Santa Cruz County Convention and Visitors Bureau and asked to host a meeting to field inquiries related to an initial (incomplete) application submitted by Walden Pictures. Walden Pictures contacted MBNMS with regard to using jet ski's and aircraft to shoot a feature film about a famous Santa Cruz surfer titled "Iron Cross - The Jay Moriarity Story". The producers requested a permit from the MBNMS to conduct MPWC and aircraft operations within restricted areas of the sanctuary. The MBNMS verbally denied them the use of MPWC for filming, but will allow public safety agencies to provide standby MPWC for safety purposes only. Various elements of this project and MBNMS regulations were discussed at the meeting, and Congressman Farr's deputy was supportive of the outcome. Filming is slated to occur in Santa Cruz County and at Mavericks.

ENFORCEMENT

Sanctuary and Coast Guard Inspection of Cruise Ship CELEBRITY MILLENNIUM
On September 16, NOAA enforcement and sanctuary staff accompanied a Coast Guard inspection team for a 5-hour inspection of the cruise ship CELEBRITY MILLENNIUM anchored off Monterey. The purpose of the inspection was to confirm that the vessel waste streams were in compliance with Coast Guard and NOAA regulations. The 90,000 ton vessel is rated to carry 3,450 passengers and produces types and quantities of waste equivalent to a small town. Such inspections help to ensure that cruise ships do not discharge waste or pollutants into the sanctuary. In 2008, new NOAA regulations for the sanctuary imposed strict prohibitions against discharges from cruise ships.

New Cooperative Enforcement Agreement with CA State Parks
On September 12, Director Ruth Coleman of the California Department of Parks and Recreation (CDPR) signed a new Cooperative Enforcement Agreement between CDPR and the NOAA Office of Law Enforcement that will facilitate continued deputization of State Park peace officers to enforce several federal resource protection laws within the MBNMS, including the National Marine Sanctuaries Act. This is part of an ongoing effort to coordinate and collaborate marine enforcement efforts within the sanctuary to optimize compliance with federal and state resource protection laws.

EDUCATION AND OUTREACH PROGRAMS

West Coast Education Ocean Acidification Workshop
This week (August 8-11th) education staff from all five ONMS sites in the west coast region held a workshop to discuss education and communication on Ocean Acidification. The meeting took place in San Francisco at the YMCA Point Bonita, near the Headlands Institute. Carolyn Skinder and Sacha Lozano represented MBNMS' education team. The agenda included a scientific overview of the issue by MBARI's researcher Dr. Jim Barry, a presentation on existing teaching tools on this subject by Pam Miller from Hopkins

Marine Station, and internal discussion among education staff about audiences, expected outcomes, content, and approaches to communicate ocean acidification as a coordinated effort throughout the region.

MERITO student videos posted on California MPA Education Resources website
A selection of student-produced short films, made through the MBNMS-MERITO's 2011 Multicultural Voices for Ocean Literacy (MVOL) project, has been posted on MBSF's California MPA Education Resources website: http://www.californiampas.org/pages/resources/digital-videos-partners.html. MERITO staff and interns worked with 115 students (4th and 5th grade) from 4 school sites in Marina, Seaside and Salinas to complete 22 team-based 4-6min video projects focusing on ocean related issues and Marine Protected Areas in the Monterey Bay National Marine Sanctuary. MERITO's MVOL project allows students to integrate field-based and hands-on experiences with digital storytelling skills to promote a self-directed learning of ocean literacy.

MERITO staff developed Spanish material for California MPA Education Resources website
This summer MBNMS-MERITO staff completed a Spanish translation of web content, informative fact sheets, brochures, exhibit panels, and video subtitles for the Monterey Bay Sanctuary Foundation's California MPA Education Resources website. These resources can be found at: http://www.californiampas.org/pages/spanishresources.html.

Ongoing Coordination with MCCVB
MBNMS staff have been meeting with the Monterey County Convention and Visitors Bureau to discuss ways the Monterey Bay National Marine Sanctuary can strategically align in their effort to market the region as an eco-tourism destination, while utilizing the presence of the MBNMS to promote the specialness of the area.

Monterey County Business Council
MBNMS gave a presentation to the Monterey County Business Council at their August 23rd evening meeting. Staff spent about twenty-five minutes outlining the many different roles and facets of the National Marine Sanctuary. Particular attention was paid to our most exciting efforts with the Sanctuary Exploration Center. Council members were very engaged and had many follow-up questions after the presentation.

Sanctuary Exploration Center Presentation to the Santa Cruz Tannery Arts Group
MBNMS education staff presented at the 2nd Tannery Arts Program series entitled, "Navigating Commitment: Our Relationship with Monterey Bay and the Ocean". Short presentations about ocean art, plastics pollution and educating our youth today on healthy oceans were given by local artists, poets and Save Our Shores and O'Neill Sea Odyssey representatives. Sanctuary staff opened the program with an introduction to the sanctuary program and closed with a presentation highlighting the Sanctuary Exploration Center that is currently being built in Santa Cruz.

Monterey County Hospitality Association
Deirdre Whalen, Government & Community Relations Coordinator, attended the evening meeting of the Monterey County Hospitality Association. This group offers an opportunity to network with influential leaders of the local business and hospitality industry. Although many members of this group are not especially familiar with the efforts of the MBNMS, they are receptive to considering new partnerships.

Your Sanctuary
The MBNMS team is continuing to meet with Access Monterey Peninsula (AMP) television station to refine the upcoming pilot program for "Your Sanctuary".

Article for *Sanctuary Watch*
MBNMS staff wrote and submitted an article "From Boom to Bust" about the history of the sardine industry for the upcoming *Sanctuary Watch* issue on maritime heritage.

Recreational Boating Interpretive Panels
MBNMS staff worked with the Monterey Bay Sanctuary Foundation to produce five new interpretive panels directed at recreational boaters. Staff developed detailed maps and text to inform boaters about the locations and regulations of state marine protected areas along the central coast. The panels are being installed at each of the three harbors in Monterey Bay and were funded by a grant from the Resources Legacy Fund.

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

Recent Updates

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

- EBM Initiative Research Workshop Summary Available
  http://montereybay.noaa.gov/resourcepro/ebmi/2010summary.html

- Updated Information Regarding MPWC in MBNMS
  http://montereybay.noaa.gov/resourcepro/resmanissues/mpwc.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.html.

MBNMS Staff

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Karen Grimmer – Deputy Superintendent
John Hunt – Deputy Superintendent
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Erica Burton – Research Assistant
Jennifer Brown – Research Associate
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Chad King – SIMoN Data Analyst
Oren Frey – Sea Grant Fellow
Dawn Hayes – Education & Outreach Coordinator
Liz Love – Education Specialist
Lisa Uttal – Visitor Center Project Manager
Scott Kathey – Regulatory Coordinator
Deirdre Whalen – Community and Government Relations Coordinator
Lisa Lurie – Agriculture Water Quality Coordinator
Bridget Hoover – WQ Protection Program Director
Carolyn Skinder – Southern Education & Outreach Coordinator
Lisa Emanuelson– Citizen Watershed Monitoring Network Coordinator
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Andrew White – Network Manager
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Hans Burning – R/V Fulmar Mate
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