

## 2011 Accomplishments

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### Welcome

As we begin our 20th year, I am extremely proud of our accomplishments and grateful to all of you who have supported us, challenged us and inspired us to achieve so much. The Monterey Bay National Marine Sanctuary (MBNMS) is known throughout the world, not only for its spectacular scenery and wildlife, but also for the amazing number of dedicated organizations, communities and individuals who have gone above and beyond to help protect this national treasure.

I was reminded of this during the summer as we hosted a group of current and emerging foreign environmental leaders from 24 different countries. Under the auspices of the U.S. Department of State, the group visited here to learn about our diverse programs and partnerships. They were impressed by many of our long-standing programs, from the breadth of our volunteer activities and water quality protection efforts to the depth of research taking place in the sanctuary.

In highlighting some of our activities from the past year, one resonated in particular. They were fascinated to hear about our expedition to examine the effects of a lost shipping container resting on the seafloor off Monterey Bay. As the first study of its kind and a worldwide problem, we are just beginning to fathom what kind of cumulative impacts these containers may be having on the ocean. Their numbers continue to increase, as more are lost along established shipping routes each year. Could they be forming highways of trash or serving as stepping-stones for the transport of invasive species? Some containers break apart and strew their contents, which is especially troubling if the contents are toxic. Those that don't can take many decades to degrade. As a result of our study, other environmental groups and the shipping industry have been motivated to pursue this issue out of concern for ocean health.

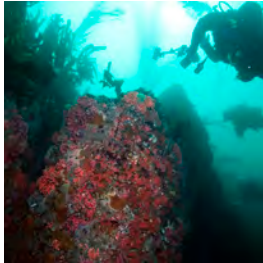
In looking forward, I am excited about the year ahead. We are collaborating with Access Monterey Peninsula to produce *Your Sanctuary*, a new public television series. The show will connect people with sanctuaries, featuring local communities and businesses dependent upon a healthy ocean as well as the fascinating organizations and people involved in ocean activities. View it via streaming at [ampmedia.org](http://ampmedia.org)

The completion of building construction and exhibit installation at the Sanctuary Exploration Center in Santa Cruz will culminate in a festive grand opening this summer. Interactive exhibits and programs will highlight the links between land and sea and connections between humans, the sanctuary and ocean.

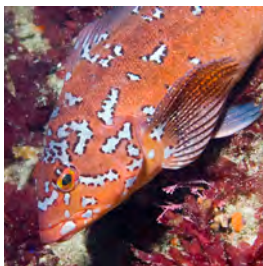
We are moving forward with the Ecosystem-based Management Initiative by coordinating research strategies and management opportunities with agency partners. A particular focus for 2012 will be on seafloor habitats.

Last but not least, we will celebrate the sanctuary's 20<sup>th</sup> anniversary with a range of activities highlighting the many accomplishments made over the years in protecting its natural and cultural resources. I hope you will take a moment and join us in reflecting on all we have achieved together. The support, passion and involvement of those of you who care are just like the sanctuary – a priceless treasure.

Paul Michel  
Superintendent



Chad King, MBNMS



Chad King, MBNMS



Josh Pederson, MBNMS



Josh Pederson, MBNMS



NOAA/MBARI

### Scientists Study Effects of Shipping Containers Lost at Sea

Each year about 10,000 cargo containers accidentally fall off ships worldwide. For the first time ever, researchers from the sanctuary and Monterey Bay Aquarium Research Institute (MBARI) studied the impacts of a shipping container resting on the seafloor at 1,300 meters (4,200 feet). Discovered by MBARI in 1994, the 40-foot-long container was one of 15 lost during a storm off Monterey Bay. Scientists determined the container crushed the delicate creatures living on the muddy bottom and created a new kind of habitat with its own suite of creatures. Strwn along shipping routes, these containers may be forming “highways of trash” as more and more accumulate each year.



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### Sanctuary a Focus for New White House Initiative on the Outdoors

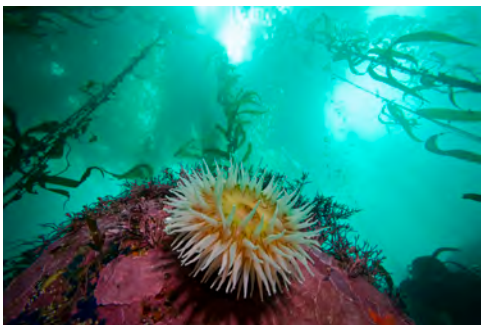
President Obama launched America's Great Outdoors Initiative to develop a 21st Century conservation and recreation agenda for federal lands and waters. The initiative is being implemented directly in communities and Monterey Bay was selected as a focus area because of the nationally recognized Agriculture Water Quality Alliance coordinated by the sanctuary. New agency and stakeholder partnerships will be identified to enhance water quality protection, voluntary stewardship and regulatory planning in sanctuary watersheds. Congressman Sam Farr, Superintendent Michel, leaders from the U.S. Department of Agriculture, National Resources Conservation Service and U.S Forest Service kicked off the initiative in a public forum in June 2011 and sanctuary staff is leading the development of an interagency work plan.



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### Managing Landslide Material to Protect Sanctuary Resources

Adjacent to the sanctuary, Highway 1 traverses the rugged terrain of Big Sur for more than 70 miles and has a long history of landslides and closures. Debris disposal from maintenance and repair by California Department of Transportation (Caltrans) can potentially harm marine habitats through burial, scour and turbidity. Repair work typically requires a California Coastal Commission permit authorized by the sanctuary, prompting Caltrans, the sanctuary and other agencies to develop a Big Sur management plan. After a major slide in 2011, sanctuary researchers surveyed the impacted nearshore habitat to characterize potentially affected areas. Significant planning and interagency coordination efforts over the past decade have resulted in improved management of landslide material and better protection of marine resources.



Chad King, MBNMS

### Gathering Information to Inform Ecosystem-based Management

It was a busy first year moving ahead with the Ecosystem-based Management (EBM) Initiative as staff convened workshops and meetings to gather information related to EBM objectives. A workshop was held in October 2010 to address the objective of facilitating research and more than 30 participants including researchers, vessel operators, Sanctuary Advisory Council members and the public provided a wealth of ideas and input now published in a Marine Sanctuary Conservation Series report. (See [http://sanctuaries.noaa.gov/science/conservation/mbnms\\_research.html](http://sanctuaries.noaa.gov/science/conservation/mbnms_research.html)). In May 2011 a similar sanctuary workshop was held to gather data related to the objective of protecting unique and rare features. A summary of that information is forthcoming. During the summer, staff met with recreational boaters at three area yacht clubs to capture their feedback as part of the objective to promote sustainable uses.





George Brown Goode, 1887

### Learning About Natural Resources from a Historical Perspective

A new interactive web-based “Historical Marine Ecology Timeline” was launched this year intertwining anthropogenic and natural histories of the sanctuary region over time. The tool provides details and images of significant events that have occurred from 1500 AD to the present. By clicking on an event, you can access information about it, including historic photos, newspaper accounts and ships’ logs of reported ecological activities and fisheries. It is a fascinating new way to explore the ocean’s bounty from a historical perspective. Visit the timeline at <http://www.sanctuariesimon.org/timeline/>



Chad King, MBNMS

### Tsunamis to Sea Turtles -- Natural Events of 2011

Something is always happening in the sanctuary! It began with an elephant seal biting a harbor seal at Hopkins beach in Pacific Grove. A long-time harbor seal resting and pupping beach, elephant seals arrived here in 2004 and have been coming back ever since. In March the tsunami hit our coastline. To view a fascinating time lapse video and more, go to [http://www.cencoos.org/sections/news/Tsunami\\_2011.shtml](http://www.cencoos.org/sections/news/Tsunami_2011.shtml). Next great white and basking sharks were seen off Big Sur, just as researchers announced the central coast population of white sharks to be much smaller than suspected, less than 220 individuals. Then came sightings of two different species of sea turtles, both extremely rare in these waters. Finally humpback whales stole the show with five-days of lunge-feeding right off the beach in Santa Cruz followed by a repeat performance later in the week in Monterey. Keep up with “what’s new” by visiting <http://www.sanctuariesimon.org/news/>



NOAA/MBARI

### Sanctuary Currents Symposium a Huge Success

This year’s theme “Ripple Effects: The Far-Reaching Impacts of Local Ocean Research” drew a crowd of about 300 who listened to scientific experts discuss their ground-breaking research using tools such as ROVs, AUVs and satellite tags, and how their efforts are helping to shape ocean science and management policies. Topics addressed ranged from great white sharks and Humboldt squid to California’s forward-thinking ocean management strategies as well as a presentation by sanctuary Research Coordinator Dr. Andrew Devogelaere on the Davidson Seamount. Dr. Michael Foster, Professor Emeritus at Moss Landing Marine Laboratories, was honored for his scientific achievements and gave the annual Ricketts Memorial Lecture on kelp forests. In addition, scientists, students and environmental organizations displayed more than 55 research posters and exhibits.



### Community Supported Seafood Program Comes to Monterey Bay

If you love fresh seafood, care about how marine resources are harvested and want to support local food production, this exciting new program may be for you. Local Catch Monterey Bay is a community supported fishery program for the Monterey Bay area – a seafood version of the popular community supported agriculture programs that deliver fresh food from local farms to consumers. Customers prepay for sustainably caught local fish, delivered as weekly shares to various pick-up locations. Around the country, this model has proven to be successful in increasing consumer access to local seafood and in creating new markets for small-scale fishermen. Sanctuary staff worked with an undergraduate marine conservation biology class at U.C. Santa Cruz to help develop key components of the project, such as creating species profiles and seasonal availability charts. For more information, visit <http://www.localcatchmontereybay.com/>



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### **“Voices of the Bay” Fisheries Workshop Held for Educators**

Teachers and non-formal educators were invited to immerse themselves in California fisheries, from the past to present, during a three-day professional development workshop held last April. Educators were introduced to this sanctuary collaboratively developed curriculum and explored the multiple stakeholders involved in our local fisheries. They had the opportunity to visit local harbors, a fish processing plant, local seafood restaurants and markets. Many teachers have already implemented the curriculum into their classes and report that students have enjoyed learning about our local fisheries and the challenges and complexity of the seafood industry.



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### **Exploration Center Construction Well Underway**

Construction of the sanctuary’s new interpretive facility in Santa Cruz commenced in November 2010 with completion anticipated this winter. The National Marine Sanctuary Foundation raised private funds for exhibit costs with installation slated for late spring 2012, followed by a grand opening during the summer. The Exploration Center will highlight ecosystems, wildlife, human connections and impacts to the sanctuary. It will encourage people to be curious, ask questions, enjoy and take pride in their sanctuary.



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### **Coastal Discovery Center Celebrates Fifth Anniversary**

The MBNMS Coastal Discovery Center in San Simeon celebrated five years of operation last year. During this time, the center hosted more than 79,000 visitors, 2,000 students in grades K-12 and 30 volunteer docents donated over 20,000 hours! Docents welcome the public and answer questions at the information desk, give tours, represent the sanctuary at community events, teach classes for school groups and help run our annual Coastal Discovery Fair during the summer. Just last year a new spring lecture series proved to be a big hit and the building’s one-year old ocean mural continues to get rave reviews.



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### **Helping to Educate At-Risk Students about the Environment**

Since 2006 the sanctuary’s Coastal Discovery Center in San Simeon has served as not only an interpretive center for 15,000 visitors annually, but as an education center for students in the region. Leffingwell High School, a local continuation school providing alternative education for students at-risk partnered with the sanctuary and other environmental groups to develop an experiential education program about the natural and cultural history of the coast. Now in its third year, students participate in a range of field activities, from kayaking in a kelp forest and exploring an abalone farm to visiting an elephant seal rookery and touring a historical lighthouse. At the Coastal Discovery Center, students tour the exhibits and participate in a hands-on investigation of plankton collected in San Simeon Bay.





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### **Volunteers Play Key Stewardship Role For Sanctuary Watersheds**

Each May, sanctuary volunteers mobilize for one day to monitor water quality, providing a health check-up of sanctuary watersheds. At this year's "Snapshot Day" event, 178 volunteers monitored 185 streams and rivers from San Mateo County to San Luis Obispo County measuring temperature, dissolved oxygen, pH, and conductivity and collecting water samples to analyze nutrient and bacteria levels. Another sanctuary annual monitoring event, "First Flush" occurs during the first significant rain of the season when there are "sheet flows" of water on the roadways. This year 96 volunteers collected water samples at 46 outfalls during First Flush to characterize the first big rush of storm water runoff flowing into the sanctuary.



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### **Team OCEAN Volunteers Make a Difference in Protecting Wildlife**

A volunteer kayaker-outreach program, Team OCEAN's goal is to reduce disturbance to marine mammals and educate the public about how to view wildlife in a responsible manner. Since 2000, volunteers have communicated with over 63,000 visitors on the water. A study by a graduate student last year documented the percentage of kayakers causing disturbance to resting sea otters was significantly lower when Team OCEAN volunteers were present. Kayakers who approached animals directly caused significantly more disturbance than those who approached tangentially.



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### **Beach COMBER Volunteers Raise Understanding of Birds, Mammals**

Since 1997, Beach COMBER volunteers have conducted surveys of dead marine birds and mammals on sanctuary beaches. As top predators, their deposition is an indicator of ocean health. This long-term monitoring program has helped identify significant events affecting wildlife such as oil spills, fishery interactions, harmful algal blooms and natural starvation. For example from 1997 to 2007, 28 unusual mortality events occurred – 15 with deposition significantly greater than baseline levels and 13 related to increased oiling or strandings of rare species. Several events were regionally significant, occurring along the entire west coast such as the 1997-98 El Nino and 2003 die-off of Fulmars. Others made important contributions to science, such as the 1998 domoic acid bloom, or initiated resource protection actions such as a new gill-net restriction to protect Common Murres from drowning as by-catch.



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### **Sanctuary Volunteer of the Year**

Margaret "PJ" Webb, our Volunteer of the Year, was honored for her outstanding service along with 13 other individuals across the National Marine Sanctuary system. Since 2004, Margaret has served as Sanctuary Advisory Council representative for the southern region, often traveling long distances to attend meetings. She represents the sanctuary at area events and has participated in five Snapshot Day events. Margaret also provides sanctuary outreach through speaking engagements and has been a Beach COMBER volunteer since 2006. She is now initiating a new harbor seal watch program in Cambria to assist in marine mammal protection. Highly involved in local issues, Margaret stays informed about desalination, the Santa Rosa Creek Watershed Management Plan and lobbies with other citizens for sanctuary expansion. She also serves as a board member for the Otter Project and volunteers for the Marine Mammal Center. Margaret is one of our most active and effective ambassadors – whose guidance, energy, humor and tireless support have been a tremendous asset to the sanctuary program.



Steve Lonhart, MBNMS



Mike Baird



Chad King, MBNMS



Shannon Lyday/Cordell Bank NMS

## 2011 Publication Highlights

Brown, J.A., P. Michel, S. De Beukelaer, A. DeVogelaere, R. Dunsmore, S. Lonhart, and L. Wooninck. 2011. Facilitating Research in Monterey Bay National Marine Sanctuary: Summary of the 2010 Workshop to Inform the Ecosystem-based Management Initiative. Marine Sanctuaries Conservation Series ONMS-11-06. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 53 pp.

Institute for Applied Marine Ecology and Monterey Bay National Marine Sanctuary. 2011. Characterizing the Deep: Surveys in the Monterey Bay National Marine Sanctuary 2007-2010. 14pp.

Mah, C., M. Nizinski, and L. Lundsten. 2010. Phylogenetic Revision of the Hippasterinae (Goniasteridae; Asteroidea): Systematics of Deep Sea Corallivores, Including One New Genus and Three New Species. *Zoological Journal of the Linnean Society* 160:266-301.

Miller, C.W. 2011. Monthly Distribution of Shipping Vessels Within the Monterey Bay National Marine Sanctuary, January-December 2010. Naval Postgraduate School Report prepared for the National Oceanic and Atmospheric Administration, Monterey Bay National Marine Sanctuary, 43pp.

Nevins, H.M., S.R. Benson, E.M. Phillips, J. de Marignac, A.P. DeVogelaere, J.A. Ames and J.T. Harvey. 2011. Coastal Ocean Mammal and Bird Education and Research Surveys (BeachCOMBERS), 1997-2007: ten years of monitoring beached marine birds and mammals in the Monterey Bay National Marine Sanctuary. Marine Sanctuaries Conservation Series ONMS-11-02. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 63 pp.

Rerig, P. 2011. Out to Sea: A New Take on the Fishmonger. *Edible Monterey Bay*, 1(1): 21-23.

Whitaker, K. 2010. Cetacean Survey Report off Central California Aboard the NOAA Ship McArthur II. Naval Postgraduate School, Technical Report, 22pp.

### View links to these and other 2011 publications at:

<http://montereybay.noaa.gov/research/techreports/techreps.html>





Mike Baird

## Monterey Bay National Marine Sanctuary Advisory Council Members

### Officers

Chair: Dr. Chris Harrold, Vice Chair: Kirk Schmidt, Secretary: Margaret Webb

### Non-Governmental Members

Tourism: Michael Bekker, Alternate: Robert Massaro  
Business/Industry: Cynthia Walter, Alternate: James Weisenstein  
Education: Dr. Simona Bartl, Alternate: Wayne Thompson  
Diving: Philip Sammet, Alternate: Brian Nelson  
Recreation: Gary Pezzi, Alternate: Robert Chatham  
Commercial Fishing: Kathy Fosmark, Alternate: Jiri Nozicka  
Recreational Fishing: Richard Hughett, Alternate: John Klusmire  
Citizen At-Large: Cynthia Matthews, Alternate: Kortney Opshaug  
Citizen At-Large: Richard Ely, Alternate: Kurt Schnebele  
Citizen At-Large: Margaret Webb, Alternate: Nancy Selfridge,  
Agriculture: Kirk Schmidt, Alternate: Mr. Timothy Frahm  
Research: Dr. Chris Harrold, Alternate: Dr. James Lindholm  
Conservation: Dr. Geoffrey Shester, Alternate: Lauren Gilligan



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### Local Government Members

Association of Monterey Bay Area Governments: Jane Parker, Alternate: Lynn Robinson  
Harbors: Linda McIntyre, Peter Grenell, Steve Scheiblauber, Lisa Ekers



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### State Government Members

California Coastal Commission: Tami Grove  
California Department of Fish and Game: Paul Reilly, Alternate: Susan Ashcraft  
California Environmental Protection Agency: Russ Jeffries, Alternate: Lisa McCann  
California Resources Agency: Amy Vierra  
California State Parks: Mathew Fuzie, Alternate: Nicholas Franco

### Federal Government Members (Non-voting)

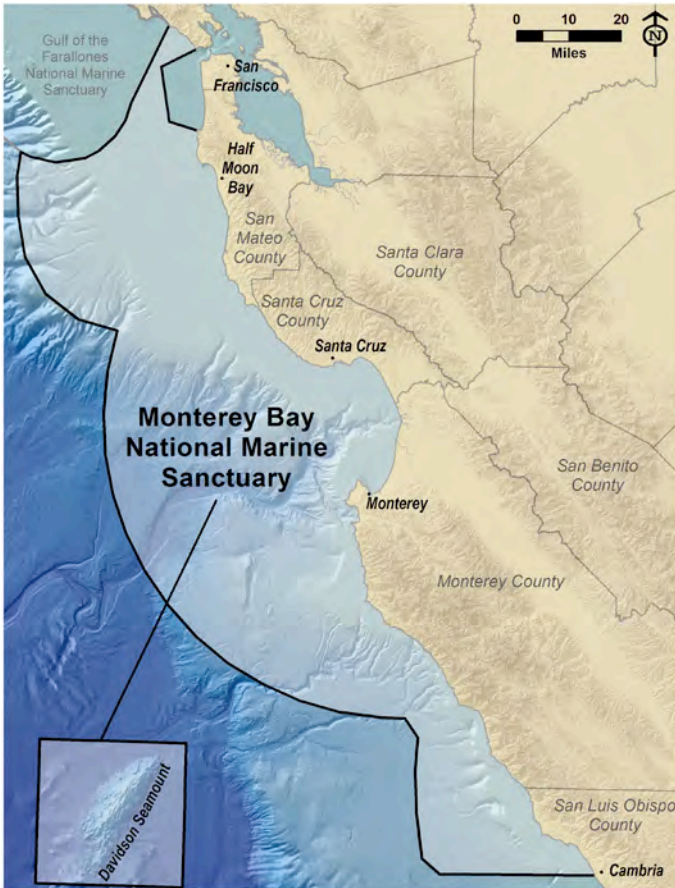
NOAA Elkhorn Slough National Estuarine Research Reserve: Dave Feliz  
U.S. Coast Guard: vacant, Alternate: LCDR Elisa Garrity  
NOAA National Marine Fisheries Service: Steve Ralston, Alternate: Steven Bograd  
NOAA Channel Islands NMS: Chris Mobley, Alternate: Michael Murray  
NOAA Gulf of the Farallones NMS: Maria Brown, Alternate: Irina Kogan  
NOAA Cordell Bank NMS: Dan Howard  
NOAA Monterey Bay NMS: Paul Michel, Alternate: Karen Grimmer

### Sanctuary Advisory Council Coordinator

Nicole Capps



Chad King, MBNMS



### Monterey Bay National Marine Sanctuary

Established September 18, 1992, the nation's largest marine sanctuary spans more than 6,000 square miles of coastal waters off central California. Within its boundaries, a rich variety of habitats teem with an amazing array of life. Rugged rocky shores, lush kelp forests, a towering offshore seamount, steep underwater canyons and other coastal environments host 34 species of marine mammals, more than 180 species of seabirds and shorebirds, over 350 species of fish and an abundance of invertebrates and algae.

### Our Mission

To understand and protect the coastal ecosystem and cultural resources of the Monterey Bay National Marine Sanctuary

## NATIONAL MARINE SANCTUARY SYSTEM

