GULF OF THE FARALLONES NATIONAL MARINE SANCTUARY

4th Quarter FY2011
July through September ~ 2011

SUPERINTENDENT'S REPORT

Dolphins Shown To Be Cause of Harbor Porpoise Deaths
Per the Marine Mammal Stranding Network, from August 12 through early September five fresh-dead harbor porpoises washed up – most on Ocean Beach/Fort Funston – apparently killed by bottlenose dolphins. On September 13 a witnessed attack occurred on a porpoise off Half Moon Bay. One porpoise, a lactating female, had been catalogued by Golden Gate Cetacean Research, in which the Farallones sanctuary is a partner. The dolphins also killed one of their own calves, approximately the size of a harbor porpoise. Academy of Sciences staff performed necropsies that showed multiple fractures from blunt force trauma; some porpoises had tooth rake marks. Past years' attacks have involved gangs of young male dolphins. Bottlenose dolphins expanded their range over 300 miles into northern California waters during the 1982-83 El Nino, and have remained ever since – another possible indicator of change in the ocean climate.

Though these porpoises were not found on Beach Watch surveys, Beach Watch sets the baseline for frequency of porpoise strandings on area beaches; and this may help determine whether an Unusual Mortality Event is declared. The overlap of Beach Watch data with stranding network records, and new live harbor porpoise research by Golden Gate Cetacean Research, provides a more complete profile of the numbers, geographic range and nature of this problem.

Bottlenose dolphin (L), Harbor porpoise with newborn (R) in SF Bay, 2010
Credit: Bill Keener/Golden Gate Cetacean Research

STATE OF THE SANCTUARY

Southern Lobster Species Found on Bay Area Beaches; Beach Watch On Alert
In September Farallones sanctuary Beach Watch volunteers went on special notice to document any California Spiny Lobster (*Panulirus interruptus*) molts or bodies washing ashore on Bay Area beaches. Several were found at Duxbury Reef in Marin County, highly unusual since this species is not generally found north of Monterey Bay. The occurrence of the molts and the reason for their washing ashore is not yet determined. Beach Watch, with over one hundred trained volunteer surveyors, is uniquely positioned to help gather evidence of potential range expansions, in addition to baseline information about the condition of sanctuary beaches. Volunteers help provide hard data vs. anecdotal reports on findings. These data help researchers pursue leads and determine whether this is an El Niño related phenomenon of larval transport northward and adults growing up but not reproducing, or if we have reproducing populations. Data will assist area managers and intertidal researchers in documenting the location and nature of this southern species' arrival in northern waters.

Red Tide Threatens Northern California Marine Life
A large and persistent bloom of marine algae off the Sonoma Counties may be related to a die-off of red abalone along the Sonoma coast. No reports of the die off have yet come from the marine sanctuary's beaches, so the extent of the problem is unknown. Harmful algal blooms may produce biotoxins injurious to other species, and can consume large quantities of dissolved oxygen, making it unavailable to other organisms.

MANAGEMENT & DISTINGUISHED VISITORS

Farallones Sanctuary Advisory Council Meets in Pacifica
Many community members attended the August meeting to hear about the creation of a Motorized Personal Watercraft (MPWC) Volunteer Rescue Program being organized by the San Mateo County Sheriff's Office. This news was positively received by both the council and the public, but many underscored the importance of involving the surfing and MPWC community in the process. Additionally, the council formed a subcommittee to investigate how best to involve youth (ages 14 to 17) in the council. Through council meetings the sanctuary can facilitate needed public services for the community, connecting people with the appropriate agencies to meet their needs. Also, advisory councils should be diverse groups that represent a variety of interests and perspectives. For this reason, expanding membership to a younger demographic is a positive change.

International Fisheries Science Committee Visit Farallones Sanctuary
This summer Farallones sanctuary staff welcomed a group of scientists from the International Scientific Committee for Tuna and Tuna-like Species of the North Pacific, led by Dr. Cisco Werner, Director for the NOAA Southwest Fisheries Science Center. The visit was at the conclusion of the Committee's annual weeklong meeting, hosted by the United States and held in San Francisco. The group of approximately twenty represented Korea, Japan, Taiwan, Micronesia, Mexico and Canada. They toured the sanctuary's campus, including the historic

Tide Station, and some took part in a plankton tow, to demonstrate one of the sanctuary's public science-themed programs: Plankton & Pastries.

RESEARCH

Monitoring To Understand Long-Term Trends

2011 Sees Record Die-off of Sooty Shearwaters in Sanctuary
In July sanctuary science staff analyzed Beach Watch data from the previous month and determined that dead Sooty Shearwaters were found in record numbers on surveys. The monthly average number of beached birds in June is 5 birds (1993-present); in June 2011 40 individuals were recorded. Deposition was primarily in the northern section of the Great Beach at Point Reyes National Seashore. The last Sooty Shearwater die-off was in June of 1989, but was not as severe. Midsummer is the post-breeding season for this trans-hemisphere migrant, and June is the peak month of presence in our sanctuary. Mortality appears to be related to lack of food, whether caused here or during their migration is unknown. The Beach Watch program establishes baseline data and provides trend information on the health of the sanctuary.

Sanctuary and USGS Staff Collaborate on Multi-beam Surveys in the Sanctuary
In September Farallones science and resource protection staff joined Guy Cochrane and David Finlayson from United States Geological Survey (USGS), conducting multi-beam surveys of Rittenburg Bank and the Farallones Escarpment. Rittenburg Bank is currently the only rocky bank within the GFNMS not listed as an Essential Fish Habitat. Information from this survey will be used to target areas for AUV and ROV exploration in 2012 and to characterize deep-sea corals, sponges, fish associations, and marine debris in the sanctuary. By pooling resources and expertise with another federal agency, the sanctuary gains new habitat characterization information that will help us better manage sanctuary resources.

SEAS - ACCESS CRUISES

Research Cruises Yield Contrasting Biological Profiles in Local Sanctuaries
In July Farallones science staff, in partnership with Cordell Bank sanctuary and PRBO Conservation Science, completed Applied California Current Ecosystem Studies (ACCESS) cruises. Despite high winds and swells they were able to sample priority and nearshore lines. Over 80 humpback and 20 blue whales were sighted, along with Common Murres carrying fish back to chicks still on the nest, as well as newly fledged murre chicks. The Farallon Islands had a pinkish hue due to the high number of seabirds foraging on krill. Thousands of seabirds and scores of marine mammals were seen in southern Cordell Bank National Marine Sanctuary. By contrast, the cruises in September documented a large phytoplankton bloom throughout the region, up to 30 miles offshore; samples went to the California Department of Public Health Services for analysis. Normally abundant sightings of humpback whales, dolphins and seabirds at the shelf break were unusually scarce, with only 14 whales seen all week versus over 200 on July's survey. Dolphin and porpoise pod sizes were smaller than normal, with fewer than 10 animals per pod. Large aggregations of Cassin's Auklets were seen on only one day.

ACCESS supports marine wildlife conservation and healthy marine ecosystems in north-central California by conducting ocean research to inform resource managers, policy makers and conservation partners. Data documents ecosystem health and integrates data on oceanographic conditions, zooplankton abundance, seabird and marine mammal distribution, to identify foraging hotspots in relationship to vessel activities, and applications as a rapid assessment of water column resources in the event of an oil spill. View images from this trip on the ACCESS Partnership on Facebook and http://www.accessoceans.org/.

CONSERVATION

Restoring Habitats

Restoration Begins at Bolinas Lagoon
The California Department of Transportation (Caltrans) has begun construction on a three-part roadwork project on Highway 1 along Bolinas Lagoon. The project will be completed by year's end and will provide several benefits for the Lagoon in conjunction with the Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management. Benefits include: 1) removal of invasive species; 2) protected water quality resulting from reduced toxins and sediment reaching the Lagoon, and; 3) strengthened Lagoon resilience to flooding and extreme storm events. As part of the project, Caltrans is also developing a Public Access Plan and will install three wayside exhibits at major pullouts along the project site. A milestone celebration was held in Bolinas on September 21st to highlight the importance of this achievement and garner support for the projects that await implementation. This project marks the first on-the-ground restoration effort at Bolinas Lagoon. The project is an important first step in the restoration process that will set the momentum towards continued restoration efforts in the area.

Minimizing Risk from Oil Spills and Vessels

Disabled Vessel Sinks (Again) Outside Golden Gate
This summer sanctuary staff continued to track recovery of the *F/V Deene Lynn* that was positioned in proximity to the sanctuary, just outside the Golden Gate. The vessel sank for the third time on July 20 as part of the recovery operation and spilled additional fuel. Further recovery was not attempted and an estimated cumulative of 900 gallons have been spilled between its initial grounding on June 29 and its most recent sinking almost a month later. A sanctuary observer on the NOAA Twin Otter reported the latest slick. Beach Watch was put on alert for fishing gear washed up on area beaches which could pose a threat to wildlife.

Farallones Sanctuary Plans for Future Oil Spill Response Contingencies
Sanctuary staff attended the San Francisco Area Contingency Planning (ACP) meeting hosted by the US Coast Guard (USCG) and California Office of Spill Prevention and Response in July and September. Discussion items included: introduction of new USCG response leads, recent oil spill case reports, upcoming drills, and 2011 ACP revisions, and the role of state and regional water

resource boards in response, and agency coordination in abandoned vessel removal. Participation in these meetings ensures Sanctuary staff are aware of and provide input into policy changes and plan development and continue to build familiarity and positive working relationships with local agency responders.

Effects of Oil Dispersants on Wildlife Under Review
Sanctuary staff participated on a conference call with Cordell Bank Sanctuary and National Marine Fisheries Service (NMFS) staff regarding the use of chemical dispersants and local wildlife issues. NMFS had written a biological opinion on the use of dispersants offshore Oregon and Washington. The group discussed how the information of that biological opinion affects the local sanctuary region.

In addition, the Joint Gulf of the Farallones and Cordell Bank National Marine Sanctuaries' Advisory Councils' working group on vessel spills met on August 30. The goal of the working group is to engage agency responders, government resource trustees, non-governmental interests, and fishermen to develop a recommendation to the Advisory Councils on the use of various response technologies (e.g. chemical dispersants) within the two Sanctuaries. The Working Group learned about the Net Environmental Benefits Analysis, the California Dispersant Use checklist, and how dispersant use decisions are made by simulating an Applied Response Technologies team in a spill scenario.

Also, on September 20-22 staff attended a workshop in Mobile, Alabama hosted by the University of New Hampshire Coastal Response Research Center on research needs on the use of dispersants in oil spills. Research needs were identified and ranked on topics including communicating risk to the public, biological effects, dispersant effectiveness, human health, and seafood safety. Workshop attendees included federal and state agencies, industry, academicians, and an NGO. Workshop results will be documented in a report and used for prioritizing funding.

REDUCING WILDLIFE DISTURBANCE

Protecting Breeding Seabird Colonies

Seabird Protection Network Hosts Technical Advisory Committee Meeting
On Thursday, August 18, 2011 the Seabird Protection Network hosted its fifth Technical Advisory Committee (TAC) meeting. The focus of the Network is to reduce human disturbances to seabird colonies throughout central California. Meeting participants were presented with program highlights, accomplishments and challenges. The Committee discussed and drafted the initial working of a strategic plan for the Seabird Protection Network. This will provide guidance on the development of additional Network Chapters throughout California. The TAC is comprised of federal, state and local agencies, representing all program areas, including expertise from scientists, natural resource managers, enforcement officers and ocean educators. The Central Coast Chapter of the Network relies on TAC members to: 1) prioritize recommendations for management, enforcement and outreach; and 2) set a timeline for recommended actions. The TAC also reviews work products produced by the Network staff.

Seabird Protection Network Partners with Fitzgerald Marine Reserve
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.

Seabird Protection Network Continues Vigorous Outreach Program
The Seabird Protection Network staff sent the first annual mailing of boater and kayaker outreach materials to about 400 recipients on June 28th. Recipients included boaters, kayakers, marinas, harbors, boat and kayak shops and clubs. The mailing included a tide book, information on our local seabirds and how boaters may impact them, as well as a map and details about new marine protected areas on the North Central Coast.

Presentations Educate Air and Water Recreationists on Being "Seabird Safe"
The Seabird Protection Network staff spoke with sailing instructors, boat club members, boater publication staff and kayak shop staff about special closures protecting seabirds at the Northern California Boat Show held in Jack London Square, Oakland on September 14th. Staff distributed tide books and mailing packets detailing the closures and actions boaters can take to reduce their impact to seabirds along the California Coast.

In special presentations, vintage aircraft pilots also learned how to avoid bird strike and protect seabirds at the Experimental Aircraft Association (EAA) Chapter 29 in Hayward this past September, 17 and to builder members of the EAA Chapter 338 in Hayward. Talks were also given to 10 members of the West Valley Flying Club in Palo Alto, CA on August 10. Attendees received an informative packet about over flight restrictions and how to minimize disturbance to breeding and resting seabirds along the California coast. These outreach efforts are vital to communicating Sanctuary over-flight regulations that do not appear on the FAA Sectional charts, which guide aviators' actions.

Protecting Whales, Other Marine Mammals

Farallones Documents Vessel Use and Marine Mammals with Twin Otter Aircraft
Gulf of the Farallones National Marine Sanctuary staff conducted three aerial operations utilizing a NOAA Twin Otter aircraft during the months of June (June 21st) and July (July 4th & 20th). GFNMS staff implemented the Sanctuary Aerial Monitoring and Spatial Analysis Program (SAMSAP) to collect information on visitor and vessel use patterns as well as marine mammal distributions. Weather was a factor for the July 4th survey and only a partial survey was

completed, but staff did collect valuable information contributing to monitoring of sanctuary resources during the three flights.

Multiple Whale Entanglements Put Farallones W.E.T. Team on Standby
This summer and fall, the rate of entangled whales in nearby waters averaged one per month: On July 31 Farallones sanctuary staff on the NOAA Whale Entanglement Team (WET) were notified of a line-entangled endangered fin whale, approximately 33 miles west of Bodega Bay. The young whale was first spotted in the company of a larger fin whale by the crew of a *va'ca* – a traditional Polynesian sailing craft, en route from New Zealand to San Francisco. On August 25 a gray whale was reported off Half Moon Bay with a crab pot float alongside, and line wrapped around its flipper. Then, on October 1 an endangered adult humpback was reported fouled with crab pot lines near Southeast Farallon Island. In none of these incidents were resightings possible that could facilitate a disentanglement response. Whales and other marine life are threatened by fisheries interactions, marine debris, and other human-generated objects. Lethal entanglement can slow at-risk species' recovery from whaling and other impacts. A photo of the fin whale is posted at http://www.pacificvoyagers.org/voyage/blogs/ocean-calling-1.html.

Protecting White Sharks

Program-Wide Environmental Assessment Covers All Shark Tagging
In September 2010, Gulf of the Farallones National Marine Sanctuary staff released a draft environmental assessment (EA) to analyze the potential impacts of issuing a research permit to Dr. Michael Domeier of Marine Conservation Science Institute for white shark attraction and approach in the sanctuary. Then a second draft was prepared that assessed the conditions of the two sharks that had been tagged in the sanctuary in 2009. More recently, new information was received about satellite data from female white sharks that had been tagged by Dr. Domeier near Guadalupe Island, Mexico, as well as a new peer-reviewed book on white shark ecology that is expected to be published soon, which may provide valuable information toward evaluating proposed white shark research in the sanctuary. Given the new information, and the fact that other researchers currently studying white sharks in the Gulf of the Farallones may apply for a new permit, the Office of National Marine Sanctuaries staff decided to develop a more comprehensive programmatic EA that would analyze all white shark permitting actions in the Gulf of the Farallones. Instead of completing the revised draft EA that focused only on Dr. Domeier's permit application for his tagging project, the programmatic assessment would be broadened to include the full range of probable scientific research methodologies, as well as activities involved in attracting white sharks for tourism-related projects in the sanctuary.

Shark Tourism Naturalist Trainings Held
Sanctuary staff conducted two workshops to update and train new and returning naturalists who will educate passengers on permitted white shark ecotourism vessels around the Farallon Islands during fall 2011. The purpose of the white shark naturalist training workshops, held in July and October, is to ensure that naturalists understand the intent of the White Shark Stewardship Program as a means to inform and educate people about white sharks while ensuring minimal disruption of the sharks during their brief time near the Farallones. The training also explained one of the permit conditions: to convey to customers five conservation-related messages about

the Gulf of the Farallones and the importance of protecting white sharks in the wild. For the 2011 season, three operators have permits to use decoys only to attract white sharks around the Farallon Islands. Two operators will provide passengers with top-side and underwater viewing in cages attached to their boats, while the third operator will provide top-side viewing only.

DEVELOPING SOLUTIONS TO RESPOND TO CLIMATE CHANGE

Climate Change Scoping Meetings Invite Bay Area Planners' and Managers' Input
On August 23rd and 25th, the Our Coast–Our Future (OCOF) Coastal Manager Scoping workshops were held in the Bay Area, with 55 coastal managers and planners in attendance. The goal of the interactive workshops was to solicit information needs for an online decision support tool to plan for and respond to sea level rise and storm hazards from Half Moon Bay to Bodega Head. Presentations included: OCOF Project Overview; An Introduction to Tools for Planning and Management; Assessing the North-central Coast's Vulnerability to Climate Change Using the Coastal Storm Modeling System; and A Decision Support System for the OCOF Project. Audience surveys producing instant answers were also included through the use of key pad polling, and afternoon breakout groups were convened to discuss management questions related to sea level rise and storms and desired tool capabilities to address these questions. Presentations and survey results are available at www.prbo.org/ocof.

EDUCATION & OUTREACH

Increasing Awareness of the Sanctuary

West Coast Educators Strategize on Ocean Acidification Programs
This summer Farallones and Cordell Bank sanctuary education staff met for three days with other west coast sanctuary educators to assess the best way to incorporate the topic of ocean acidification into regional and sanctuary site education programs. Regional ocean acidification science and education experts Jim Bari, Ph.D. of Monterey Bay Aquarium Research Institute and Pam Miller, Ph.D., curriculum coordinator for the Inquiry to Education project at Stanford University's Hopkins Marine Station, gave presentations. Topics focused on current ocean acidification education initiatives at the five west coast sanctuaries and a short and long term plan for collaboration and action. Faced with limited funds for sanctuary education and the enormous need for ocean acidification education it is imperative that west coast sanctuary educators strategize collectively to ensure the strongest ocean acidification education impact occurs along the west coast. At the workshop each sanctuary received an activity 'loaner' kit, developed by Channel Islands staff. The kits include lesson plans, microscopes, and other tools for demonstrating how carbon dioxide acidifies water.

Public Outreach, Public Programs

Whale Expert Outlines Emerging Dangers to Whales

On August 26 the sanctuary co-sponsored a presentation by noted whale biologist John Calambokidis of Cascadia Research Collective on dangers to whales such as humpbacks and blues from vessel traffic and ocean noise. The event was co-sponsored with the Oceanic Society and The Marine Mammal Center. Calambokidis also is a member of the joint Farallones-Cordell Bank sanctuaries working group on vessel/wildlife issues. Bringing top scientific expertise to addressing complex issues of mixed wildlife and human use and impacts helps build credibility formulated.

Farallones Sanctuary Welcomes Trans-Pacific Polynesian Voyagers
Sanctuary communications/outreach staff worked with the Pacific Voyagers who set out from New Zealand in April and sailed 15,000 nautical miles, arriving in San Francisco August 3rd. The crews on the traditional Polynesian ocean-going canoes (*va'kas*) set sail on a historic expedition to raise awareness of the issues threatening the Pacific Ocean, and to promote ocean sustainability. This journey reconnects the crews with their ancestors and their environment, and celebrates their identities not only as sailors, but as ocean stewards. The sanctuary also facilitated their August events on Treasure Island, welcoming the group.

Farallones Staff Speak at the Commonwealth Club
Sanctuary Education staff delivered a public presentation on the wildlife found on the Farallon Islands, open ocean, and rocky intertidal to 30 guests at the Commonwealth Club of California. The presentation highlighted the seabirds, sharks, and marine mammals found on or around the Farallon Islands as well as the incredible diversity of planktonic and intertidal invertebrate species. The program concluded with a projected exploration of a plankton sample taken just hours before the lecture that included echinoderm larvae, copepods, diatoms, phoronid worm larvae, and many other species. The Commonwealth Club of California is the nation's oldest and largest public affairs forum and brings 400 annual events on topics ranging across politics, culture, society and the economy to 15,000 members.

215 Rocky Shore Volunteer Naturalists Help Protect Intertidal Biodiversity
As part of the Rocky Shore Partnership between the Gulf of the Farallones National Marine Sanctuary and the California Academy of Sciences fifteen new Rocky Shore Naturalists completed their eight week training course. In addition, 200 "veteran" rocky shore volunteer naturalists received enrichment training on the new Farallon Island Exhibit at the Academy. Rocky Shore volunteers work in the Discovery Tidepool and California coast exhibits at the Academy and at Duxbury Reef in the Sanctuary where they monitor intertidal marine life as well as interpret the reef to visitors. A new Rocky Shore volunteer website was constructed to better allow for scheduling, communication and on-line data entry for volunteers. Volunteer Rocky Shore Naturalists are currently engaging the public at the California Academy of Sciences and in the Farallones Marine Sanctuary as roving naturalists. They are promoting good tidepool etiquette, conducting scientific monitoring, and delivering sanctuary messages to inspire support for the protection of local marine biodiversity.

Farallones Engages Urban Youth in Marine Debris-Watershed Video Project
On July 20th the Gulf of the Farallones National Marine Sanctuary Visitor Center put on a program for eight at-risk youth from Treasure Island, San Francisco, as part of the SF-ROCKS! Project. After an introduction to the Farallones sanctuary through a tour of the Visitor Center and

at the Pier Classroom, the SF-ROCKS group learned about marine debris on the beach, and interviewed staff members about marine debris for their Video Watershed project. SF-ROCKS works specifically with 9th grade teachers and students, focusing on incorporating the local watershed environments of San Francisco into current 9th grade curricula in classrooms and informal venues. SF-ROCKS is maintained and run by the Geosciences Department at San Francisco State University.

Farallones Explorers Camp Adventures At the Shore and On the Water
Gulf of the Farallones National Marine Sanctuary partnered with the Randall Museum (San Francisco Recreation and Parks Department) to offer Marine Explorers Camp. The week-long camp was based at the Gulf of the Farallones National Marine Sanctuary offices in San Francisco. The 18 campers explored many sanctuary habitats and inhabitants through plankton labs, trips to the Marine Headlands, hiking along sanctuary shores, tidepooling and kayaking in nearshore waters. Campers declared this experience as "the best camp ever" and enjoyed getting wet and sandy as they learned. As campers increased their awareness and knowledge of coastal and marine life, they also investigated some of the ways humans and the ocean are interconnected and how their actions can affect the ocean.

Visitor Center

The Farallones sanctuary Visitor Center educates diverse audiences of students and the general public along an environmental literacy continuum including developing awareness, building a knowledge base, changing behavior, and building stewardship. Drop-in visitors come from the Bay Area and all over the world, including adults and families interested in learning more about their marine sanctuary. School programs include netting plankton for view under the microscope, searching for shore crabs, and activities in the Visitor Center to learn about animal adaptations. Visitors took part in indoor as well as outdoor activities on Crissy Field Beach.

Total visitors for this quarter were 4,215. Of these, 252 took part in structured programs. These included: Seventy people in our Plankton & Pastry, and the new Planktronica Public Programs; forty in our Creature Feature program; and 160 students participated in a portion of the eight-session Oceans After School program.

PLANKTRONICA! is the Farallones sanctuary's newest public program, in which participants enjoyed an evening exploring the prolific world of plankton amid a relaxed ambiance at the stunning sanctuary Pier Classroom perched above San Francisco Bay. They learned about diatoms, dinoflagellates and copepods, and discovered bizarre larvae from barnacles, crabs, and mussels. D.J. "Euphonic" provided background musical ambience in the intertidal lounge with laid-back reef beats. Attendees learned to use microscopes and do print-making with plankton.

Oceans After School: Using the endless appeal of our local marine wildlife and habitats, the Sanctuary Education Team offers 16 hours of fun, hands-on, lively marine science programs for after-school programs on topics such as sharks, salmon, seabirds, whales, squid, and plankton. These enrichment programs are dynamic, interactive, and integrated into state standards. Our

marine science educators deliver the programs during an 8-12 week window. The curriculum is best-suited for grades 3rd through 5th.

Americorps Members Contribute 3,600 Hours to Sanctuary Education Team
Two Americorps members from the Watershed Stewards Project contributed to Gulf of the Farallones National Marine Sanctuary by staffing the sanctuary Visitor Center, delivering K-12 field trip programs, teaching Oceans After School programs, leading science workshops for the public, organizing watershed restoration events, and monitoring and restoring salmonid habitats in local watersheds. Both became skilled instructors in a variety of sanctuary education programs that they will continue to deliver as contracted part-time staff. As watershed stewards, they established new partnerships with watershed researchers and managers that will be invaluable to next year's incoming members. The Americorps program at the sanctuary is in partnership with the Watershed Stewardship Project and the Farallones Marine Sanctuary Association.

President's Joint Ocean Commission Member Presents Sanctuary Program to Students
The Honorable Pietro Parravano, a member of the President's Joint Ocean Commission Initiative, presented two of the Farallones' Fisherman in the Classroom programs to area students. Parravano is a member of President Obama's Joint Ocean Commission Initiative/Pew National Ocean Commission, and Commissioner of the San Mateo County Harbor District. A local commercial fisherman, Parravano is president of the Institute of Fisheries Resources, and advocates on behalf of sustainable fisheries and the future of commercial fishermen. The Fishermen in the Classroom program highlights the maritime heritage in the San Francisco and Pillar Point fishing communities. Local fishing folk helped develop the curriculum, and deliver the programs. Parravano delivered the program to fifty students this quarter.

Advanced Students Learn Science of Big Waves from Farallones Educators
On August 2nd Farallones educators met with 12 students from Hopkins Center for Talented Youth down at Pillar Point near Half Moon Bay for a program on beach ecology and big wave physics. Pillar Point is the location of the Mavericks Big Wave and although the sea was calm, students were able to understand the processes that create this. This is the third year we have presented this program to the Hopkins Center group.

MSI Students Learn that the Farallones Sanctuary is "For the Birds"
On August 2nd Farallones educators met with 43 students from The Marine Science Institute for an interactive science program. The 5th/6th graders participated in a program that focused on the seabird population of the Farallones sanctuary, learning about Common Murres and Black-footed Albatross. The program also featured a wildlife observation section where they identified several local and migratory seabird species on Crissy Field Beach.

Exhibits

Signage Trail at Pillar Point Harbor Celebrates Fisherfolk, 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 and honor the lives and work of those who make their living from the sea, and

showing the diversity of ocean users. The signs feature fishing vessels whose designs are specialized to their catch – from salmon to squid, and 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 has pledged to promote it as an official ecotourism destination.

LiMPETS – Long-term Monitoring Program & Experiential Training for Students

LiMPETS Regional Student Programs
The LiMPETS program trains middle school, high school, and other young groups to monitor the rocky intertidal and sandy shore along the California west coast national marine sanctuaries. This quarter, 457 students and teachers from 12 different schools and partners in 5 counties carried out LiMPETS shore surveys. This included in-class trainings, and individual monitoring events at different monitoring sites. 18 teachers took part in a "LiMPETS 101" professional development workshop. For details on LiMPETS, see www.limpetsmonitoring.org

Whale Tail Grant Brings Students LiMPETS "Seashore Scientists" Program
On August 2 Farallones staff spoke at a press conference held by the California Coastal Commission and California Department of Motor Vehicles to launch a new design for the specialty Whale Tail license plates, proceeds from whose sale support environmental groups. The grant to the Farallones Marine Sanctuary Association for LiMPETS (Long-term Monitoring Program and Experiential Training for Students) provides hands-on coastal monitoring experiences enabling 1,500 students and teachers to conduct real science, documenting marine algae and invertebrates at rocky shore and sandy beach sites. At the event, Brian Baird/ California Natural Resources Agency and Member of the National Ocean Council Governance Coordinating Committee, also singled out the Thank You Ocean campaign for its multicultural approach to increasing ocean awareness and fostering ocean literacy. LiMPETS yields data from which to draw scientific conclusions and inform management decisions. It is being used to create a baseline assessment of California's North Central Coast Marine Protected Areas. Further, it permits students to see themselves as "seashore scientists" and may guide them to careers in marine disciplines.

AT YOUR SCHOOL

Bay Area Students Benefit From *At Your School* Programs
Farallones sanctuary *At Your School* programs (*AYS*) serve the San Francisco Bay Area to bring ocean education directly into schools. They are designed to promote environmental literacy and increase students' awareness and knowledge of coastal and marine life. They include standards-based interactive classroom programs to help increase sanctuary awareness within the

community, and contribute to building a stewardship ethic in the next generation. A total of 24 young students participated in the Crab Cab program this summer.

MEDIA OUTREACH HIGHLIGHTS

Major Bay Area Media Outlet Meets with Whale Expert, Sanctuary Staff
The Farallones sanctuary and Oceanic Society hosted San Francisco Chronicle environmental reporter Peter Fimrite on a cruise into the Gulf of the Farallones sanctuary in September. This resulted in front page coverage on the whale shipstrike issue, and other human-caused challenges to several endangered whale species' struggle to recover from whaling impacts. While underway, Fimrite conducted in-depth interviews with whale biologist John Calambokidis, and sanctuary staff. This also laid the groundwork for several other potential stories on the Farallones sanctuary and its wildlife. Alerting the public and the shipping industry through major media to the dangers that species face from human interaction is vital for gaining broad-based and industry sector support for management measures to mitigate or eliminate the problems.

See separate Quarterly Media Report for Clippings and Story Links

FARALLONES SANCTUARY
30TH ANNIVERSARY YEAR-END EVENT CALENDAR

Date	*Event Details*
October	
Oct - 2	Farallones Marine Sanctuary Association Whale Watch Trip Registration required/Fee
Oct - 15	SharktoberFest – Visitor Center Activities
November	
Nov - 1	Beyond the Golden Gate Research Symposium (invitational)
Nov - 5	Fall lecture – Squid Soiree with Dr. William Gilly Registration required/Fee
Nov - 10	Advisory Council meeting, Upper Fort Mason, San Francisco
Nov - 12	Sanctuary Creature Feature Program For children and their families - Registration required/Fee
Nov - 12	Annual Pigeon Point Lighthouse Lighting
Nov - TBA	Teacher Workshop: Fisherman in the Classroom - Details TBA
December	

January	
TBA	Sperm Whale Talk by Sarah Mesnick/NOAA Fisheries – Details TBA

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GET INVOLVED – AND STAY INFORMED!

Sign up for the GFNMS listserv to receive email notices about upcoming sanctuary events and public meetings. To learn how to get involved in the sanctuary visit: http://farallones.noaa.gov. To learn more about the Sanctuary Advisory Council visit: http://farallones.noaa.gov/manage/sac.html

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