

SUPERINTENDENT'S QUARTERLY REPORT

4TH QUARTER FY2015
JULY THROUGH SEPTEMBER, 2015

Health of the Sanctuary

Each year the sanctuary sees a post breeding die-off in Common Murres (COMU), from about August through October, with a peak in September. This past year we saw record numbers of dead COMU, mostly chicks (young of the year). About 75% of the dead murres were young of the year (usually it is closer 50:50 chicks to Juv+Adults), in August and September. In comparison to years when the post-breeding season was either before or after an El Nino winter, this year stands out as a record year. The normal post-breeding, dead bird rate in COMU is about 0.5 murres/km surveyed. During past El Nino years (1994, 1997, 1998, 2007, and 2008) the rate of dead murres is around 1-2.5 murres/km surveyed. This past post-breeding mortality was close to 9.5 murres/km surveyed. Oil pollution events will exacerbate the die-off as well as hamper any progress towards recovery.

Some necropsies show that this is a food-related mortality event, with emaciation and related problems as the cause of death. We suspect that prey, although abundant in some areas, was not distributed in the areas where flightless chicks were able to forage or deeper than they could dive. There are also tests confirming domoic acid poisoning in murres from the Santa Cruz/Monterey Bay area.



Fall is the time of year when we normally see failure of northern fur seal pups to succeed post-weaning; in other words, they cannot make it on their own after they have been weaned. We have already begun to document dead northern fur seal pups. *Photo Credits: Fur seal pups, NOAA; murre chick, Ron LeValley*

CONSERVATION SCIENCE & RESEARCH

Monitoring to Understand Long-term Trends

Coastal Monitoring – Beach Watch

Farallones Scientists Share Oil Spill Expertise

At the request from staff at the Resources Legacy Fund (RLF), Conservation Science staff provided information and guidance on injury quantification and restoration guidelines. Staff from RLF were most interested in how data from the Marine Protected Areas Watch (MPA Watch) program, a human use activities monitoring program throughout California, might be used in current and future oil pollution cases. Information was provided on training volunteers to collect lost recreational use data, use of emergent volunteers, familiarization with various Area Contingency Plans, and partnership building with Resource Trustee agencies, training in hazardous materials and Incident Command operations, and regulatory options. RLF advances the conservation of natural resources through creative solutions customized to the philanthropic goals of their donors and supports the statewide MPA Watch monitoring program and a portion of the Beach Watch (BW) project.

The Farallones sanctuary has experts on staff with decades of experience in oil spill response, damage assessment and impacts of oil on wildlife. We are leaders in recovering restoration costs for sanctuary wildlife, habitats, and lost recreational uses.



Science Staff Help Craft Oil Spill Memorandum

Headquarters and Farallones sanctuary staff joined multiple NOAA offices to participate in a three-day workshop to develop an Oil Spill Damage Assessment Technical Memorandum, to provide guidance for assessing injuries to marine mammals from oil spills. Participants gained an understanding of required assessment endpoints for response (cleanup) and natural

resource damage assessments performed under the Oil Pollution, Marine Mammal Protection, Endangered Species, and National Marine Sanctuary acts. Presentations were provided on the applicable laws, oil spill science, vulnerabilities of marine mammals to oil, effects of cleanup actions, and summaries of the state of the science, i.e. methods to assess exposure, effects, magnitude of impacts, and possible restoration actions.

The organizers plan to develop a NOAA technical memo resulting from the workshop to provide guidance for conducting damage assessment from oil spills for future events. The information and contacts developed before and during the workshop should be immediately useful for the next oil spill.

Beach Watch Data Reflects “Blob” Impacts

The Beach Watch staff is working with researchers from the University of Maine and Coastal Observation and Seabird Survey Team (COASST), providing beached bird data that links the “warm water blobs” and the ecosystem response. Beach Watch data on the Cassin’s Auklet die-off last fall and winter will be overlaid with the physical and chemical parameters to better understand the severity of the warm water event and the current El Niño. The “warm water blob” is the nickname for a persistent expanse of exceptionally warm water that has extended over the waters off the Pacific Northwest, and from California to Mexico. It has been present since last summer.

The Farallones sanctuary is a sentinel site for seabirds and marine mammals along the west coast. Beach Watch is an award winning and world renowned citizen science monitoring project that provides information to sanctuary management. It helps NOAA attract collaborators, improve information flow, interpret science to the public, and advance conservation science through our collective assets and efforts.

Sanctuary Ecosystem Assessment Surveys (SEAS, ACCESS Cruises)

ACCESS Completes Summer Surveys

ACCESS is a collaborative partnership of Point Blue Conservation Science, Cordell Bank and Greater Farallones National Marine Sanctuaries, which provides ecosystem information for management. This integrated data collection effort helps sanctuaries assess the health of the marine ecosystem, provides information such as

the abundance and distribution of baleen whales in relation to shipping lanes to inform attempts to reduce vessel strikes to whales, and synthesizes data for ocean health analyses, while working with academic partners on targeted research projects.

In July the Applied California Current Ecosystem Studies (ACCESS) project completed its second research expedition of the year. The team conducted all planned work, including two new lines within the expansion areas of both Farallones and Cordell sanctuaries. Sampling included birds, mammals, ocean acidification, and zooplankton prey availability. Highlights included several large groups (130-160 whales) of feeding humpback and blue whales, many storm-petrels and Common Murre chicks.



The team notified Vessel Traffic Safety and ships in the area of the high concentration of whales in the north shipping lane, and witnessed one vessel altering its course away from the whales. Net sampling recorded abundant small-sized krill. The data collected helps gauge the severity of the warm-water “blob” north and south of the sanctuary, the onset of El Niño, and how our region supports localized productivity within our region.

ACCESS Publishes Ocean Climate Report

The Applied California Current Ecosystem Studies (ACCESS) team has posted its annual report on the status of ocean climate indicators for 2014 within the Greater Farallones, Cordell Bank and the northern portion of the Monterey Bay sanctuaries ([link to report](#)). This report informs managers and policy-makers about wildlife responses to changes “Ocean Climate Indicators: A Monitoring Inventory and Plan for Tracking Climate Change in the North-central California Coast and Ocean Region” ([link to Indicators](#)) to help prioritize indicators to

include in the ACCESS climate indicators report.

Additional indicators were included to provide a comprehensive picture of regional ocean conditions. We have compiled a variety of datasets to look at long-term as well as short-term trends (i.e., 2004-present).

Preventing Fishing Gear Entanglement

There have been several entangled whales recently, some resulting in death; others were disentangled by the NOAA Fisheries Whale Entanglement Team program. This quarter, a highly endangered leatherback sea turtle was seen near the Golden Gate entangled in what appeared to be crabbing gear. ACCESS worked with SeaDoc to identify co-occurrences of whales and derelict crab pots in July and September, and SeaDoc used this information to help target area where local fishermen remove derelict gear and thus reduce potential entanglements. This project is funded by NOAA Marine Debris Program. SeaDoc recently removed 43 derelict crab pots from our region and will continue to work on this project if the crab season continues to be delayed due to domoic acid in the crabs.

RESOURCE PROTECTION

Reducing Wildlife Disturbance

Protecting Seabird Colonies

Seabird Group Talks to Monterey Audubon

Seabird Protection Network (SPN) staff spoke with 22 members of the Monterey Audubon Chapter in Monterey, CA on July 14. Society members learned about the national marine sanctuaries, the history of local Common Murre populations, and current threats to their recovery. Attendees received handouts about seabirds and tips for avoiding wildlife disturbance. Members were also shown the online wildlife disturbance reporting form and were asked to assist in reporting disturbances to seabirds and Black Oystercatchers in the Monterey area. Involving local residents to be the eyes and ears of the sanctuaries enhances understanding of resources protection issues and helps to target efforts to minimize wildlife disturbance problems.

The Seabird Protection Network is a program of the Greater Farallones National Marine Sanctuary that works to reduce human disturbance to sensitive seabird breeding colonies along the central California coast.

Protecting Habitats

Tomales Bay Update

The Tomales Bay Mooring Program (TBMP) was launched August 10th. The program was built out from the guidance of the Tomales Bay Vessel Management Plan, which was finalized in 2013. The program is administered jointly by the sanctuary and California State Lands Commission since regulations of both agencies apply in Tomales Bay. While mooring lease applicants will only be dealing with State Lands Commission applications, the conditions that apply to mooring leases in Tomales Bay reflect requirements developed collaboratively over many years, with input from numerous agencies and stakeholders.

The Farallones sanctuary tagged and surveyed all buoys – approximately 95 moorings – in the bay, in collaboration with NOAA Office of Law Enforcement and the National Park Service. For the buoys that were deemed moorings, they were tagged and given instructions on next steps. Beginning August 10th all existing private mooring owners had an early opportunity for a three month period to apply for a mooring lease. Within six months (ending February 10, 2016) all private mooring holders were required to be in the process of obtaining a State Lands Commission lease.

In addition, we have initiated an outreach campaign directed at current mooring owners. The message is simple: current mooring owners are directed to check their tags because all the information they need is on the tags. Notifications were sent out through various outlets including a letter to interested parties, press release, newspaper ad, flyers posted around the Point Reyes/Tomales Bay area, an updated website that includes all relevant information, FAQs, and a new interactive PDF map that helps people interested in applying for a mooring lease. This is being done in collaboration with State Lands, the lead agency for all mooring lease applications.

Minimizing Risk from Oil Spills, Vessels - *Vessel Groundings, Other Incidents*

Sanctuary Staff Hones Spill Preparedness Skills

To prepare for inevitable oil spills in sanctuary waters, those Conservation Science, Resource Protection and Education staff most likely to work on Shoreline Clean-up Assessment Techniques (SCAT) teams during an oil spill

response, completed three days of SCAT training. NOAA's Office of Response and Restoration, the US Coast Guard and the state Office of Spill Prevention and Response hosted the training. The training included SCAT terminology used throughout the nation, how to complete SCAT forms, cleanup alternatives and trade-offs that will result in effective cleanup without doing further harm, and how to create a sketch map depicting oil descriptions. Many of these techniques are integrated into our baseline monitoring projects, such as Beach Watch and ACCESS. Examples during this training included information provided by Beach Watch data and determining cleanup end points.

EDUCATION

Increasing Awareness of the Sanctuary

Exhibits

Pt. Reyes Seashore's New Visitor Center Spotlights Sanctuary Habitats, Marine Life

Murals and models for the new lighthouse visitor center have been installed at the Point Reyes National Seashore Visitor Center. The space is fully immersive and looks out onto the two national marine sanctuaries. More sanctuary interpretive exhibits will go in as the next phase is completed. This is a collaborative project led by Cordell Bank NMS, with Greater Farallones NMS and Point Reyes National Seashore.

The Point Reyes National Seashore is an international tourist destination as well as a Bay Area treasured national park. The Point Reyes Lighthouse sits on a peninsula surrounded by water on three sides looking out over the Greater Farallones and Cordell Bank national marine sanctuaries. The new center is an opportunity to connect visitors with ocean wildlife and protections that the sanctuaries bring.

ONMS Artist-In-Residence Considering Farallones for Climate Change Art Installation

Communications staff worked with K.A. Colorado, ONMS' new Artist in Residence, to conduct a preliminary site walkthrough and acquaint the artist with the work of the Greater Farallones sanctuary, regarding a potential art installation at the site. One concept discussed, using iceberg imagery for which Colorado is known, reflected the linkage between the melting Arctic ice shelf and the California gray whale as a possible "poster child" for

ocean warming. In 1999-2000 the gray whale population suffered an estimated 30% mortality due in great part to shrinkage of polar ice sheets, and the mud-dwelling organisms which depend on the ice, and its impact on the gray whales' food supply.

Farallones Sanctuary Visitor Center

The Farallones sanctuary Visitor Center educates diverse audiences of the general public along an environmental literacy continuum including developing awareness, building a knowledge base, changing behavior, and building a stewardship ethic. From July through September a total 5,179 drop-in visitors came in from the Bay Area and all over the world.

School programs include plankton netting for viewing under the microscope, searching for shore crabs and activities in the Visitor Center to learn about animal adaptations. Students take part in indoor as well as outdoor activities on Crissy Field Beach in the Golden Gate National Recreation Area.

Farallones sanctuary Visitor Center field trip programs promote ocean literacy and provide standards-based interactive programs inside the center and in the field for kindergarten through high school. Visitor Center field trips served 853 students this quarter.

Events – Public Programs

Family Workshop Series

The Sanctuary Family Workshop Series provides opportunities for the public to learn through an integrated program of engaging art and science activities. Inspiring ocean literacy and conservation ethics through hands-on learning are the goals of the family workshop series. This quarter 106 people attended workshops with focuses ranging from sharks, to salmon, plankton, Nurdle Patrol/Marine Debris, and special Girl Scout programs.

Sanctuary Explorations Series

The Sanctuary Exploration Series provides monthly opportunities for the public to connect with and experience, our national marine sanctuaries. Building a strong public sanctuary constituency as well as inspiring ocean literacy, conservation ethics and wildlife etiquette through experiential learning are the goals for this series.

Surprised Farallones Explorers Encounter Exotic Bird Species

Greater Farallones National Marine Sanctuary education staff partnered with the Oceanic Society on a cruise to the Farallon Islands August 1. Forty-one participants from the Sanctuary Explorations program encountered abundant wildlife - some rare and exciting: numerous humpback whales, including a dead one being scavenged by sharks. A tropical Brown-footed Booby and a Blue-footed booby, plus the "infamous" Northern Gannet - an Atlantic species - were spotted. Other sightings were of harbor porpoises, ocean sunfish, and seabirds including Common Murres, cormorants, Brown Pelicans, Rhinoceros Auklets, Black-footed Albatross, and numerous Tufted Puffins. Participants learned the natural history of marine mammals and seabirds, and conservation efforts. They also learned about good whale watching practices, and assisted in rescuing a "Happy Birthday" helium balloon from the ocean.

Adventures on Alcatraz: Island of Seabirds

Greater Farallones National Marine Sanctuary education staff partnered with National Park Service biologist Tori Seher to lead a thought-provoking walk through the nesting seabirds on Alcatraz. Alcatraz Island, infamous for its federal prison, supports the only nesting colonies of Brandt's and Pelagic Cormorants inside San Francisco Bay. 20 Sanctuary Explorers learned about seabird ecology, their current population status, and the significance of Pigeon Guillemots, Black-crowned Night Herons, Snowy Egrets, Black Oystercatchers, and many more. They also discussed the impacts of human disturbance and the efforts to protect these birds.



Brandt's Cormorant, NPS Photo

Kayaking the Farallones Expansion Area

Greater Farallones National Marine Sanctuary education staff partnered with WaterTreks EcoTours to lead a morning of kayaking in Jenner-by-the-Sea in Sonoma County. Twelve Sanctuary Explorers enjoyed the local ecology and wildlife of the Russian River estuary and were excited to discover more about the northern range of our newly expanded sanctuary. While exploring the waters of the estuary and both the island and coastal beaches, we saw a variety of wildlife including White Pelicans, Osprey, egrets, Great Blue Herons, terns, cormorants, fish, and a large harbor seal population. The Sanctuary Explorers learned about the area's rich Native American history, local plants and animals, while also learning basic paddling skills, water safety skills and wildlife viewing etiquette.

Camps

Randall Museum/Marine Explorers Camp

Sanctuary staff conducted the annual summer camp, featuring excursions into the sanctuary, to 33 students through a standing partnership with the Randall Junior Museum in San Francisco.

Celsius and Beyond Camps

Sanctuary educators led eight marine mammal-themed Visitor Center field trips for a total of 116 3rd through 8th grades Celsius and Beyond summer campers. Celsius and Beyond is a specialized science enrichment program in the San Francisco Bay Area that provides camps designed by university science faculty that help children discover the beauty of science and motivates them to further their learning of science. Sanctuary educators provided games and activities to explore marine mammal pathogens and introduced the species of marine mammals that live in sanctuary waters. By partnering with Celsius and Beyond, the sanctuary reached a new audience of youth with deep interests in science and received outside funding to further the mission of the education team.

At Your School (AYS) Programs

Oceans After School:

Underserved Youth Assist in Watershed Study

Education staff from Farallones Marine Sanctuary, Crissy Field Center and Seven Teepees joined forces to produce a semester-long marine science program,

Watershed Advocacy via Environmental Sciences (WAVES) for underserved youth in San Francisco's Mission District. Plankton assessments, water sampling and analysis of several watersheds are part of the curriculum that takes place weekly after-school.

Educator Training, Professional Development

Greater Farallones Hosts Annual White Shark Naturalist Training

On Saturday, August 8th the Farallones sanctuary staff hosted its annual White Shark Naturalist Training for permitted white shark tour operators and their onboard naturalists who conduct educational trips within the sanctuary. Twenty-five participants were provided with information about the sanctuary's White Shark Stewardship Project, the importance of white shark protection, other wildlife resources within the sanctuary, and how to be good interpreters and effectively engage the public. They were also treated to presentations by white shark researcher Dr. Sal Jorgensen of the Monterey Bay Aquarium, and shark conservation activist Christopher Chen from the Center for Oceanic Awareness, Research, and Education. They discussed new research on white sharks, current threats to sharks, and ongoing conservation efforts.

White sharks play a vital role in maintaining ecosystem balance in the Farallones sanctuary. Raising awareness of their importance is one of the sanctuary's education and resource protection goals. This training helps shark tour operators to be more knowledgeable and effective stewards of both white sharks and the sanctuary, and to better educate and inspire the public. See more at <http://farallones.noaa.gov/eco/sharks/sharks.html>

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

The Long-term Monitoring Program and Experiential Training for Students – LIMPETS – is a statewide national marine sanctuary program that trains teachers and students to get involved in real scientific investigations and become ocean stewards. Teacher workshops expand teacher knowledge and ultimately increase the number of student citizen scientists doing science along our shores. It also introduces new teachers from a

diversity of communities to the national marine sanctuary program. In all this quarter, 173 students and their teachers in Bay Area schools took part in LiMPETS programs.

Media Communications, Outreach

Media Requests for Coverage Opportunities

Communications staff issued press releases and worked on several stories (entangled sea turtle, etc.) with various English language media outlets on a variety of topics, but also with Telemundo, the Bay Area's Spanish language television station this quarter, reaching out to a new audience.

Outside Magazine requested information on sanctuary sharks and other wildlife for an article on recent attempts at swimming between San Francisco and the Farallon Islands. Staff provided information and story ideas to producers from the Discovery Channel/Daily Planet, Canada on research efforts going on now or in foreseeable future. Various publications reported on ACCESS cruises.



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GET INVOLVED – AND STAY INFORMED!

Visit the Farallones Marine Sanctuary Association website for updates, details and registration: www.farallones.org, as well as FMSA's Facebook page. The Farallones sanctuary Facebook is also now up and running at [Facebook.com/the Farallones sanctuary](https://www.facebook.com/theFarallonesSanctuary).

To learn how you can become involved in the sanctuary visit: <http://Farallones.noaa.gov>; or to subscribe to Upwelling, the Farallones Marine Sanctuary Association newsletter: visit <http://www.Farallones.org>. To learn more about the Sanctuary Advisory Council visit: <http://Farallones.noaa.gov/manage/SanctuaryAdvisoryCouncil.htm>

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Photo: Humpback whale, NOAA