

Superintendent's Quarterly Report

October through December, 2018

Shutdown impacts sanctuary operations

Greater Farallones National Marine Sanctuary has been involved in dealing with two challenges this quarter. In November wildfires raged, sending plumes of smoke across the bay, concentrating the smoke into a toxic finger as it was forced through the narrow gap of the Golden Gate and pervaded our sanctuary campus. The sanctuary cancelled numerous education programs due to health concerns. Then, from later December through January, Greater Farallones was also impacted by the government's shutting down.

During that shutdown, all federal personnel, both full-time and part-time, except for two exempted staff (to feed the aquarium fish and see to site security) were precluded from working. The Holiday Camps were cancelled along with other projects and actions. Thankfully, the sanctuary's NGO partners were able to carry out some programs, but they were not able to access to any sanctuary equipment, facilities, resources, contacts or other support.

January is an important time in which to prepare for the coming year. Our Conservation Science staff normally plans out the limited ship time Greater Farallones allotted on NOAA research vessels for the year, inventories and repairs equipment, and identifies data gaps to rectify in the coming year. Our Education Department lost that time for analyzing program success; January is when we compile prior year statistics in order to secure new grants and set priorities for the coming year.



Resource Protection usually starts the year by planning activities to protect the health of the sanctuary, wildlife, and habitats; the year ordinarily begins with an all-staff emergency response training. Greater Farallones and Cordell Bank national marine sanctuaries meet annually to assess and develop a plan to reduce ships strikes to whales. This year, staff also missed an international meeting in San Francisco as part of the United Nations Biosphere Program.

Our leadership has encouraged us to pick up where we left off and move ahead, but the shutdown clearly demonstrated how vital to our work are partnerships with NGOs and independent groups.

MANAGEMENT

Sanctuaries waive regulations on Coast Guard discharge

Following a three-year review process, effective December 10, 2018 NOAA will allow the US Coast Guard (USCG) to continue releasing specified vessel sewage, graywater and training-related discharges within the northern expansion areas of Greater Farallones and Cordell Bank national marine sanctuaries. This enables the USCG vessels with small waste holding capacity to continue fulfilling security and environmental enforcement missions without returning to port. The USCG provides routine surveillance and enforcement of the National Marine Sanctuaries Act and other environmental laws and regulations, protects living sanctuary marine resources during oil spill response, and conducts emergency response activities in the sanctuaries, among other activities.

The extensive review allowed NOAA to determine the limited quantities of the discharges to be made, and to assess the environmental impacts of those discharges. See more at <https://farallones.noaa.gov/manage/regulations.html>.

Advisory Council approves kelp recovery working group recommendations

On Wednesday November 14, the Greater Farallones National Marine Sanctuary Advisory Council held their quarterly meeting in San Francisco. The council received the recommendations from the Kelp Recovery Working Group, which developed management recommendations for the recovery of bull kelp populations along the North-Central California coastline. The recommendations were approved and forwarded to the sanctuary to be included in a Kelp Recovery Plan that will be presented in February 2019.

The council also discussed a draft resolution in response to the Call for Information and Nominations for Commercial Leasing for Wind Power Development on the Outer Continental Shelf

Offshore California. The SAC voted to advise the sanctuary to comment on the call for offshore wind development nominations. Finally, the council received a guest presentation from Athline Clark, superintendent of Papahānaumokuākea Marine National Monument.

The Sanctuary Advisory Council acts as an advising body to the sanctuary superintendent, and working groups relating to sanctuary issues provide recommendations for management strategies.

CONSERVATION SCIENCE

Monitoring To Understand Long-Term Trends

Integrating research and monitoring to protect whales, track ecosystem changes

Conservation science staff represented Greater Farallones sanctuary (GFNMS) at the Joint Strategic Advisory Committee meeting for Central-North Coast and Ocean Observation System (CeNCOOS) and Southern California Coast and Ocean Observation System. Greater Farallones presented sanctuary monitoring projects, illustrating how they relate to the Integrated Ocean Observation System's focus areas: climate variability and change, coastal hazards, ecosystems, water quality and fisheries, and marine operations. We identified several areas where CeNCOOS may meet our information needs: data portal to archive large volumes of acoustic and ROV imagery with accompanying annotation, data visualization and linkages with environmental influences, such as beached birds and mammals or abundance and distribution of krill and forage fish influenced by temperature, AIS tracking and visualization of whale risk, whale sightings and commercial shipping.

GFNMS is a member organization within CeNCOOS, a collaborative that enables coastal measurements, model forecasts, and integrated products to inform decisions about our region. Participation within this collaborative ensures sanctuary information needs are met.



Left: Endangered fin whale #561, beached May 31, 2018 at Brighton Beach, Marin Co., GFNMS, "Trauma consistent with ship strike." Credit: TMMC

Expanding Pacific exploration, collaborations of submerged systems

Greater Farallones conservation science staff, along with 29 researchers from other NOAA offices, Bureau of Ocean Energy Management, United States Geological Survey, and Monterey Bay Research Institute (MBARI) met to discuss next steps and progress of the EXPRESS campaign (Expanding Pacific Research and Exploration of Submerged Systems). EXPRESS is a collaboration of federal agencies and MBARI. The meeting was to identify recent successes of collaborative efforts sharing ship time, opportunistic mapping and visual data collection, a web enabled prioritization mapping tool, as well as data management of large volumes of data and how to communicate our successes to the public and leadership. The EXPRESS campaign facilitates more efficient data collection to support management needs and increase our capabilities to share data and products.

Developing collaborations increases awareness of national marine sanctuaries as regions of importance, resource protection and sentinel sites for research.

Beach Watch

Beach Watch is a collaborative partnership of Greater Farallones National Marine Sanctuary and Greater Farallones Association, which provides ecosystem information for management about shoreline wildlife and human use activities.

Protecting marine protected areas through citizen science

Conservation Science staff hosted the annual meeting of the MPA (Marine Protected Areas) Watch network. MPA Watch is a citizen-science monitoring program that trains volunteers to observe and collect data on human uses of coastal and marine resources both inside and outside of MPAs. Volunteers use standardized protocols to collect relevant, scientifically rigorous, and broadly accessible data. The sanctuary Beach Watch project provides data to the MPA Watch database. The annual meeting reviewed funding sources and future proposals, updated guidelines on data collection, data management, quality control and adherence to protocols; identified potential data users and management information needs, and consistent reporting format and data interpretation for management actions.

MPA Watch connects key partners to enhance protection of state and sanctuary resources and provides outreach, which engages the public and helps raise awareness of the sanctuaries and the state's marine protected areas.

Sanctuary Ecosystem Assessment Surveys (SEAS, ACCESS Surveys)

GFNMS research programs integrate information needs of our research protection, education and outreach programs, highlighting status and trends of sanctuary resources, ecosystem health, and response to climate change.

Applied California Current Ecosystem Assessment Surveys (ACCESS)

Applied California Current Ecosystem Studies (ACCESS) is a collaborative effort of Cordell Bank and Greater Farallones national marine sanctuaries, and Point Blue Conservation Science for ongoing data collection to understand the status and trends of sanctuary resources, ecosystem health, and response to climate change. ACCESS cruises will resume in spring 2019.

RESOURCE PROTECTION

Protecting Seabird Colonies

Seabird network presents at wildlife symposium

Staff presented on lessons learned from outreach efforts targeting boaters and pilots. Using behavior change design and positive messaging, staff have been able to effectively engage these target audiences and build relationships within their communities that help refine and disseminate our message: to give seabirds and coastal wildlife space to thrive.

The Coastal Wildlife Disturbance Symposium brings together experts in wildlife disturbance from agencies and nonprofits. Presenting on Seabird Protection Network expands the recognition of sanctuaries' efforts to protect sensitive wildlife.

Pilots lend Seabird network a helping wing

The Half Moon Bay Pilots Association helped staff from Greater Farallones National Marine Sanctuary's Seabird Protection Network gain a deeper understanding of flight operations near sensitive seabird colonies. The Half Moon Bay Airport is a common launching point for flights over sanctuary waters. Pilots guided staff through airport procedures and local traffic patterns and then took staff on a flight to experience following sanctuary regulations first-hand. Members of the association also expressed interest in partnering to design new

outreach displays at strategic locations around the airport. The association has voiced strong opposition to NOAA Regulated Overflight Zones in the past – so being invited to partner represents a major step forward.

Collaborating and building partnerships with influential pilots' organizations and community leaders allows for increased opportunities for outreach to California pilots. This increases the likelihood that pilots will avoid wildlife and respect NOAA Regulated Overflight Zones – key goals of the sanctuary.



Seabird Protection Network presents at wildlife disturbance conference. Photo: GFNMS

Seabird Protection Network partners with aviation conference

Staff partnered with organizers of the first annual civilian aviation conference, Bay Flight 2018, to educate 125 Bay Area pilots about the need to fly high over sensitive wildlife areas. Conference organizers included an informational flier detailing seabird colonies on an aeronautical chart, and staff hosted a table in order to interact with attendees. Staff will continue to work with conference organizers, who also own a popular Bay Area flight school, to educate pilots on flying seabird safe.

Maintaining a presence in the civilian aviation community is crucial to building awareness of sensitive wildlife areas and NOAA overflight zones. Educating local pilots furthers the sanctuaries' goals of promoting responsible human uses, and reducing threats to key species.



SPN outreach brings pilots, boaters and conservation pros together. Cr: GFNMS



L: Using jenga-style activity to teach ocean acidification. CR: Carol A. Preston/GFNMS

R: Teaching the teachers about ocean acidification. CR: Carol A. Preston/GFNMS

EDUCATION

Inspiring an Ocean Conservation Ethic

Trans-Pacific ocean acidification education
 Papahānaumokuākea (PMNM) and Greater Farallones National Marine Sanctuary (GFNMS) were awarded an ocean acidification grant in FY18 to develop an educator toolkit and hold teacher workshops on ocean acidification. The first teacher workshop was held at Greater Farallones National Marine Sanctuary on October 13; PMNM Mokupāpapa Discovery Center Manager Andy Collins participated in the workshop. Seventeen math, science and environment high school teachers and three informal educators from the San Francisco Bay area participated in the day-long workshop and were shown the lesson plans developed, community resources, and hands-on activities from the tool kit. The next step is to host a similar teacher workshop in Hawai'i in FY19.

This project supports ocean literacy initiatives to inspire the next generation of innovators, and address impacts to sanctuaries and monuments.

Events

Salmon in the spotlight at Greater Farallones science and arts celebration

On November 10, 2018 at the newly renovated Randall Museum, 175 adults participated in the sanctuary science and arts event, the Salmon Soiree. NOAA Fisheries scientists Dr. Sarah Mesnick, Ecologist, and Dr. Tommy Williams, Research Biologist, presented NOAA Fisheries' latest research and salmon restoration efforts. World-renowned artist Ray Troll presented his new science communication artwork, *Salmonscape*. A lively Q&A session brought together 25 Lusk's Executive Chef and author Matthew Dolan (*"Simply Fish: 75 Modern and Delicious Recipes for Sustainable Seafood"*), commercial fisherman Mike Hudson, soils chemist Dr. Kevin Rider, and Executive Director of the

Institute for Fisheries Resources Noah Oppenheim. The reception included signings by Ray Troll, Matthew Dolan and Squidtoons author Garfield Kwan. Printmaking, a salmon dissection, and a salmon lab provided hands-on activities and in-depth discussions of salmon biology.

Soirées are sophisticated evenings wherein a diverse group of adults gains a deeper appreciation for the marine life that inhabits our changing ocean. They learn how they can be part of efforts to protect our oceans.



Noah Oppenheim, IFR/PCFFA, discusses salmon and river water related conservation issues. Credit: Jean Alupay/GFA



Artist Ray Troll presenting "Salmonscape" artwork. Credit: Jean Alupay/GFA

Sanctuary Explorations

The Sanctuary Explorations 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 the series. Ninety-eight explorers took part in programs this quarter.

Fall seas provide ideal sighting conditions for whales, seabirds, sunfish, sea lions

Greater Farallones National Marine Sanctuary education staff partnered with the Oceanic Society to provide forty-one participants an opportunity to experience Greater Farallones marine life on October 21, 2018. Veterans, whose August "Get into Your Sanctuary" cruise had been canceled due to high seas, joined other participants from the Sanctuary Explorations program. The group encountered humpback whales, several mola mola, and many seabirds, including Common Murres, cormorants, Brown Pelicans, a late-season Tufted Puffin, and three Black-footed Albatrosses. Participants learned about the natural history of whales, pinnipeds and seabirds, along with the conservation efforts to protect these amazing species. In addition, they learned about good whale watching practices and etiquette.



Sea lion "buoy bums," rest and restore body heat and normalize blood gases after foraging dives. CR: Sara Heintzelman/GFNMS



Humpback whale flexes into shallow dive; anchovies are often just beneath the surface. CR: Sara Heintzelman/GFNMS



Sunset magic at Tomales Bay launch site. Credit: Sara Heintzelman/GFNMS



Black-footed albatross sprints across wave tops for takeoff. Calm days require more exertion to achieve lift, than running into a headwind does. CR: Sara Heintzelman/GFNMS

Winter tidepool exploration

Greater Farallones National Marine Sanctuary education staff and docents provided a tidepool adventure for Sanctuary Exploration participants at Pillar Point on Saturday, December 8, 2018. Twenty-six participants explored intertidal habitats while learning how the animals and algae survive under ever-changing conditions. They also learned proper tide pool etiquette to explore and view marine life in a respectful, safe manner. Participants found chitons, anemones, urchins, nudibranchs, leather and ochre sea stars, many species of algae plus kelp crabs.

Farallones kayakers experience the glow of life

Greater Farallones National Marine Sanctuary education staff partnered with Point Reyes Outdoors to lead an evening bioluminescence kayak excursion on Saturday, November 3. Thirty-one Sanctuary Explorers experienced the eerie phenomenon of bioluminescence in the sheltered waters of Tomales Bay. After viewing plankton from the bay under microscopes, Sanctuary Explorers launched their kayaks and enjoyed the sunset at the start of their paddle. As the deepening dark set in, they watched as tiny plankton, called dinoflagellates, created their own bioluminescent magic. The Sanctuary Explorers learned about the history, local animals, and the science behind bioluminescence while also learning basic paddling skills, water safety skills and very important wildlife viewing etiquette.



Tidepool creatures and seascape: Sara Heintzelman, NOAA/GFNMS)

Visitor Center

The Farallones Sanctuary Visitor Center serves ocean enthusiasts of all ages, from the San Francisco Bay Area and all over the world. It welcomes drop-in visitors, as well as structured programs for various ages and interests.

Visitor centers promote ocean literacy as well as other sanctuary education programs, through naturalists and exhibits. This quarter 3,971 people stopped by to “explore” our sanctuary virtually.

Visitor Center school programs include plankton netting for view under a 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.

Visitor Center Field Trips: These 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 843 students this quarter.

Visitor Center programs can create new partnerships between sanctuaries and universities and help in recruiting volunteers. Professor Carpenter has requested that the field trip become an annual event, and an undergraduate offered to join the sanctuary volunteer program.

Weekend Family Workshops

Weekend Family Workshops are held every month at Greater Farallones National Marine Sanctuary facilities. These programs foster connections within the sanctuary community and provide ocean education to children between ages four and ten. Family workshop programs are particularly engaging for young and curious ocean enthusiasts - and their parents - interested in learning about marine creatures. This quarter 206 people participated.

Farallones marks Pacific Leatherback Turtle Day
On October 14 Farallones education staff celebrated Pacific Leatherback Sea Turtle Day, honoring this highly endangered species, California’s state marine reptile, with two family workshops wherein 14 participants discovered what it takes to be the world’s largest species of turtle through interactive games and videos. The classes ended with the assembly of a handcrafted, life-sized model of a leatherback.

The leatherback population that migrates to California sanctuary waters breed in Papua New Guinea, is in danger of extinction in coming decades. NOAA Fisheries has designated it a Species in the Spotlight to ramp up research efforts and increase public awareness of the threats it faces, and work to reduce its alarming rate of decline. Certain fisheries practices and egg poaching are among the most serious threats. The sanctuary helps support these goals.

On October 21, a hands-on Octo Lab family workshop involved 43 participants in two class sessions. They studied their own defrosted octopus specimens by visiting eight different “stations” and collecting various data along the way. After the lab, attendees created octopus stop-motion videos and created octopus prints using pre-carved linoleum print blocks.



Highly endangered Pacific leatherback with transmitter to track its migration. CR: Scott Hansen/NOAA

Salmon family workshops

On Sunday December 2, Greater Farallones education staff hosted two Salmon Family Workshops. Forty-three participants learned about the life cycle of the anadromous fish as it travels between fresh and saltwater habitats. Participants also learned about salmon anatomy by observing a naturalist-led Chinook salmon dissection and capped off the class by creating salmon ink prints as reflective souvenirs of their experience.

Blue Whale Blast!

On Saturday December 8, the education staff held a 'Blue Whale Blast' family workshop highlighting our planet's largest animal species. Participants started the program by the 82 ft. blue whale sculpture made of recycled plastic currently on display in front of the Greater Farallones campus. There they learned about the incredible feeding habits of blue whales. The class also discussed plastic pollution and ended with a mini-beach cleanup.

Weekend Family Workshops are held every month at Greater Farallones National Marine Sanctuary facilities. These programs foster connections within the sanctuary community and provide multi-generational ocean education to children and adults.



Instructor demonstrates salmon dissection ins-and-outs. Mostly outs. Cr: Courtney Buel, NOAA/GFNMS



Blue whale plastic debris sculpture is part of Blue Whale Blast. Cr: Courtney Buel/GFNMS-NOAA

Eighty family members and friends also took part in similar activities as guests at marinelife themed birthday party programs led by Farallones educators.

Oceans after School Programs

This quarter, Oceans after School served 87 students in off-site programs.

At Your School Programs

The At Your School (AYS) programs serve schools throughout the San Francisco Bay area and beyond, primarily during the school term. The AYS program has reached tens of thousands of students with programs such as the Crab Cab, Seabird Shuttle, Sharkmobile and Ocean Acidification. AYS is an outreach program of Greater Farallones National Marine Sanctuary designed to promote environmental literacy and increase students' awareness and knowledge of coastal and marine life. It includes standards-based interactive classroom programs for kindergarten through twelfth grade. This quarter, AYS provided 392 helped students and teachers increase their ocean literacy.

Fisherman in the Classroom

Bringing Fisheries into the Classroom

Greater Farallones National Marine Sanctuary regularly collaborates with local fishermen to bring the treasures of the ocean to the desks of students in the San Francisco Bay Area. Through the

“Fisherman In the Classroom” program, students hear about the challenges, economics, and rewards of fishing for salmon and Dungeness crab in national marine sanctuary waters, as well as the relationship between the fisherman and sanctuary conservation policies. Putting a human face on important issues such as sustainable fisheries, watershed restoration, and national marine sanctuaries, students learned the importance of sustainable use of our ocean resources. This quarter 104 students took part in this program, from elementary, middle and high schools.

This program fulfills the objectives of increasing ocean literacy and promoting sustainable fishing. It also profiles the economic value of protecting healthy marine ecosystems that support commercial fishing in sanctuary waters.

Floating classroom welcomes students to life on the sea

As part of the Greater Farallones Fishermen in the Classroom program, on December 8, 2018, 13 students from Lick Wilmerding High School in San Francisco met fisherman Mike Hudson on his commercial fishing vessel. Hudson used hands-on teaching techniques and incorporated special salmon fishing gear and other equipment on the boat as he demonstrated their use. The students learned about the lifestyles and challenges of being a fisherman in North-central California. A Greater Farallones National Marine Sanctuary education specialist led the presentation with an introduction to the sanctuary system, and explained the importance of fishing communities to our sanctuaries along the west coast. The program concluded with a dissection of a chinook salmon from Mokolumne River Hatchery.



(Photos: Peter Winch, NOAA/GFNMS)

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 become involved in real scientific investigations and become ocean stewards. It is a citizen science program that monitors the coastal ecosystems of California and helps youth develop a scientific understanding of the ocean. LiMPETS monitors the biology in rocky intertidal and sandy beach ecosystems and aims to provide publicly accessible, scientifically sound, long term data to inform marine resource management and the scientific community. This quarter, 762 students and teachers from various schools and partners in the Bay Area carried out LiMPETS shore surveys. This included in-class trainings and individual monitoring events at different monitoring sites. For details on LiMPETS, see www.limpets.org

LiMPETS starts school year with expanded reach

LiMPETS (Long-term Monitoring Program and Experiential Training for Students) Network is closing out the calendar year having served 2,241 students in the San Francisco Bay Area alone. The Greater Farallones LiMPETS team expanded the networks reach by hosting a Sandy Beach Monitoring Workshop for 20 new middle and high school teachers. The workshop prepared teachers to participate in LiMPETS, through which their students will become coastal citizen scientists! Participants receive an in-depth curriculum, learn data analysis using the LiMPETS database, look for parasites during crab dissections, and practice the protocols necessary to survey the distribution and abundance of the Pacific mole crab on California beaches.

LiMPETS (Long-term Monitoring Program and Experiential Training for Students) reaches over 6,000 students annually, exposing them to California's sanctuaries and engaging them as ocean stewards. By hosting this workshop, the Greater Farallones LiMPETS team increased their network of teachers, allowing even more students to experience the program.

Partner Events

Ocean Acidification Demonstrations at "Ick Pop Wow Science Night"

On November 5, Farallones sanctuary staff led 90 Kindergarten-8th grade students in hands-on chemistry experiments exploring ocean acidification. Over 200 students and their families celebrated scientific curiosity at the annual St. Brendan School of San Francisco's "Ick Pop Wow" Science Night, a 2.5-hour program. Students watched in wonder as they changed pH sensitive cabbage juice from deep red to pink using the carbon dioxide in their own breath. Sanctuary staff led other demonstrations using dry ice to show how carbon dioxide can lower the pH of the ocean and students used microscopes to observe live local plankton samples that are sensitive to ocean acidification.

2019 Calendar Updates

February

27 Sanctuary Advisory Council meeting, Bodega Bay. Details available near meeting date at <https://farallones.noaa.gov/manage/sac.html>

March

2 Sanctuary Explorations, Geology & Fossils. Registration: Sara.heintzelman@noaa.gov

April

18 Ocean Climate Summit (invitational). Contact Sara.hutto@noaa.gov for information

27 Gray Whale Watching from Half Moon Bay: sara.heintzelman@noaa.gov

May

1/2 Shipping Industry Recognition Event (invitational). Contact ??????

22 Sanctuary Advisory Council meeting, Pt. Reyes, Red Barn

Calendar - Ongoing Public Programs

Exploring Greater Farallones Sanctuary!

Year-round, the Explorations Series provides monthly opportunities to connect with and experience the Sanctuary and surrounding waters. Excursions include bioluminescence paddling, whale and wildlife cruises, coastal hikes and tidepooling. Join one of our seasonal upcoming programs!

Visit <http://farallones.noaa.gov/visit/exploration-program.html>

Greater Farallones Visitor Center

The Visitor Center in the San Francisco Presidio offers special Weekend Family Workshops about sharks, squid, salmon, octopuses, plankton, ROVs and sea otters! These programs can also be booked

for your exclusive birthday parties or special event. To book programs for individuals, or special events, contact Justin.Holl@noaa.gov. Wednesdays through Sundays, 10 a.m. to 4 p.m., our VC naturalists can introduce you to our aquarium critters. Drop in!

Bolinas Lagoon/Kent Island Restoration Project

From April-October, teams remove invasive plants on Kent Island to restore native plants and wildlife in Bolinas Lagoon and free captured sediment that affects the flow of water. Friday and Saturday programs – free! Information: Kate Bimrose at kbimrose@farallones.org, see <https://farallones.noaa.gov/eco/bolinas/kentisland.html>

Sanctuary Soirées

Sanctuary soirées are held twice yearly, and are sophisticated evenings celebrating science, art and culture. They feature top-of-the-line scientist presentations blended with arts, music and crafts for an adult (16+ yrs.) audience. These events are held each spring and late fall. Keep posted through our website at <http://farallones.noaa.gov/> and our nonprofit association at <http://farallones.org>

GET INVOLVED, AND STAY INFORMED!

Visit the Greater Farallones Association website for updates, details and registration for sanctuary expeditions: www.farallones.org, as well as the Association 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>.

Learn more about the Sanctuary Advisory Council: [http://Farallones.noaa.gov/manage/SanctuaryAdvisory Council.htm](http://Farallones.noaa.gov/manage/SanctuaryAdvisoryCouncil.htm)

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