

# SUPERINTENDENT'S QUARTERLY REPORT

OCTOBER THROUGH DECEMBER, 2017

## Making Farallones "Greater" through Volunteerism

According to a report compiled by the Office of National Marine Sanctuaries, Greater Farallones National Marine Sanctuary figured prominently in Fiscal Year 2017 as a key implementer of citizen science and volunteer programs. Greater Farallones volunteers **logged** an impressive 10,565 hours with a force of 335 volunteers, including the sanctuary's Beach Watch coastal monitoring program. Beach Watch accounted for 8,219 hours by 297 volunteers, and Conservation Science ACCESS (Applied California Current Ecosystem Studies) technical specialists. Other volunteer programs included our Sanctuary Advisory Council (SAC), SAC Working Groups, and Education/Outreach assistants as Visitor Center and special event naturalists.

Farallones citizen scientists face some of the most daunting work in the sanctuary program. Beach Watch coastal and ACCESS at-sea surveys maybe carried out under challenging conditions: cold and rain, toxic spill events, remote and rugged topography, rough seas, and hazardous coastal surf conditions. Their efforts demand caution, situational awareness, stamina and sometimes considerable effort to fully carry out their tasks. According to Superintendent Maria Brown, "Dedication, and a sense of personal accomplishment, are what drive them."



National marine sanctuaries are living laboratories where citizens can become personally involved through volunteerism, to ensure our underwater treasures are protected and preserved. Some volunteers bring a degree of specialization to their work; others are trained from "scratch," learning site-specific skills and scientific protocols. Farallones volunteers work in close collaboration with many other groups in their local communities including boat operators, academia, industry, other government agencies, tribal bodies, NGOs, and researchers in the areas of education, outreach, research, monitoring and enforcement. In exchange, they receive hands-on training by professionals in their field, sometimes from world-renowned

scientists. They gain experience communicating the importance of our natural world to visitors, and join a community of people with mutual science and environmental interests. Some have commented that through these activities, they feel part of a larger world, a living, breathing Blue Planet. Certainly, they are the lifeblood of our sanctuary program.

*Photo: Beach Watch volunteers during Cosco-Busan oil spill response; credit Jamie Hall*

## MANAGEMENT

### *Sustaining and improving the health of the sanctuary*

#### **Hearings Held on Coast Guard Discharge Waiver**

In December, Cordell Bank and Greater Farallones national marine sanctuaries (CBNMS and GFNMS) held public hearings in Sausalito and Gualala to take comments on the proposed rule and associated draft environmental assessment on proposed U.S. Coast Guard (USCG) discharges in these sanctuaries. The proposed action would allow the Coast Guard to continue to discharge untreated vessel sewage, non-clean gray water and training-related discharges, seaward of approximately three nautical miles from shore, within the sanctuaries' expansion areas. NOAA's proposed exceptions to the regulations are being considered to address USCG concerns that the larger sanctuaries, and extension of the discharge prohibitions to the expanded areas, would make it difficult for the USCG to both fulfill its missions, and comply with the prohibitions. If implemented, NOAA's action would enable it to continue to conduct its missions without change to its discharge practices. A number of USCG missions protect the sanctuaries' resources.

Comments may be submitted until 1/16/18. For more information see:

<https://farallones.noaa.gov/manage/regulations.html> and <https://www.regulations.gov/#!docketDetail;D=NOAA-NOS-2017-0140>,

### *Sanctuary Advisory Council*

#### **Sanctuary Advisors Hold Quarterly Meeting**

On November 15, 2017, the Greater Farallones Advisory Council held its quarterly meeting at the San Francisco Zoo. The council finalized the Low Overflights Report to the sanctuary and received a presentation from students in the Ocean Guardian School program on their environmental science projects, linking watersheds to the ocean.

The council also took action on recommendations from the Marin/Sonoma Regional Sediment Management Plan Working Group regarding regional and site specific recommendations for 25 locations along the Sonoma and Marin coastline. The recommendations laid out concerns and issues, addressed management goals, and suggested strategies for short and long-term sediment management issues. With input and guidance from various agencies and stakeholders, the final plan will be forwarded to the Coastal Sediment Management Workgroup co-led by the State of California and the US Army Corps of Engineers.



*Photo: Stinson Beach wave action. Credit: USGS*

#### **Advisory Council Holds Annual Retreat**

On December 6, 2017, the Greater Farallones National Marine Sanctuary Advisory Council held its annual retreat at the sanctuary office in San Francisco. The council reviewed its accomplishments for the 2017 and created a work plan for 2018. The theme of the retreat was "benthic habitats in the sanctuary." Sanctuary research, resource protection and education program coordinators presented their projects and goals related to benthic habitat and deep sea corals. These included highlights from the 2016 *Nautilus* ROV cruise to Arena Canyon, the



Deploying ROV at GFNMS Pier  
Credit: Jenn Gamurot

Farallon Escarpment and Pioneer Canyon, updates on the Essential Fish Habitat Conservation Areas process, a story map on "The Football." They also experienced a Deep Sea Education program by building and driving remotely operated vehicles.

## CONSERVATION SCIENCE / RESEARCH

### *Monitoring To Understand Long-Term Trends*

#### **Farallones research coordinator represents federal government on science council**

In September, Conservation Science staff participated in the semi-annual research and governing council meeting of the Central and Northern California Ocean Observing System (CeNCOOS). The Greater Farallones Research Coordinator serves as a federal representative on the governing council, providing input on how CeNCOOS can serve as a portal for data from the regional sanctuaries, as well as how sanctuaries use this data.

CeNCOOS is part of nationwide, integrated coastal ocean observing systems, conducting research and providing funding to sustain long term monitoring of ocean parameters, from Point Conception north to the California-Oregon border, out to 200 nautical miles, and includes bays and estuaries within this region. It provides a data portal for oceanographic and biological data, maps and observations, found at: <http://data.cencoos.org/>. Researchers investigating ocean currents, harmful algal blooms, and climate impacts, presented their recent findings and strategic planning to sustain these monitoring efforts. These key partnerships with other groups enhance protection of sanctuary resources and provide crucial outreach, which engages the public and helps raise awareness of the sanctuaries.

### *Coastal Monitoring – Beach Watch*

This winter, 20 newly trained volunteers began surveying 10 beaches, two of which are newly added to the Beach Watch survey program. Formal training included classroom sessions, and field training through one-on-one mentorships by Beach Watch staff. With this new class of volunteers, Beach Watch now surveys 58 beaches every two weeks, from Point Arena in Mendocino County to Año Nuevo in southern San Mateo County, and the northern portion of Monterey Bay sanctuary. This includes documenting live and dead birds and mammals,

human activities, oil pollution, entanglement, beach



wrack deposition, beach erosion and deposition, and status of streams and lagoons contiguous with the ocean.

Beach Watch, a sentinel site monitoring project, provides valuable information to sanctuaries and partner agencies on a variety of management issues, including compliance with state and federal laws, climate change, wildlife disturbance, and status and trends of coastal wildlife.

*Photo: Documenting a dead pinniped; credit GFNMS/GFA/Beach Watch.*

### *Sanctuary Ecosystem Assessment Surveys (SEAS, ACCESS Surveys)*

#### **ACCESS Completes 50<sup>th</sup> Research Cruise**

Greater Farallones and Cordell Bank National Marine Sanctuaries, and Point Blue Conservation Science, completed their 50<sup>th</sup> Applied California Current Ecosystem Studies (ACCESS) research cruise of the 14-year program, from September 23-29, 2017. Sampling included seabird and marine mammal distribution and abundance, zooplankton prey availability, and oceanographic conditions. Highlights included high numbers of large whales compared to the previous September cruises, and good numbers of seabird species that are often uncommon, such as Buller's shearwaters and Northern Fulmars. Catch in the plankton nets was dominated by pyrosomes, which were reported in record amounts on the Pacific Coast to the north and south earlier this year, and other gelatinous zooplankton. Several graduate students collected data for their theses on ocean acidification and whale abundance.

ACCESS is a collaborative partnership of Point Blue Conservation Science, Cordell Bank and Greater Farallones National Marine Sanctuaries, which provides ecosystem information for management about resources at risk from ship strikes, ocean acidification, marine debris, and ecosystem health.

## RESOURCE PROTECTION

### *Protecting Breeding Seabird Colonies*

#### **Seabird Protection Network Builds Pilot Partnerships, Advocates**

By special invitation the Seabird Protection Network (SPN) exhibited at the first Calpilots Airfest in San Carlos, California, to encourage pilots to fly high along the California coast and avoid NOAA Regulated Overflight Zones (NROZs). Calpilots is a civil aviation advocacy organization of 35,000 members statewide; it has voiced strong opposition to NROZs. The invitation to exhibit represents a major step in maintaining a dialogue with the group.

Airfest attendees included local pilots, airport managers, and leadership and staff of national, regional and local advocacy organizations, including the president of the Aircraft Owners and Pilots Association (AOPA). Staff engaged with these groups about the importance of flying high to avoid seabirds, identified significant seabird colonies, and answered questions about NROZs.

Partnerships with influential pilots' organizations allows for increased opportunities for outreach to California pilots and dialogue with community leaders. It increases the likelihood that pilots will avoid wildlife and respect NROZs – key goals of the sanctuary.



*Seabird Protection Network's proud high-fliers. Photo: Paul Hobi/GFNMS*

## EDUCATION

### *Inspiring an Ocean Conservation Ethic*

#### **Exhibits**

#### **Greater Farallones, Cordell Bank Discuss Joint Whale Trail Efforts**

Staff from Greater Farallones and Cordell Bank sanctuaries met with the director of the Whale Trail Project to discuss how the trail might be expanded in Northern California. The director envisions five to seven locations where interpretive signs can be placed to increase education about whales and the sanctuaries for coastal visitors. Several of these signs will be situated on coastal bluffs overlooking the marine sanctuaries.

#### **Events - Public Programs**

#### **Soiree Features Extreme Sea Life**

In a lecture at the San Francisco Bay Model in Sausalito on November 18, Dr. Steve Palumbi, Director of Stanford Hopkins' Palumbi Laboratory, described some of the ocean's most bizarre life forms living and thriving in extreme conditions. Palumbi took biodiversity and adaptation to the max as he revealed some of the ocean's most startling secrets. For example, an icefish that creates a special anti-freeze to keep its blood flowing in subzero temperatures; the Pompeii worm whose posterior sits in hot volcanic vents, and its head in frigid waters.

An audience of 183 ocean enthusiasts enjoyed the lecture, part of an evening of live music, with a Science Station staffed by naturalists featuring our local "extreme" marine life, an ocean image and sculpture gallery, and art-printing station.

#### **Sanctuary Explorations Series**

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. This quarter, 89 folks took part in the explorations.

### Wildlife Cruise Finds “Oceanful” of Whales

Greater Farallones National Marine Sanctuary education staff partnered with the Oceanic Society on a wildlife cruise to the Farallon Islands October 21st, 2017. Thirty-nine participants from the Sanctuary Explorations program encountered an abundance of wildlife, with sightings of 35 blue whales and another 30 humpback whales! This was a reversal of the usual sighting ratio, with humpback sightings usually more abundant than blue whales. Many seabirds, including Common Murres, cormorants, Brown Pelicans; even two Black-footed Albatross were spotted.

Sanctuary-sponsored outings benefit from professional naturalists who are specialists in local wildlife and knowledgeable about issues. Participants learn about the natural history of whales, pinnipeds and seabirds along with the conservation efforts to protect these species. In addition, they learn about responsible wildlife watching practices.



Viewing S.E. Farallon Island. Credit: Sara Heintzelman

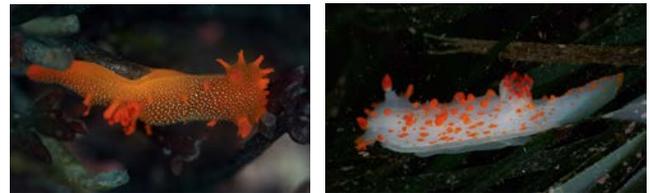


Blue whale. Credit: John Calambokidis

### Sanctuary Tidepool Explorations

Greater Farallones National Marine Sanctuary education staff and docents provided an afternoon tidepool adventure at Mavericks Reef on Saturday

December 2, 2017. Twenty-six participants explored the amazing intertidal habitat at the edge of the sea while learning how the animals and algae survive under ever-changing conditions. They also learned proper tide pool etiquette to explore and view tide pool life in a respectful, safe manner. Participants found chitons, anemones, urchins, ochre and leather stars, many species of algae and at least seven different types of nudibranchs!



Photos: Nudibranchs, elegant sea slugs, seen during tidepooling exploration. Credit/copyright: Geoff Ehler

### 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. This quarter 5,141 people stopped in to virtually “explore” our sanctuary.

Visitor Center School programs include plankton netting for view 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.

**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 563 students this quarter.

### Weekend Family Workshops

Farallones sanctuary Weekend Family Workshops give budding marine scientists and their families an opportunity to share their enthusiasm and increase

their ocean literacy at the sanctuary Visitor Center and Pier Classroom. These workshops have a regular following and provide new participants recruited from school programs an exciting hands-on opportunity to stay connected to sanctuary education programs throughout the year. Weekend family workshops are held twice each month. They foster connections within the sanctuary community and within the family, and provide ocean education to children of all ages. One hundred-sixty people enjoyed the workshops this quarter.

Topics included building a Remotely Operated Vehicle (ROV), "assembling" a white shark, plankton sampling and study, crab studies, and our Octo Lab program about octopuses. The programs engage all types of ocean enthusiasts, including some who have never explored the shore, or who have never taken part in a dissection.

### **Learning About "Life as a Leatherback" in Newest Farallones Workshop**

On Saturday, October 14, 2017, in conjunction with Pacific Leatherback Turtle Conservation Day, the Greater Farallones Association "hatched" its newest family workshop, "Life as a Leatherback Sea Turtle!" The leatherback turtle is California's official state marine reptile. A total of 15 participants attended.

Through interactive games and stories, they discovered what it is to be the world's largest sea turtle, one that is also critically endangered. Our local subpopulation, the Western Pacific leatherback turtle, has declined over 80% in recent decades, due mostly to human-caused factors.

Participants examined sea turtle skulls and specimens, and viewed scientific research video footage of a leatherback foraging for food in Monterey Bay National Marine Sanctuary. Education staff concluded the class with the assembly of a life-sized model of a leatherback turtle.



*Class; working leatherback model fabricated by education staffer.*

### **Families "Embrace" the Amazing Octopus**

On Saturday and Sunday, November 4 and 5, the Greater Farallones Association had a busy weekend teaching Octo Lab. Altogether, sixty-nine participants attended the Saturday and Sunday classes. During these labs, they received individual defrosted octopus specimens and data sheets. From there, they moved freely from station to station, conducting and collecting research about their own octopus. Stations included directions and the appropriate tools for data collection. Measuring, weighing, sketching, and even squishing were all factors of this lab. Post lab activities, participants made octopus prints from pre-carved linoleum blocks to take home as keepsakes, as well as made stop-motion videos using octopus models. Weekend family workshops are offered twice a month at GFNMS facilities.

### **Crab and Salmon Family Workshops**

Greater Farallones education staff led two weekend family workshops in early December. Participants in Fish for Crabs, one of our favorite workshops, learned about crab diversity and crab anatomy before trying their hand at fishing for them from the Sanctuary Visitor Center pier. Participants in the Salmon workshop started by learning about the unique life cycle of the anadromous fish.



*Fishing for crab specimens at GF Pier Classroom*

Following that, they observed a naturalist-led dissection of a large, male Chinook salmon.

Participants also created Coho salmon prints that they were able to take home.

### **New Farallones Fall Mini-Camp**

The Farallones Fall Camp, the first in a series of new mini-camps by the Greater Farallones Association and Sanctuary education staff, launched during Thanksgiving week, November 20 through 22. Seventeen campers ages eight to 12 engaged in 24 hours of lesson plans over



three days, including fish feeding experiments, seaweed adaptations, impacts of plastics on seabirds, the diving abilities of leatherback turtles, the anatomy and physiology of octopuses and squid, biodiversity of crabs and the amazing technology of Remotely Operated Vehicles (ROVs). Field based mini-camps provide children with experiences to connect with their national marine sanctuaries and increase their ocean literacy through exploration and discovery. A winter mini-camp is planned for January.

**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.

During the quarter, AYS staff traveled to bring ocean education to schools. In total, the programs served 1,364 students and teachers this quarter.

## **Oceans after School**

Using the endless appeal of our local marine wildlife and habitats the sanctuary education team offers 18 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 eight-week window and primarily serve low-income, under-served students. This quarter, 20 students completed the program.

## **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 heard 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. Altogether, 205 students took part in this program.

On November 9, 2017, Greater Farallones National Marine Sanctuary education staff teamed up with local fishermen to deliver three Fisherman In The Classroom programs to 60 10th-grade biology students at Lighthouse Charter School in Oakland, California.

Then, on December 6 and 7, Greater Farallones National Marine Sanctuary education staff teamed up with local fishermen to deliver Fishermen In The Classroom programs to 80 5<sup>th</sup>-grade science students at Martin Luther King Junior Elementary School, and to 70 5<sup>th</sup>-grade science students at Robert Louis Stevenson Elementary School, both in San Francisco. The teaching team brought in fishing

related props like a salmon specimen, an industrial crab trap, fishing lures and hooks, and delivered a presentation on fishing in Central California.

Promoting ocean literacy, informing the public about ocean lifestyles such as fishing in national marine sanctuaries and sustainable fishing practices, salmon



Photo: Educator explains salmon traits and functions.

conservation and watershed management further the missions of NOAA and the ONMS.

### **Octopuses Star at "Ick Pop Wow Science Night"**

On November 6, Farallones sanctuary staff led 80 Kindergarten-to-8th grade students in small group octopus dissections and hands-on demonstrations of cephalopod jet-propulsion using balloons and water tanks. 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. While searching for octopus beaks, gills, its three hearts, and many other organs, students learned about octopus anatomy and adaptations. Students also had an opportunity to model cephalopod jet propulsion by releasing water balloons underwater to simulate how cephalopods jet through the ocean.

### **Squid and Robots "Invade" Elementary Schools**

Over 150 students and their families celebrated the study of squid and robots at an auditorium presentation followed by hands-on activity stations at Sunset Elementary School's Science Night.

On November 16, Sanctuary staff gave a presentation on squid adaptations and life cycles, and the importance of remotely operated vehicles (underwater robots) in ocean exploration. Following the presentation, staff led market squid dissections, build-your-own remotely operated vehicle stations, and printmaking, using hand-carved linoleum art blocks.

### **Seabirds "Star" at School Science Night**

Sanctuary staff taught 135 students and their families during three seabird science workshops on November 14 at Ulloa Elementary School. In support of Ulloa's Science Technology, Engineering, Art, and Math (STEAM) Night, staff provided presentations and hands-on activities exploring seabird adaptations using a costume dress-up activity and the life cycle of Common Murres using a giant hand-painted board game. Teaching an annual 18-hour after-school program for Ulloa Elementary students, sanctuary staff are viewed as part of the school community.

### ***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, 372 students and teachers from 8 different schools and partners in five counties 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](http://www.limpets.org)



## **2018 Calendar Updates**

### **January**

- 10 Sanctuary Advisory Council meeting, Bodega Bay Firehouse. Details at <https://farallones.noaa.gov/manage/sac.html>

- 21 Sanctuary Explorations Whale Watch From Half Moon Bay. Contact [sara.heintzelman@noaa.gov](mailto:sara.heintzelman@noaa.gov)
- 28 Sausalito Herring Festival/ film *Sonic Sea*, S.F. Bay Model, Sausalito. Information at: <https://scbcherringcelebration.eventbrite.com>

## February

- 3 Sanctuary Explorations, elephant seal walk at Año Nuevo State Reserve. Contact [sara.heintzelman@noaa.gov](mailto:sara.heintzelman@noaa.gov)

## March

- TBD Sanctuary Explorations

## April

- 21 Sanctuary Explorations: Gray whale watching, Half Moon Bay. Contact [sara.heintzelman@noaa.gov](mailto:sara.heintzelman@noaa.gov)

## May

- 9 Sanctuary Advisory Council meeting, location Red Barn in Point Reyes

- TBA Kent Island restoration – now through October). Contact [Kate.bimrose@noaa.gov](mailto:Kate.bimrose@noaa.gov)

## June

- TBD Kent Island restoration – now through October). Contact [Kate.bimrose@noaa.gov](mailto:Kate.bimrose@noaa.gov)

## July

- 9-13 Marine Explorers Camp with Randall Museum. (Book through Randall Museum, San Francisco). Also July: 16-20, 23-27, 30-Aug 3

- TBD Kent Island restoration. Contact [Kate.bimrose@noaa.gov](mailto:Kate.bimrose@noaa.gov)

## August

- 4-5 Get Into Your Sanctuary – various events. Watch website for details, closer to dates.

- 6-10 Marine Explorers Camp with Randall Museum. (Book through Randall Museum, San Francisco). Also Aug 13-17

- 29 Sanctuary Advisory Council Meeting, location TBD

- TBA Kent Island restoration. Contact [Kate.bimrose@noaa.gov](mailto:Kate.bimrose@noaa.gov)

## September

- 29 SharktoberFest, GFNMS HQ. <http://farallones.noaa.gov>

- TBA Kent Island restoration. Contact [Kate.bimrose@noaa.gov](mailto:Kate.bimrose@noaa.gov)

## October

- TBA Kent Island restoration. Contact [Kate.bimrose@noaa.gov](mailto:Kate.bimrose@noaa.gov)

## November

- 14 Sanctuary Advisory Council meeting, San Francisco Zoo, San Francisco.

**Ongoing:** Each month the Visitor Center offers special Weekend Family Workshops with themes such as sharks, squid, salmon, octopuses, plankton and now ROVs! These programs can also be the focus for your exclusive parties or other special events. For booking programs for individuals, or for your special event programs, contact [Justin.Holl@noaa.gov](mailto:Justin.Holl@noaa.gov). And from Wednesdays through Sundays, 10a.m. to 4p.m., our VC naturalists can introduce you to our aquarium critters. Drop in!

## CONTACT INFORMATION

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### **GET INVOLVED, AND STAY INFORMED!**

Visit the Greater Farallones Association website for updates, details and registration for sanctuary expeditions: [www.farallones.org](http://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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