

# Superintendent's Quarterly Report

## January through March, 2019

### Starting a new year at Greater Farallones National Marine Sanctuary

After the lengthy government shutdown spanning late December, 2018 through January 2019, upon reopening, NOAA Greater Farallones National Marine Sanctuary staff is back in gear, continuing our mission of research, resource protection, education, stewardship, and overall management of this special place.

One consequence of the shutdown was a lack of ranger enforcement at Pt. Reyes National Seashore. Seizing an opportunity, the sub-adult elephant seal (below) left the waters of Greater Farallones National Marine Sanctuary and crossed a Park Service cordon to explore short-term parking opportunities at the Drake's Bay Visitor Center lot. Ignoring posted signage jointly installed by the sanctuary and park service to curb interactions between people and wildlife ("Responsible Wildlife Viewing"), the seal claimed its prime real estate.

Northern elephant seals haul out each winter on their natal rookeries to mate and bear young. The Point Reyes rookery is mainly populated by elephant seal "refugees" from the South Farallon Islands 20 miles to the south. The islands' suitable haulout habitat has been disappearing, primarily due to erosion.



Northern elephant seals represent a conservation success story, recovered from near-extinction by hunters at the turn of the last century. Marine sanctuaries partner with other agencies to provide interpretive signage, exhibits, and other means of educating visitors to wildlife areas, to protect both marinelife and visitors.

Northern elephant seal sub-adult about to claim-jump NPS parking spot. Photo: Jenny Stock/CBNMS

## MANAGEMENT

### **Farallones Advisory Council meets on past, current and upcoming projects**

The Greater Farallones National Marine Sanctuary Advisory Council met February 27 in Bodega Bay. The group received updates on the Bolinas Lagoon South End “Living Shorelines” project, and education activities in the northern expansion area. They also learned about last fall’s Deep Sea Coral research cruise, including footage of deep-sea habitat in Greater Farallones and Cordell Bank sanctuaries, and information about proposed Essential Fish Habitats in those areas. The Rapid Management Plan Review assessment was presented; the council expressed pleasure at the sanctuary’s progress with ongoing and completed projects. They also flagged potential impacts from a Sonoma Coast Marathon planned for September 2019, including marine debris and low-flying aircraft impacts on sanctuary resources. It will request information from organizers about mitigation strategies. Finally, the Tomales Bay Native Oyster Restoration Working Group held its inaugural meeting on March 15.

The Sanctuary Advisory Council acts as an advising body to the sanctuary superintendent, and works with research partners to provide recommendations for management strategies.

## CONSERVATION SCIENCE

From March 18 to 20, 2019, sanctuary scientists met with Ocean Exploration Trust (OET) staff, lead scientists, and educators to discuss 2019 field activities at a planning meeting held at the University of Rhode Island’s Graduate School of Oceanography. Jan Roletto, Greater Farallones National Marine Sanctuary (GFNMS) and Danielle Lipski, Research Coordinator at Cordell Bank National Marine Sanctuary (CBNMS) presented cruise objectives for their joint mission to the OET team, other lead scientists, and the Science Communication Fellows. The participants learned

about the OET’s schedule of field activities, objectives of the missions, and telepresence capabilities. Lipski and Roletto met with OET to discuss cruise logistics for the cruise leg scheduled for October 4 to 11, 2019, which will be broadcast on [nautiluslive.org](http://nautiluslive.org).

Partnering with OET allows GFNMS to explore areas of the sanctuary that have never been seen before and to share them with the public in real time.

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

#### ***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.

A recently produced short documentary on the science of Beach Watch won the citizen science award at the International Ocean Film Festival in San Francisco. Check our website in late spring for a link.

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

Greater Farallones research programs integrate information needs of our resource protection and education programs, highlighting status and trends of sanctuary resources, ecosystem health, and response to climate change to inform sanctuary management.

### ***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, with 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 take place in spring, summer and fall, 2019.

## RESOURCE PROTECTION

### *Protecting Seabird Colonies*

#### **Seabird Protection Network shares findings at Pacific Seabird Group annual meeting**

In February, staff presented talks at the annual meeting of the Pacific Seabird Group, the largest and most active research community focusing on seabirds in the Pacific and presents a unique opportunity to share and gather ideas. The first presentation shared lessons learned from ten years of engaging pilots to protect seabirds on the California coast and included best practices for organizations working with similar stakeholders. The second presentation discussed Sanctuary requirements and guidelines on the use of Unmanned Aircraft Systems to study seabirds and included new case studies from within the Sanctuary.

The Pacific Seabirds Group Annual Meeting brings together experts in seabird research from agencies and nonprofits. Presenting on Seabird Protection Network's findings expands the recognition of Sanctuaries' efforts to protect sensitive wildlife and increases the likelihood researchers will comply with Sanctuary regulations.



Farallones SPN staff join NOAA ecologist at seabird conference

## *Protecting Marine Mammals*

#### **Incursions of numerous gray whales into San Francisco Bay raising concerns**

Farallones staff are working with scientists and observers to assess the physical condition of the gray whale population transiting this area of their normal springtime migration. Since mid-February an abnormally high number of malnourished gray whales have deviated from their customary linear migration north through outer coast sanctuary waters into San Francisco Bay. They normally feed in summer and fall in the Bering and Chukchi seas. Several have died, most from malnourishment; their Arctic food supply has shrunk along with the receding polar ice cap. Biologists are concerned that it signals the start of another Unusual Mortality Event (UME) such as the one in 1999-2000, when an estimated 30% of the world population of gray whales died. See news coverage at:

<https://abc7news.com/science/why-gray-whales-may-be-starving-along-the-california-coast/5256767/>

These bay detours expose the whales to greater risk of collision with ships and other watercraft. Also, grays' bottom-feeding habits may cause them to ingest industrial and agricultural toxins in the bay mud along with the benthic organisms that they seek.

## EDUCATION

### *Inspiring an Ocean Conservation Ethic*

#### **New Sanctuary Naturalist Course a resounding success**

"I couldn't wait to get here every week; and then I couldn't wait to tell other people what I had learned!" stated one class participant. Twenty-four adults completed the new 22-hour Farallones Sanctuary Naturalist Course. Farallones education staff delivered the course that included field explorations, citizen science initiatives, and the latest research on marine life. The world of oceanography and food webs, sanctuary habitats from the deep sea to the rocky shore, marine mammals, sharks and other fish,

invertebrates, seabirds, and shorebirds were all part of the curriculum. Most participants seized the option of earning a Sanctuary Naturalist Course certificate by attending all sessions and committing to volunteering a minimum of 15 hours for the sanctuary. The course will increase ocean and climate literacy, and develop the capacity of sanctuary programming through community volunteers.



Sanctuary naturalist student learns about marine planktons. Photo: Amy Balkin

### Common Murres profiled in Redwood Coast periodical

Sanctuary wildlife make regular appearances in the *Lighthouse Peddler* published in Pt. Arena, a monthly newspaper covering events, lifestyles and nature in the recently expanded sector of Greater Farallones National Marine Sanctuary, along the Redwood Coast north of San Francisco. The April issue profiled the Common Murre, a deep-diving seabird, sometimes termed the “avian poster child” for human-induced impacts. Decimated from rapacious egg harvesting during the Gold Rush Era, they are also vulnerable to oil spills and fisheries gear entanglement. The article featured murre as the focus of recovery programs designed to aid their hopeful rebound. Visit the *Lighthouse Peddler* website for current and archived monthly columns.

Wildlife profiles help foster a connection with the wildlife we protect. These articles represent “virtual”

sanctuary experiences, and often feature our research and conservation efforts.



Murre chick. Credit: Ryan Regnier/USFWS

### 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 2,574 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 596 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 137 people participated.

### **Families learn about the role of sand crabs to the coastal ecosystem**

On February 24, the Greater Farallones Association offered two Sand Crab Family Workshops for 22 attendees. At the Greater Farallones campus on Crissy Field Beach, two generations of ocean aficionados searched and sifted for sand (mole) crabs. This species is food for numerous kinds of marine life, but also a disease and parasite vector. The families learned about the life cycle and anatomy of sand crabs, and the importance of monitoring sand crabs as an indicator of environmental health. They also learned about the sanctuary's citizen science monitoring programs. Participants performed a mock session, following the Long-term Monitoring Program and Experiential Training for Students (LIMPETS) model used in high school classrooms.



Sifting bay mud for mole crabs at GFNMS campus. Credit: GFA



Ventral side of mole crab. Credit: GFA

## *Oceans after School Programs*

This quarter, Oceans after School served 132 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 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 1,760 helped students and teachers increase their ocean literacy.

### *Fisherman in the Classroom*

#### **Bringing Fisheries into the Classroom**

Greater Farallones 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 406 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.

Fisherman in the Classroom promotes the principles of ocean literacy, sustainable fishing practices, and the value of commercial fishing in sanctuary waters.

### **High school, college students learn life at sea through Fisherman in the Classroom**

This winter, 228 San Francisco and East Bay high school and college students met with three local fishermen for Greater Farallones' Fisherman in The Classroom program. Using hands-on teaching techniques involving industrial crab traps, salmon fishing gear, and a hatchery salmon, they learned about the lifestyles and challenges of being a professional fisherman in North-central California. A GFNMS education specialist led each presentation with an introduction to the sanctuary system, and explained the importance of fishing communities to our west coast sanctuaries, and vice versa.



Chinook salmon. Credit: NOAA Fisheries

### ***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, 1,000 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](http://www.limpets.org)

### ***Sanctuary Public Outreach & Events***

Throughout the year, Greater Farallones National Marine Sanctuary invites everyone to “Get Into Your Sanctuary” through a variety of excursions, workshops, special programs and events. We believe that experiencing our marine life and marine habitats, and understanding our maritime heritage, will help deepen our appreciation of these living and cultural resources.

### ***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. One hundred twenty-five explorers took part in programs this quarter.

## Winter wildlife cruise reveals flippered and feathered sightings, dramatic balloon “rescue”

Greater Farallones Association partnered with the Oceanic Society to see the gray whale migration. Eighty-two Sanctuary Explorations program participants got out on the water during morning and afternoon trips. Despite a beautiful day at sea, the whales remained elusive throughout. However, marine mammals such as sea lions and harbor seals, along with many seabirds including Common Murres, cormorants, loons, Surf Scoters, and many types of gulls kept the group enthralled. Participants not only learned about the natural history of gray whales and the conservation efforts to protect this extraordinary, formerly endangered species, they also learned good whale watching practices and etiquette. The group also “rescued” a large helium balloon, removing a choking/entanglement hazard for wildlife.

## A peek into “e-seal” private lives at Año Nuevo

Sixteen Sanctuary Explorations participants enjoyed a special, in-depth experience of Año Nuevo State Park’s famous elephant seal colony on February 2. After an exclusive glimpse into the latest research and discoveries, they embarked on a walk to observe them firsthand, guided by Reserve Director Patrick Robinson, along with sanctuary and State Parks interpretive naturalists. Año Nuevo is one of the largest mainland breeding colonies of northern elephant seals in the world!

Every year up to 10,000 elephant seals visit to breed, give birth, and molt. Participants watched males battle for prime beach real estate and mating rights, while females nursed their newborn pups.

Participants learned about the fascinating natural history, behavior and ecology of northern elephant seals while observing them during this fun and dynamic walk.



E-seal bulls battle for primacy. Cr. Sara Heintzelman/GFNMS-NOAA



“Blackcoat” pup nursing. Cr. Sara Heintzelman/GFNMS-NOAA

## Fossil-sleuthing on sanctuary shores for remnants from the ancient ocean

Twenty Sanctuary Explorations participants joined geologist Irina Kogan and a Greater Farallones naturalist on March 2 to explore the active San Gregorio fault zone at Fitzgerald Marine Reserve near Half Moon Bay, CA. Over five million years of heat, pressure, tectonics, winds and pounding Pacific waves have sculpted the intertidal zone into a fascinating rock garden. Amid this dynamic beauty, participants learned how the coast is still evolving. They became “shoreline sleuths” in search of fossils from ancient sea creatures that lived in and near these rocks.



Receding tide reveals sculpted reef. PC: Sara Heintzelman/NOAA-GFNMS

## Partner Events

### Farallones “Beach Watch” documentary wins award at International Ocean Film Festival

From March 7 to 10, thousands of ocean enthusiasts attended the 16th Annual International Ocean Film Festival where the GFNMS documentary, “Beach Watch” narrated by oceanographer/explorer Dr. Sylvia Earle, received the Citizen Science Film Award. Since 2004 Greater Farallones has sponsored and helped guide the film festival’s programs, through film selection and panel discussions, spanning topics from wildlife, conservation, science, exploration and fisheries, to coastal cultures, adventure and recreation. Now at three Bay Area theater venues, the festival, co-sponsored by NOAA Greater Farallones, Cordell Bank, and the National Marine Sanctuary Foundation, provided middle and high school students with two days of free educational films. Sanctuary staff took part in a panel discussion on shark tourism, a live television appearance, and outreach activities. Cordell Bank sanctuary sponsored a short film student competition showcasing young cinematographers’ works within the main program.

Film is a compelling medium for influencing attitudes about the ocean, marine life, and conservation. Film festivals gather together people of diverse interests but sharing a love of the sea, where this commonality can become a sense of community and stewardship.

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## 2019 Calendar Updates

### May

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

### June

8 Sanctuary Explorations: Tidepools! Contact [sara.heintzelman@noaa.gov](mailto:sara.heintzelman@noaa.gov)

### July

TBD Sanctuary Explorations, TBD. Contact [sara.heintzelman@noaa.gov](mailto:sara.heintzelman@noaa.gov)

### August

2-4 Get Into Your Sanctuary days! Watch our website for details.

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Joint meeting GFNMS/MBNMS advisory councils, Half Moon Bay CA

## Calendar - Ongoing Public Programs

### Exploring Greater Farallones Sanctuary!

Year-round, the Sanctuary 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 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](mailto: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](mailto:kbimrose@farallones.org), or 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](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. 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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### Superintendent's Quarterly Report

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