

# Superintendent's Quarterly Report

July through September, 2019

## Sanctuary reaches 10,000 milestone for students served in formal education programs

In fiscal year 2019, Greater Farallones National Marine Sanctuary's Education Department achieved a new record in fostering ocean literacy and promoting an ocean ethic among students by surpassing the 10,000 mark for formal educational services. This occurred during a year with a government shutdown and raging wildfires that forced cancellation of many school programs last winter/fall. The sanctuary's education program offers multiple touchpoints – thematically and location-wise, from schoolroom-based to field-based – and engage all ages from elementary school aged children to college students within the greater San Francisco Bay Area community. Greater Farallones sanctuary education programs offered science field trips, classroom programs, exhibit discovery experiences, and student field monitoring opportunities, topics focused on sharks, salmon, seabirds, whales, squid, crabs, plankton, rocky intertidal habitat, undersea exploration, and marine careers.



The students who took part in these programs came from diverse communities, socioeconomic strata, and myriad cultures and ethnicities. Greater Farallones sanctuary education programs inspire the next generation of innovators and youth to engage in ocean conservation.

Photo: Eagerly spotting marine life from the sanctuary campus shore, a Visitor Center program student (foreground) points out his discovery.

Credit: Justin Holl/GFNMS-NOAA

## MANAGEMENT

### Greater Farallones, Monterey Bay advisers meet on ocean issues, projects

On August 15, Greater Farallones and Monterey Bay National Marine Sanctuaries held their biennial joint meeting in Half Moon Bay, CA. Council members heard an update on the MBNMS Management Plan Review from Paul Michel, and an update on West Coast Region (WCR) priorities from Regional Director Bill Douros. The councils heard from invited speakers and sanctuary staff on pelican entanglement issues and sanctuary activities to address shoreline fishing/gear threats to seabirds; on the GFNMS Coastal Resilience Sediment Plan; and on threats to great whales in California sanctuaries, including research from Point Blue Conservation Science showing whale and ship traffic distribution through sanctuary waters and areas of risk for entanglement, and from sanctuary staff on whale protection efforts including vessel speed reduction and whale disentanglement programs. The GFNMS Council voted to adopt the recommendations of its Tomales Bay Native Oyster Restoration Working Group for consideration by GFNMS.

The Sanctuary Advisory Council is an advising body to the sanctuary superintendent, working with research, education and conservation partners to provide recommendations for management strategies.

## CONSERVATION SCIENCE

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

#### *Beach Watch*

Beach Watch is a collaborative effort of GFNMS and the Greater Farallones Association, which provides ongoing data collection to understand status and trends of sanctuary coastal resources, ecosystem health, and response to climate change.

### Beach Watch adds sampling component for statewide monitoring

Beach Watch staff began additional surveys to assess the health and biodiversity of sandy beach habitats along the sanctuary coastline, as well as within the State's Marine Protected Areas (MPAs). Sanctuary and Greater Farallones Association staff now partner with University of California, Santa Barbara researchers, Ocean Protection Council, and 22 other research institutions to assess beach wrack and diversity of foraging shorebirds. Beach Watch data from Sonoma and Marin Counties will be combined with other surveys along the California coast, including human-use and regulatory compliance within the state's MPAs.

Collaborations with state federal and non-governmental organizations increases our ability to protect and understand the diversity of the sanctuary. Our collaboration with the state's Ocean Protection Council, universities and NGOs, such as the Greater Farallones Association allows us to better connect with other marine protected areas to study the health of the sanctuary and guide sustainable tourism activities.



Scientists from Beach Watch and UC Santa Barbara document beach profiles, algae deposition and seabirds. Credit: Jan Roletto GFNMS

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

### ACCESS - Applied California Current Ecosystem Studies

ACCESS is a collaborative effort of Greater Farallones and Cordell Bank national marine sanctuaries (CBNMS), and Point Blue Conservation Science for ongoing data collection to understand status and trends of sanctuary resources, ecosystem health, and response to climate change. This long term monitoring addresses management information needs such as ocean acidification status and monitoring, harmful algal blooms, and fishing gear entanglements, ocean conditions and prey and predator distribution and abundance as indicators of ocean health.

#### Summer Ecosystem Studies cruise at Cordell Bank and Greater Farallones

Scientists from Greater Farallones and Cordell Bank sanctuaries, Point Blue Conservation Science and collaborators completed a mid-upwelling season ACCESS research cruise. Good sea conditions allowed the team to complete our planned transects. The team observed high levels of phytoplankton, zooplankton and krill in the prey samples. Humpback whales were observed throughout the region and across the shipping lanes. No blue whales were observed during this cruise, which is somewhat uncommon. Lower than average numbers of Common Murres with chicks were observed. Shelley Gordon, a NOAA Teacher at Sea from the Oakland School District, joined the science team on the mission, the fifteenth Teacher at Sea to join throughout the project's history. Daily updates were posted at <https://www.facebook.com/ACCESSoceans/>

#### Sanctuaries complete final ecosystem studies cruise of 2019

Conservation science staff from Greater Farallones and Cordell Bank sanctuaries, Point Blue Conservation Science, and Greater Farallones



Beach Watch Manager, Kirsten Lindquist, quantifies beach wrack at Salmon Creek beach. Credit: J. Roletto GFNMS

#### Farallones scientists lead Northern CA harbor seal population counts

Conservation Science staff led the harbor seal counts at rookeries and haul-outs along the San Mateo County coastline. These specific surveys are conducted as an ancillary project of the Beach Watch project. Annually, GFNMS provides integrated population counts of harbor seals, in partnership with staff from the National Park Service, California State Parks, Greater Farallones Association and other Non-governmental organizations for all of northern California. GFNMS protects habitats where more than 20% of the state's harbor seal population feeds, gives birth and raise their young. Data from these counts inform management actions such as timing of permits, to reduce or eliminate disturbance to harbor seals - especially separation of pups from their mothers - and to identify sensitive wildlife management zones. Data are also provided to NOAA Fisheries and integrated into the assessment of the Northeast Pacific harbor seal population.



One-fifth of California's harbor seals call GFNMS home. Photo: National Park Service

Association completed our 16th field season for the Applied California Current Ecosystem Studies (ACCESS) project September 19-26, 2019.

The team found typical late season ocean productivity with scattered bait balls of krill and fish, copepods and gelatinous invertebrates. Humpback and blue whales were distributed mostly along the 200 meter isobaths, and some humpbacks were obviously feeding on small schooling fish across the shelf. There were surprisingly high numbers of Arctic Terns, Sabine's Gulls, South Polar Skua and various jaegers throughout the sanctuaries. Scientists collected data on the locations of out-of-season Dungeness crab pot buoys, a commercial fishery that was closed early this year due to whale entanglements. ACCESS will provide abandoned buoy data to the Dungeness Crab Fishing Gear Working Group to inform the Risk Assessment and Mitigation Program about risk to humpback whales. Daily updates were posted about the research mission at

[www.facebook.com/ACCESS.Partnership](http://www.facebook.com/ACCESS.Partnership).

### **Sanctuaries, research partners, provide data to whale entanglement working group**

ACCESS scientists provided whale forage, abundance and distribution data to the Risk Assessment and Mitigation Program (RAMP). RAMP is a working group of federal and state scientists, conservation and science-driven non-profits, and Dungeness crab anglers. Preliminary ACCESS July research cruise data were provided to the RAMP to detect whale foraging patterns. When the risk of entanglement is high, the RAMP encourages commercial crab fishermen to reduce the number of traps that are being actively fished to reduce vertical lines in the water and avoid fishing in areas where there are groups of feeding or migrating whales, schools of anchovy, and/or swarms of krill.

## **RESOURCE PROTECTION**

### ***Adapting to a Changing Climate***

#### **Farallones sanctuary delivers new climate adaptation course**

Greater Farallones National Marine Sanctuary Climate Program Coordinator traveled to Long Beach, California on July 29, 2019 to co-instruct a new USFWS National Conservation Training Center Course to NOAA Fisheries and sanctuaries staff. The course, Planning for Climate Change provides foundational training critical to integrating climate considerations into marine and coastal resource management, including scenario planning and climate vulnerability assessments. The course will be offered to a different region of the US every year, with participation from sanctuary staff anticipated for future offerings. As a "Center of Collaboration" on climate change, Farallones sanctuary works to increase the capacity of sanctuaries and other protected areas to integrate climate change into resource management to ensure long-term viability of natural resources.

### ***Protecting Seabird Colonies***

#### **Farallones partners with Coast Guard Auxiliary pilots to help seabirds**

Greater Farallones National Marine Sanctuary's Seabird Protection Network program presented to 25 pilots from the United States Coast Guard Auxiliary District 11 on July 30. Staff discussed the purpose and importance of NOAA Regulated Overflight Zones and State Marine Protected Areas in protecting high concentrations of sensitive wildlife and seabirds. District 11 Pilots fly bi-weekly monitoring flights over GFNMS and the Monterey Bay National Marine Sanctuary and expressed interest in increasing their partnership with sanctuaries. After the presentation one pilot remarked, "It definitely helped me gain a better perspective on NOAA's mission and goals. I know your efforts additionally provided Auxiliary crews greater insight into patrol objectives."



Seabird Protection Network staff reach out to the US Coast Guard with sanctuary conservation messages.  
Credit: GFNMS photo

## EDUCATION

### *Inspiring an Ocean Conservation Ethic*

#### *Milestone*

Through its various student education programs, both in the classrooms, through our Visitor Center field programs, and other formal programs, Greater Farallones student education programs exceeded 10,000 students in this fiscal year, a milestone. Sanctuary educators conducted classes for grades K through 12<sup>th</sup> through the Greater Farallones At Your School, Fisherman in the Classroom, Visitor Center, Watershed Advocacy Via Environmental Science (WAVES) Seven Teepees, and Long-term Monitoring Program and Experiential Training for Students (LiMPETS) programs.

### *Recreation and Tourism*

NOAA's Office of National Marine Sanctuaries (ONMS) Travel & Tourism Strategy directs sites to "enhances visibility of responsible recreation

opportunities in national marine sanctuaries" as a driver for coastal economies.

### **1,500 Bay Area people "get into" Greater Farallones sanctuary**

The annual Get into Your Sanctuary projects increase awareness that national marine sanctuaries are special places to enjoy and explore. To celebrate Get into Your Sanctuary on August 2-4, sanctuary staff led two workshops where families measured, weighed, studied, examined, and squished their way through Octolab! Visitors learned about the sanctuary system in the Farallones Visitor Center through an interactive virtual reality dive station and native plant habitat was restored on Bolinas Lagoon's Kent Island. Five sanctuary partners led special Get Into Your Sanctuary activities. Oceanic Society and SF Whale Tours offered whale watching trips; Watertreks EcoTours and Point Reyes Outdoors offered kayak trips in the sanctuary. Friends of Fitzgerald Marine Reserve, a harbor seal rookery, staffed a "Seal Station" and offered educational games in their visitor center. Although a Sanctuary Explorations Whale Watch with 42 participants was rescheduled (mechanical problems), more than 1,500 participants still 'got into' their national marine sanctuary.

### **New Recreation and Tourism Program Launched: Beach to Bridge Wednesday Walks**

Greater Farallones education staff piloted wildlife walks on Wednesdays at 9 am and 4 pm targeted to summer tourists. Participants explored the shore with sanctuary naturalists to search for shorebirds, seabirds, crabs, and sea lions – and possibly harbor porpoises and whales! They learned about San Francisco Bay and the Farallones sanctuary, home to dolphins, whales, a quarter-million seabirds, and white sharks! The one-hour beachcombing stroll along Crissy Beach concluded at the Golden Gate Bridge, a major tourist destination and gateway to Greater Farallones National Marine Sanctuary. One hundred six people joined the walks from July through September.

The Golden Gate Bridge was recently ranked the top San Francisco tourist destination in a study by SF

Travel. Sanctuary staff offered a unique way for tourists and locals to explore the Golden Gate and increase awareness of the national marine sanctuary systems recreational opportunities.



Beach to Bridge nature walks promote Blue Economy experiences for San Francisco tourists. Credit: Monika Krach/GFA

### Farallones story map guides visitors on journey to discover sanctuary “treasures”

Greater Farallones National Marine Sanctuary’s Get Into Your Sanctuary story map has been featured on NOAA’s GeoPlatform homepage for over a year. The story map highlights attractions along California’s Highway 1, from Año Nuevo State Park in Monterey Bay National Marine Sanctuary to Point Arena adjacent to Greater Farallones National Marine Sanctuary. These attractions will help visitors plan their stops and explorations along the California coast. From September 26, 2018 to September 26, 2019, the GIYS story map was viewed 14,085 times, with an average of 39 views per day.



### Sanctuary Exploration Series

The Farallones 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 the series. Twenty-four people took part this quarter.

On September 14, twenty-four Greater Farallones Sanctuary Explorations participants joined sanctuary naturalists and WaterTreks Eco Tours for a morning kayak on the Russian River Estuary. They explored the local ecology, and the island and coastal beaches where the river meets the sea. They had amazing wildlife sightings including a Bald Eagle, mergansers, white and brown pelicans, a river otter, harbor seals, and humpback whales just offshore, among other sightings! The group also towed for plankton and marveled at the weird and wonderful creatures at the base of the food web seen under microscopes at the end of the paddle.



Heading out toward the Pacific, plankton nets on board, via muscle-powered paddle. Credit: Sara Heintzelman, NOAA/GFNMS

### Sanctuaries bring “Ocean Film Shorts” festival to Pt. Arena for Get into Your Sanctuary Day

In a site collaboration for Get Into Your Sanctuary, Cordell Bank and Greater Farallones national marine sanctuaries joined the International Ocean Film

Festival and Arena Theater to present selected ocean-themed films to 120 members of the public in celebration of Get Into Your Sanctuary Day on August 3rd. The two-and-a-half hour event included screenings of the Farallones sanctuary's own "Beach Watch Program 25<sup>th</sup> Anniversary" highlighting the extraordinary work of the program's volunteers and staff. Other titles included "Fishpeople," sharing the transformative effects of time spent in the saltwater wilderness, and "Near Miss" telling the story of how diver Ron Elliott is at peace solo diving with white sharks around the Farallon Islands. "Near Miss" filmmaker Josh Berry and Elliott engaged the audience with a question and answer.

This education collaboration encourages the public to "get into" their sanctuary and builds strong bonds between sanctuary staff and an important small-town constituency on the north coast.



Eager GYS' mini ocean film fest crowd settles in for a flick-feast at Pt. Arena Theater.

## 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, structured programs for various ages and interests, and hosts special events. Visitor centers promote ocean literacy as well as other sanctuary education programs, through naturalists and exhibits.

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.



GFNMS Visitor Center provides valuable science education to Bay Area students. Credit: Justin Holl/NOAA

Located in a historic Coast Guard station in San Francisco's Presidio, the center educates diverse audiences through exhibits and hands-on activities. Here you can find a silky sea otter pelt, serrated shark's teeth, blue whale baleen, live local intertidal creatures, and informed staff and volunteers that help foster connections between the public and our neighboring sea. The center is free to the public and attracts families, tourists, and locals Wednesday through Sunday, 10 am to 4 pm. Special programs and workshops are also offered on a regular basis, to join or to sponsor as private events. This quarter

6,960 people stopped by to “explore” our sanctuary virtually.

### Record 1,600-plus shark fans engaged, enthralled at Farallones campus during Sharktoberfest

The Farallones sanctuary's iconic white sharks were the stars of Sharktoberfest 2019, as a record-breaking 1,600+ people descended on sanctuary headquarters and Visitor Center in the San Francisco Presidio Saturday, September 28th for Sharktoberfest 2019. This annual celebration of the White sharks' return to their fall feeding grounds, co-sponsored with the Greater Farallones Association, and Shark Stewards, featured shark experts, a Science Station, shark virtual reality films, and live sharks. Hands-on activities like Shark-itecture 101 (“Build a Shark”) demonstrated physiology and adaptations and engaged and enthralled participants. “Tag the Shark” facilitated discussion of telemetric tracking to better conserve this unique white shark breeding population. Exhibitors included NOAA Fisheries, California Academy of Sciences, California State University's Pacific Shark Research Center, and others who brought their special focuses to the event. All ages found opportunities to learn about and enjoy our shark and ray families.

Sharktoberfest provides the community with an educational and entertaining way to learn about an ecologically important ocean predator. It responsibly presents information and provides opportunities for involvement in shark conservation.



Hammerhead shark pup stands rostrum and ears above the competition at Sharktoberfest. Credit: Jan McFarland Brown



The array of Sharktoberfest ocean-themed costumes can be impressive to behold. Cr: Jan McFarland Brown.

### Farallones teaches Wild SF! Ocean/estuarine course in SF City College partnership

Greater Farallones National Marine Sanctuary (GFNMS) Education and LiMPETS teams partnered with the City College of San Francisco Extension Program to teach a portion of their Wild SF! California Naturalist Certification Course Friday, August 30, at the sanctuary's Presidio campus. This is the first CalNat Course taught in San Francisco, and organizers plan to highlight the great diversity of eco-spaces within San Francisco and introduce them to the various organizations acting as stewards of the San Francisco ecosystems. Participants learned about marine ecosystems, from open ocean to estuaries and marshes. GFNMS education staff taught them to collect and identify plankton, and the LiMPETS team trained them to monitor the Pacific mole crab, *Emerita analoga*, at Crissy Beach. Other highlights included a salt marsh walk and bird watching excursion where a rare Eurasian shorebird, a Ruff, *Calidris pugnax*, was spotted, demonstrating the importance of wetlands habitats to migratory waterfowl.

Combining sanctuary education programs and LiMPETS Network programs enhance the region's standard of science education. LiMPETS highlights California's sanctuaries and engages students as ocean stewards.





San Francisco City College WildSF! students learn sand crab monitoring techniques at Greater Farallones NMS campus. Credit: Rosemary Romero/GFA.



Sketching wildlife hones field identification skills and creates lasting records and mementos of experiences.

## 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 113 students this quarter.

### Farallones Sanctuary Naturalist Course graduate hosts new journaling workshop

On June 2, 2019, 38 participants were engaged in a plankton journaling workshop at the Farallones Pier Classroom. Participants trawled for plankton, viewed their catch under microscopes, learned about what drives the California Current food web, and, reflected upon and captured their experience in their science journals. The six-hour workshop was co-led by volunteer Janai Southworth, a recent graduate of the Farallones Sanctuary Naturalist course, and John Muir Laws, acclaimed scientific illustrator. Rebecca Konte from Foldscope participated in the day and gave everyone their own paper microscopes. The Farallones Sanctuary Naturalist Class graduates are exponentially increasing sanctuary messages and prestige by offering innovative classes and programs to new audiences. And, in this case, getting folks interested and excited about plankton.

## 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. By providing thematic programs for family workshops at GFNMS facilities, we foster connections within the sanctuary community and provide ocean education to children between ages 4 to 10. This quarter 294 children and adults participated.

Families learned about shark adaptations by examining jaw artifacts from a diversity of sharks, and building a life-size wooden model of a white shark. Others explored whale biology and behavior through interactive games to visualize their size and mimic their different feeding tactics. Yet other participants learned about local crab diversity by exploring Crissy Field Beach for crab molts, and then caught and released crabs using snares off of the GFNMS pier. Octopuses "starred in the cephalopod workshop, as participants examined their own frozen California two-spot octopus, looking at morphology,

anatomy, and comparing it with other cephalopods at different “exploration stations.”

Some programs focused on deep sea explorations. Participants learned about the importance of remotely operated vehicles (ROV’s), culminating in each family building their own ROV models and driving them. Another group of attendees learned the important role of sea otters and pinnipeds in the ocean by looking at artifacts and playing a life-sized marine mammal ecology game.

### *WAVES/Seven Teepees Program*

The Watershed Advocacy Via Environmental Science (WAVES) program, through the multi-year Seven Teepees youth program, provides middle and high school inner-city students with education, research, and exploration opportunities with Greater Farallones. Seven Teepees works with urban youth to foster skills needed to make positive lifelong positive choices and create opportunities for success. Its senior students then conduct “teach backs” for middle school students.

From July 8 to 23, 2019 GFNMS educators hosted a 2.5 week long camp for 13 high school juniors from Seven Teepees Youth Program, a non-profit for under-resourced youth in San Francisco's Mission District. “The Mission,” the city's oldest neighborhood, is a richly diverse neighborhood representing primarily Hispanic communities. Students undertook a comprehensive course of marine science programming which also included whale watching on San Francisco Bay, a morning spent sailing on board a Science at Sea program, and a visit to Ano Nuevo State Reserve to see the molting elephant seals.

The camp culminated in the 13 high school juniors teaching back a marine science-based program they had designed to 35 middle school students from Seven Teepees on the final two days of the program, demonstrating peer to peer ocean advocacy.

### *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. Forty students took part in AYS programs this quarter.

### *Summer Camps*

#### **Marine Explorers Summer Youth Program Engages Students in Outdoor Learning**

The Marine Explorers Summer Youth Program is a collaboration between the City of San Francisco's Randall Museum, the Greater Farallones Association to provide outdoor field trips and hands-on activities to immerse students in marine science exploration and experiential outdoor learning. The program served 109 students and spanned six weeks between July 9 and August 16; it had a wait list of over 200 students. The 40-hour curriculum included engaging activities such as sand crab monitoring, squid dissections, plankton investigations, building and operating Remotely Operated Vehicles from our pier on Crissy Field, kayaking and wildlife viewing in Half Moon Bay, a field trip to The Marine Mammal Center and tide pooling at Duxbury Reef.

A field based summer camp provides children with direct experiences to connect with their national marine sanctuaries and increase their ocean literacy through exploration and discovery.

## *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. The statewide LiMPETS network reaches over 6,000 students annually.

This quarter, 478 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)

### **LiMPETS Network presents at the World Congress of Malacology**

LiMPETS presented at the World Congress of Malacology Meeting in Asilomar, CA on Aug 15, 2019. LiMPETS compared size and abundance of owl limpets inside and outside of California State Marine Protected Areas (MPAs).

Owl limpets are important in structuring rocky intertidal communities, as larger individuals are territorial females that clear space through grazing and bulldozing. Because of their large size, people commonly harvest them for food. Studies have found that preferentially harvesting the largest individuals shifts local population structures. Student-collected data from two pairs of protected and unprotected sites in the central and north central coast collected over five years reflect similar trends, as individuals larger than 5.5 cm were largely absent at unprotected sites. Owl limpets within MPAs were often found at sizes between 2.5-10cm. Students will

continue to monitor owl limpets while learning the importance of MPAs.



Owl limpets; not to be confused with owls. Credit: (L) Steve Lonhart/MBNMS-NOAA; (R) US F&WS

### **LiMPETS kicks off school year with expanded teacher training outreach**

The Greater Farallones LiMPETS (Long-term Monitoring Program and Experiential Training for Students) team has kicked off the 2019-2020 school year by expanding their teacher outreach in the San Francisco Bay Area. The Greater Farallones National Marine Sanctuary hosted a Sandy Beach Monitoring Workshop for 18 new informal educators, middle and high school teachers on September 7th, 2019. The workshop prepared educators to participate in LiMPETS, through which their students will become coastal citizen scientists! Workshop participants receive an in-depth curriculum, learn to use 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.

### ***Communications/Media***

Broader public understanding of ocean conservation's link to our collective welfare will garner support and appreciation of NOAA agencies' work through its various divisions: fisheries, marine sanctuaries, and others, often in cooperation with other agencies, NGOs and private partners. Creating public awareness of this work, and of opportunities for personal participation, will help achieve our goals, enrich individuals' lives, and enhance the health of our planet.

## NBC News, San Francisco Chronicle join ACCESS research cruise

On, Wednesday, Sept. 25, NBC News and the San Francisco Chronicle accompanied the Greater Farallones and Cordell Bank sanctuaries' ACCESS cruise (see cruise description under the Cordell Bank report). Farallones Communications staff coordinated media coverage, the Chronicle story ran as the front page, above-fold story on Sept. 28; see :

<https://www.sfchronicle.com/bayarea/article/Scientist-s-assess-waters-off-San-Francisco-and-14474523.php>. NBC News, is covering in depth the issue of endangered whale mortality from ship strike, and the sanctuaries' efforts to prevent it, through our Vessel Speed Reduction (VSR) and other programs. The piece is scheduled to air later this fall.

A broad segment of the public and the commerce sector - who are partners in the VSR program - learn of sanctuary marine life conservation programs primarily through the media. Compelling imagery and succinct communication of concepts, which are the hallmarks of mass media, help profile these efforts in an easily comprehensible, visually compelling format.

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National network and local media get close-ups of Tucker trawl plankton net sampling on ACCESS cruise.

Credit: Mary Jane Schramm/GFNMS

## Sanctuary offers insights into white shark and fishing boat incident, GFNMS protections

On July 14, Farallones communications staff provided information on white shark feeding patterns in and around the sanctuary to NBC News. Some of

the Greater Farallones white shark population habitually enter San Francisco Bay to feed on seals and sea lions as well as near the Farallon Islands. The interview centered around a white shark that detoured into San Francisco Bay, was accidentally hooked by a fisherman, and towed his boat for miles in a version of "Nantucket sleigh ride" before being cut free. White sharks' use of the bay was confirmed a decade ago when electronic shark tags accidentally "pinged" on receivers on the bay floor intended to track salmon migration patterns.

Public knowledge about the sanctuary's white sharks and about Greater Farallones' efforts to protect them, is essential to their conservation. In recent years, white sharks have transitioned from "the fish you love to hate" to a valuable yet vulnerable apex predator that helps maintain marine ecosystem balance. In 2009 Greater Farallones instituted regulations prohibiting approach and attraction of whites. Compliance is due in part to an appreciation of their importance in the food web. See

<https://www.nbcbayarea.com/news/local/Great-White-Shark-Caught-San-Francisco-Bay-512705621.html>

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## 2019 Calendar Updates

### October

4 & 19 Kent Island/Bolinas Lagoon habitat restoration community days. Contact [kbimrose@farallones.org](mailto:kbimrose@farallones.org)

### November

- 13 Sanctuary Advisory Council meeting, San Francisco Zoo, San Francisco
- 16 Seaweed Soirée: Adult evening of art and science with Dr. Karina Nielsen, EOS/SFSU,

and talk and exhibits by marinelife artist Josie Iselin. [See https://farallones.noaa.gov](https://farallones.noaa.gov)

## December

14 Sanctuary Explorations: Tidepooling at Pillar Point. Contact [sheintzelman@farallones.org](mailto:sheintzelman@farallones.org)

NOTE: Future (2020) advisory council meeting dates will be posted on the GFNMS website in December.

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## 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 through October, volunteer 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](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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Superintendent's Quarterly Report**

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