

BETWEEN *the* TIDES

F r i e n d s o f F i t z g e r a l d M a r i n e R e s e r v e
June 2017

News from Ranger Rob Cala

During the course of 2016 we were very busy at Fitzgerald Marine Reserve. A shed / office was built to house both Ranger staff and Friends of Fitzgerald Marine Reserve; this allowed the “hut” Visitor Center to be fully upgraded with exhibits and new monitors to showcase marine life in technicolor (both inshore reef and offshore ROV footage!).



Hewlett Packard sponsored the reserve with an interactive computer called a Sprout (see photo at left). Visitors can scan items and place them into a virtual tide pool. Another application allows scanning and creating digital images from a visit as a keepsake. Though small in size the new Visitor Center delivers BIG.

continued on page 2

Friends of Fitzgerald Marine Reserve

P.O. Box 669
Moss Beach, CA 94038
Phone: 650.728.3584
www.fitzgeraldreserve.org

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Our Mission:

To inspire the preservation of our unique intertidal environment through education and the support of research.

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Rob Cala

News from Ranger Rob Cala *continued from page 1*

We had a VERY busy winter with an endless wet deluge from HUGE storms and swells. The scouring of the beach was total. We also experienced out-of-the ordinary sand replenishment as a direct result of storm runoff that delivered our silicon friend via San Vicente creek. This does choke part of the reef and the salinity has been all over the map; but the inter-tidal is a tough place and always evolving with natural circumstances. It's been WILD. Everyone was working hard to clear fallen trees and keep trails clear. The erosion was off the scale, some areas losing up to 15' from the cliff edge this season! We are welcoming all to the summer season at the reserve and excited to share everything we have done to make it a memorable adventure.

Cheers, Ranger Rob Cala

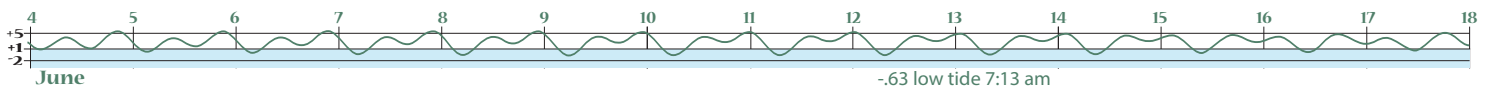


The graph displayed across the page bottoms shows tides for 6/4/17 to 10/22/17. Where the date appears is midnight. The reefs are accessible for exploring during low tides—at least +1 or below. This area is shaded light blue. See: <http://www.fitzgeraldreserve.org/newffmrsite/lowtides/>

The winter afternoon low tides changed to morning low tides in March. There are almost equally low tides several days before and several days after the noted low tide dates.

The lowest tides this period are:

-0.63	6/12	7:13 am	-0.26	8/8	5:49 am
-1.75	6/25	6:18 am	-0.75	8/20	4:11 am
2nd lowest tide of 2017			-0.20	9/17	3:03 am
-0.57	7/10	6:16 am	-0.26	10/9	8:18 pm
-1.36	7/23	5:14 am	4th lowest tide of 2017		





Bonaparte's Gull (*Chrolocephalus Philadelphia*)



Janolus barbarensis—AKA Santa Barbara Janolus, a 1" long native California nudibranch (can you find the tiny skeleton shrimp riding on top ?) Santa Cruz, CA



Brandt's cormorant (*Phalacrocorax penicillatus*)



Dendronotus orientalis

Robin Agarwal has graciously allowed us to display her photos on our BTT photo page. Robin is an avid photographer and nudibranch expert. (Images may be subject to copyright)



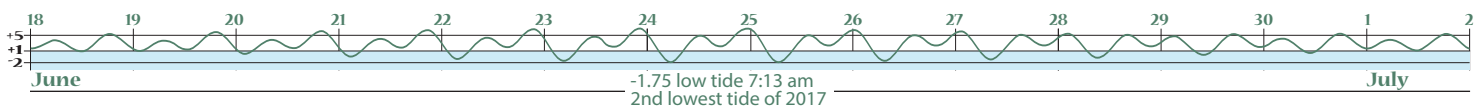
Spotted Triopha (*Triopha maculata*)



Spanish shawl (*Flabellina iodinea*) Monterey, California



Opalescent Nudibranch (*Hermisenda opalescens*), one of the most gorgeous sea slugs on the California coast. And since it's also one of the most common, it's a "gateway species" to further exploration.



2017 FFMR Training Class

by Susan Evans

Thank you, Joseph, for continuing to teach four of our classes and for helping out with the Volunteer Panel, where we discussed how to lead tours and apply the interpretive techniques we learned in class.

Another year and another fantastic training class! We have 17 new naturalists and some have already led tours. Congratulations to: Wes Burgess, Clare Chanin, Dave Collins, Lux Crawford, Darrick Emil, Lauren Ford-Peterson, Allen Furst, Elena Huynh, Victoria Knight, Deborah Landman, Eileen O'Rourke, Jenni Picetti, Shane Rodgers, Elaine Reade, Robert Rybak, Matthew Tolmasoff and Tom Yang.

New and exciting changes to the training curriculum were made this year. Our new algae teacher was Kathleen Dickey, who had previously given a continuing education lecture for FFMR. Her enthusiasm and knowledge of algae is most inspiring. Jean Replicon was our mollusk expert for the second year. Her revised handout with many colorful pictures was most welcome, and I added an "Octo-parts" game/worksheet. Fieldwork found us locating several carnivorous chitons.

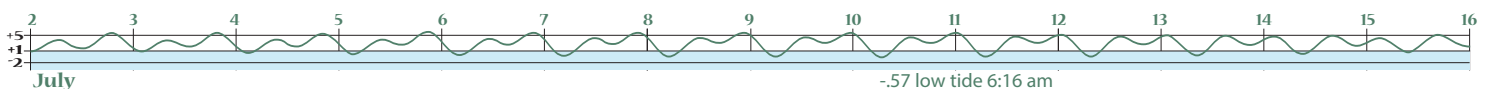
Tom Niesen was back again with his famous harbor exploration and a revised handout. And, surprise, surprise, Joseph Centoni joined in

on the fun with Tom and helped collect beautiful scale worms and flatworms for the students to examine. Thank you, Joseph, for continuing to teach four of our classes and for helping out with the Volunteer Panel, where we discussed how to lead tours and apply the interpretive techniques we learned in class. Irina Kogan returned to give her enthusiastic geology lecture with a lovely handout.



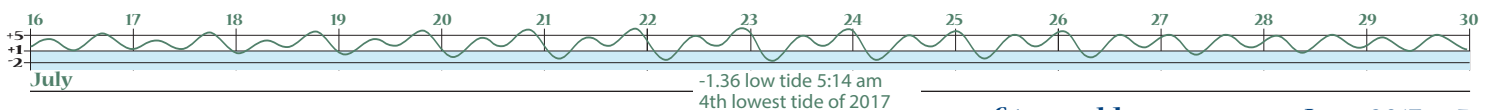
Thanks also to Karen Madsen for helping with sign-ups and for her marine mammal lecture with Michael Liang. Ron Olson once again did his great job of handling the projector/screen each week and as a generous member of the mentoring program. Thanks to Carol Davies for being a mentor supreme. Patti Miller continued her generous copying of binder and algae sheets. And finally, thanks to Linda and Tom for the history lecture and for treating us to their house for our end of year party.

A bird lecturer could not be found this year so Ron suggested that we have



students give reports. We asked them to write a report and to give an oral presentation of “their bird.” Their creativity was a delight! Alan dressed his head with the feathers and beak of a grebe. Elena gave a power point presentation on sanderlings. Elaine and Robert treated us to the special bird calls of the snowy egret and willet. Darrick provided laminated cards describing our three local cormorants. Most of the students had beautiful pictures to accompany their reports. After the presentations, we observed FMR birds and then proceeded to Pillar Point, where we were treated to views of a snowy egret, a great blue heron, a great egret and some Canada geese.

Congratulations to all 17 of our new naturalists. May you have many, many happy years of tidepooling. ♦



An Intern's Life on The Farallon Islands

The purpose of the internship is to determine why the population of the colony of elephant seals there is declining in size and where the seals are going.

When Kris Liang learned from the Marine Mammal Center of an opening for an internship on the Farallon Islands she jumped at the opportunity. The position was to participate in research on the elephant seals that haul out and breed on the Southeast Farallon Island (SEFI). Kris was well qualified; she has been instrumental in the protection of the Fitzgerald Marine Reserve harbor seals, works many hours as a volunteer tending to the pinnipeds at the Marine Mammal Center, and has participated in seal counts in the Bolinas area.

Kris didn't find life on the island difficult. In fact, she described the lodging as "spectacular" and "really plush field accommodations in two-

with identification by means of a long pole with a pad containing dye on the end. Because there was little beach area, at times the animals were wedged so close to one another that they couldn't be stamped, and identification could only be by a scar or a mark. When a new cow came in it was photographed and every identifying feature was entered into a data base. A bleach peroxide marker was used on the pups when they were weaned. Kris was soon able to identify every animal by sight.

Kris never felt threatened by the seals' presence. She explained that there are only two harems on the island and no bulls. She said, "With no bull beach masters the order is sloppy and the sub-adult males are unruly and fight among themselves." She found the fracas easy to avoid because it was preceded by posturing, and the animals don't move very fast (top speed is seven miles per hour).

Many other tasks filled the day. She walked the entire island counting birds: gulls, non-breeding sea birds, willets, murrelets, songbirds, peregrine falcons and burrowing owls. At night she donned a headlamp and entered caves to count crickets hanging on the walls. She also counted butterflies and set out mouse traps. She logged the tags on sea lions. She climbed the hill to the lighthouse two times a day and using binoculars counted whales and sharks.

Each day thermography cameras were used to photograph the blood flow of nursing mothers. As part of a student PhD study the interns recorded all of the mothers' behaviors five times in one hour. The project was to determine if seals improve their mothering skills as they age.

Kris did have one frightening encounter. When she learned that fur seals inhabited a small island separated from SEFI by a narrow gorge she didn't hesitate to go. Conditions had to be perfect and access was by zip line. She had to scale a granite rock face to gain a clear view. On her return down the face she felt her handholds giving way and she was sure she would plunge 50 feet to a rocky shore. Fortunately someone was there to give assistance and she made it down safely.

Kris loved her experience on the island and would recommend it to anyone interested. She exclaimed, "It's a beautiful island. I would live there." ♦



Top of the world. Kris is perched at the top of a neighboring island. The intern house is the white building on the left of the three on the big island behind her.

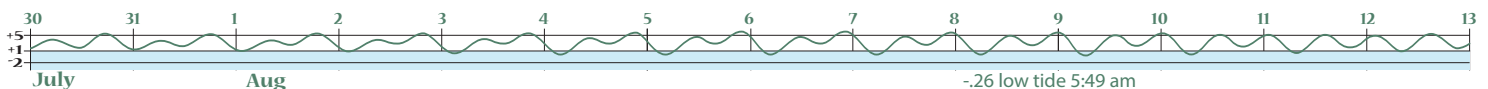
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On her return down the [rock] face she felt her handholds giving way and she was sure she would plunge 50 feet to a rocky shore.

story, eighteenth-century houses." There was every amenity except for heat, and showering was limited to every fourth day because of gas limitations. Groceries were delivered every two weeks, and the interns could order anything they wanted except ice cream and candy. The interns (four of them) took turns cooking, and Kris said that the meals were always tasty.

The purpose of the internship is to determine why the population of the colony of elephant seals there is declining in size and where the seals are going. Kris's sense is that they are moving to Point Reyes or Piedros Blancos. The resident biologist feels that increasing ocean temperatures and loss of sand (loss of habitat) are the main contributors to the decline.

The interns' primary task was to do a daily seal count, first looking for new pups and then identifying every animal. Cows were stamped





Clockwise from top left: The Rookery, Inhospitable haulout (No sand), Lonely Bull, Murres through the window, Taking Attendance, Mirounga Beach (Crowded Channel) For more photos, see page 12.

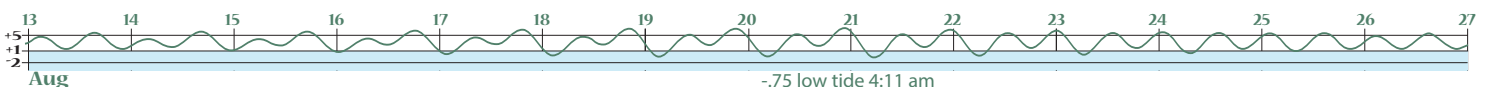
The Farallon Islands

The Farallon Islands, or Farallones (from the Spanish farallón meaning “pillar” or “sea cliff”), are a group of islands and sea stacks in the Gulf of the Farallones, off the coast of San Francisco, California, United States. They lie 30 miles (48 km) outside the Golden Gate and 20 miles (32 km) south of Point Reyes, and are visible from the mainland on clear days. (The third person, and the first woman to swim from the Farallons to the Golden Gate was Kimberley Chambers, making it in just over 17 hours on Friday August 7, 2015.) The islands are officially part of the City and County of San Francisco. The only inhabited portion of the islands is on Southeast Farallon Island (SEFI), where researchers stay. The islands are closed to the public.

Southeast Farallon Island (SEFI) is the largest island, with an area of 95.79 acres or 0.14970 square miles

(0.3877 km²), and is the only inhabited one. The Islands are an important reserve protecting a huge seabird colony numbering over 250,000 birds. Five species of pinniped come to shore on the islands, and in some cases breed there. SEFI is accessed only by a small number of wildlife biologists and resource managers. Point Blue Conservation Science has been doing science and training the next generation of scientists on the island since 1968 in partnership with the U.S. Fish and Wildlife Service.

A webcam located on SEFI gives the public a 24-hour-a-day view of the island. The webcam is a partnership of the U.S. Fish and Wildlife Service, Point Blue Conservation Science, and the California Academy of Sciences. ◆



Crab Spotting At Fitzgerald Marine Reserve

by Sasha Greenawalt and Janet Pelinka



Red rock crab (*Cancer antennarius*) Stanford.edu

The diversity of our reserve is astounding, and included in that diversity are several species of crabs.

Looking about the tidepools the first crab one is likely to notice is the **red rock crab** (*Cancer antennarius*), because of its size and color. Its reddish avicular carapace can measure up to 15 cm wide and its claws exhibit red spots. Some think the carapace shape resembles the letter D. You can easily identify this animal by the black tips on the ends of its claws. It scavenges in the low tide zone and predares on invertebrates, its heavy claws being strong enough to crack open the shells of barnacles and snails.

The **kelp crab** (*Pugettia producta*) is often spotted in the low tide zone. Its carapace is distinguishable—up to 10 cm wide with four sharp spines on the margin of its body—and almost always takes on the color of the algae it is eating (frequently olive brown). It is the most aggressive crab in the reserve and reacts with claws outstretched when threatened. Its pointed beak can leave a painful remembrance to those who try to touch this animal. As they age some kelp crabs retire to kelp beds floating in waters beyond the tidepool.

Another occupant of the low tide zone might not be so easy to spot. In fact, it is so clever at camouflage that you could be looking right at it and not recognize this creature as a crab. The **decorator crab** (*Loxorhynchus crispatus*) is covered in small, curved bristles (setae) that act as a sort of Velcro for whatever objects it deems suitable for its purposes: bits of seaweed, plastic, fabric, and even living creatures like sponges, coral polyps, and anemones. It uses its mouth and a pair of pincers to tailor its find to a desired dimension. If a decorator crab is relocated, it will replace the old growth on its back and legs with species from the new environment.



Decorator crab (*Loxorhynchus crispatus*) Monterey Bay Aquarium

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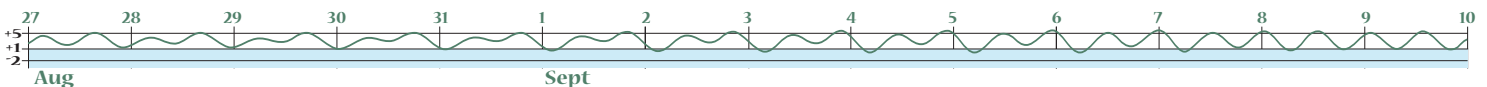


Kelp crab (*Pugettia producta*) Friday Harbor Marine Health Observatory



Porcelain crab (*Petrolistes eriomerus*) Donna Pomeroy, iNaturalist

The elusive **porcelain crab** (*Petrolisthes spp.*) of the middle tide zone might escape notice because this small crab has a carapace of only up to two cm wide, is smooth in texture, and so flat that hiding under rocks or in the mussel beds is easy. Despite its name and appearance, the flat porcelain crab is not a crab at all. In fact, it is more closely related to the lobster but has evolved to look like a crab. The chief



difference is in the number of legs; porcelain crabs have only six walking legs while real crabs have eight. This creature's color is brown to grey-green and it has large, broad claws (also flat) that have bright blue or red color on the edges. Its unique name stems from the smooth texture and subtle colors of the carapace, which, when wet, often glistens like porcelain. A suspension feeder, the porcelain crab feeds by fanning plankton and detritus into its mouth.

Another resident of the middle tide zone, the **purple shore crab** (*Hemigrapsus nudus*), is found in coarse sand and gravel, and often under overlying rocks. Its carapace, up to 5 cm wide, is, as its name suggests, usually deep purple, although it can be olive green or reddish brown. The legs match the color of the carapace and lack the hair-like bristles that other species have, giving this crab its other common name, the naked shore crab. Its eyes are protected by spines along the shell edge, and have pigments in the retina that allow the eye to adapt for day and night vision. The purple shore crab feeds on diatoms and small green algae scraped from rocks with the cup-shaped tips of its claws.

As does the **lined shore crab** (*Pachygrapsus crassipes*) that is found in the high tide zone, where it spends more than half its life out of the water, submerging at times to wet its gills. This small crab, up to 6 cm wide, has a striking appearance. Its reddish carapace is striped with green, and the joints have bright green connective tissue. Two teeth are located along the outer




Green-lined shore crab (*Pachygrapsus crassipes*)
Wikipedia

edge of its shell near its eyes. Using alternating claws with spoon-shaped cups at the end, it shovels algae, its primary food source, into its mouth, much like using salad forks. ◆



Purple shore crab (*Hemigrapsus nudus*)
University of Puget Sound

Each year FFMR offers funding for transportation. Following is a letter of appreciation that we received last year.



Since 1850

Lorenzo Manor Elementary School

SAN LORENZO UNIFIED SCHOOL DISTRICT

SUPERINTENDENT
Dr. Fred Brill

PRINCIPAL
John Shenko

November 17, 2016

Dear Friends of Fitzgerald Marine Reserve,

I am writing to thank you once again for the generous gifts that you have given to my students in the past, and to let you know once again what your gift means to our students.

Lorenzo Manor Elementary is a Title I school in the San Lorenzo Unified School District. This means that a very high percentage of children qualify for free or reduced-price school lunches, which means that they come from low-income families. Our district does not allocate any money for teachers to take their students on field trips. Buses cost many hundreds of dollars beyond what we sometimes receive in donations from the PTA; since most children are from low-income families, we cannot ask the families to make up the difference. This means that without help, I can never take my class on a field trip on a chartered bus.

Field trips out into our world provide an invaluable experience for any student, but this is especially critical for students who are from minority and/or low-income populations. Most students in my class have never been to the ocean, much less explored life in a tide-pool. It's hard for me to grasp that, given how close we live to the Pacific, but it's true. The majority of students in my class are learning English as their second language. One student is emerging from his shell of last year, when he was nearly catatonic for months due to a severe family trauma. I have several students who qualify for Special Ed, because of learning disabilities. Several of my students are from El Salvador, one of whom came here less than a year ago after her brother was killed. Another is from Guatemala; she did not attend school in Guatemala, so at the age of nine, she is trying to learn not only our language but our alphabet and number system.

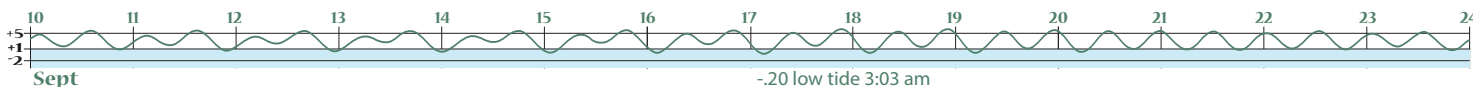
For any child, but especially for students from under-served communities, being able to explore the natural world can ignite a lifelong passion for learning, and for stewardship of the environment. I visited FMR when I was a student teacher twenty-eight years ago, and made a decision then that I would do everything I could to allow my students to visit this magical place.

You'll never know all of the far-reaching ways that your work will stretch into the future to help our world, but I'm convinced that it does. Thank you, thank you, thank you!

Sincerely,

Sue Granzella
Lorenzo Manor Elementary
18250 Bengal Avenue
Hayward, CA 94541
sgranzel@slzusd.org

18250 Bengal Ave., Hayward CA 94541-2202 • (510) 317-5400



Once a Volunteer, Always a Volunteer

by Julie Walters



Many of you will remember Dot Norris, the Fitzgerald naturalist who retired to Hawaii about a year ago. Dot carried her love of the ocean to her new life on the Big Island of Hawai'i where she is involved with several organizations.

Kahalu'u Bay Education Center (Reef Teach)

Dot's duties here are similar to those she had at Fitzgerald, but here, instead of harbor seals, she is protecting Hawaiian green sea turtles. This popular snorkeling spot gets many visitors who need to be reminded not to stand on the delicate coral and not to get closer than ten feet from the sea turtles. If you are visiting Hawai'i, be sure to stop by this unique beach park south of Kona.

Whale Entanglement

Dot's old dive buddy, Bob Gladden, directs the WHMMRN's (West Hawai'i Marine Mammal Response Network), Entangled Humpback Whale Response Unit, which coordinates with NOAA. The unit helps disentangle Humpback whales, which sometimes drag crab gear from Alaska on their southern migration to Hawai'i. Two years ago, an entangled whale was tagged by Bob's unit off the west coast of Hawai'i and was traced to Maui, where it was freed from trailing lines and buoys. Dot participates in the trainings and hopes to help with this effort in the future.

Monk Seal Monitoring

The endangered monk seal population is around 1400 (which is remarkable since two years ago the population was only 1100) and is found mostly in the northern Hawaiian Islands such



as French Frigate Shoals. Dot monitors monk seals on the beach similar to the way naturalists monitor harbor seals at Fitzgerald. Recently she protected a newly born pup and its mom at a secret location. These locations are not disclosed to the public in order to minimize the human impact on this endangered species. Monk seals are solitary and can weigh as much as 750 pounds. They nurse their pups for approximately 45 days before the pup is weaned. Mom and baby are almost the same size after nursing and the mother will teach the weaner to fish before she leaves it on its own.

Monk Seal Hospital (Ke Kai Ola)

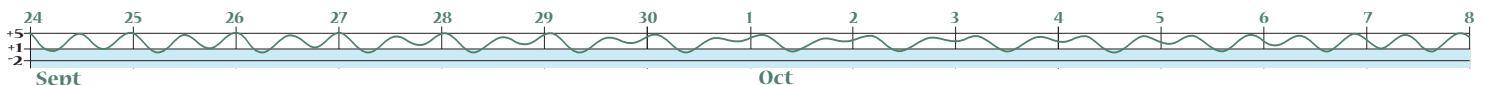
When a NOAA cruise to the northern islands returns to Kona, the crew may bring injured or starving monk seal pups with them. These animals are admitted to the Monk Seal Hospital which is part of the Marine Mammal Center. There the animals are tube fed until they can feed naturally, medicated for any illnesses and allowed to grow until they can be released back into the northern islands. Dot is part of the Saturday crew that prepares medication and food for the four monk seals currently at the hospital. Dot recently received training at the Marine Mammal Center in Marin so that she can help with the tube feeding of the pups.

Reef Watch

Dot has been trained to recognize coral bleaching and coral disease. She helps with the Reef Watch which monitors the effects of global warming on coral reefs. Two years ago, 50% of Hawaiian coral reefs bleached and died due to unusually warm water temperatures.

Dot's knowledge and skills continue to serve. ♦

Dot monitors monk seals on the beach similar to the way naturalists monitor harbor seals at Fitzgerald. Recently she protected a newly born pup and its mom at a secret location. These locations are not disclosed to the public in order to minimize the human impact on this endangered species.



A Remembrance of Leah Cohen

August 27, 1920 - January 31, 2017

by Marsha Cohen

In the fall of 1985 my mother, Leah Cohen, received an “A” in Biology 680, Intertidal Interpretation, from Skyline College. FMR Ranger Bob Breen was her instructor (the next year she received her AA degree at age 65). Leah was one of the early Fitzgerald Marine Reserve volunteer naturalists trained by Bob, and she thoroughly enjoyed 20 years of sharing her knowledge and appreciation of the reserve with students and visitors.

By the time she finished the course, Leah had already been a volunteer at the Coyote Point Museum, where the reserve’s tidepool tour program was managed. While there, she traveled to various schools with the Museum’s Mobile Tide Pool Van and participated in the Museum’s live-animal program. One of Leah’s enduring joys was bonding with a blind crow named “Shadow.”

Growing up in New York City in the 1920s and ’30s, Leah’s early years were a struggle for her and her single mother and sister. But Leah nurtured fond memories and gained an early appreciation for nature on her summer holidays to farms in upper New York state and in New Jersey. In her later years, Leah’s appreciation grew stronger when she traveled to Africa, South America and Australia, and she became an avid birder. She decided to find volunteer opportunities in local natural history museums, leading her to join the training courses offered at Coyote Point and with the California Academy of Sciences. She graduated from the Earth Sciences/Life through Time course at the Academy in 1990, also earning college credit, and spent many years there as a docent.



This photo was taken at the last Volunteer Celebration event Leah attended, in 2013. Leah is seen with Kumi Ishida and me.

Her enthusiasm for the reserve and the Academy rubbed off on me. I have been a volunteer naturalist at Fitzgerald since 2004 and a docent at the Academy since 2012. While I’m not the dedicated birder Leah was, I always looked forward to traveling with her to the Sacramento Wildlife Refuge every New Year’s Day to see the snow geese. It was a great way to start every new year.

In December 2000, at age 80, Leah was interviewed about the reserve for an article in the San Mateo County newspaper, “The Independent.” The article read:

“Cohen has been a naturalist docent at the reserve for 15 years. For most of those years she led groups of school children on field trips out on the rocky reef. But when Cohen turned 75 she decided that risking a slip

and fall on the algae-covered rocks was too dangerous. For the last five years she has worked weekends in the visitor center at Fitzgerald.

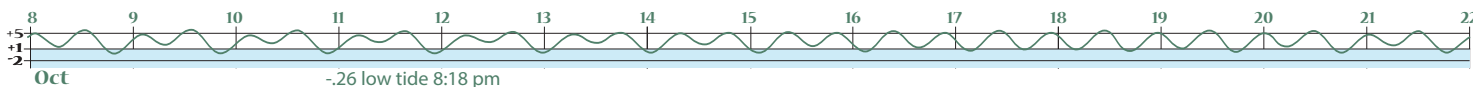
“Cohen, who looks 20 years younger than her age, is a cheerful presence in the visitor center. She greets everyone and tries to answer all their questions. “Everybody wants to know ‘What’s this, what’s that.’ I try to tell them what I know.”

She especially liked the part about looking 20 years younger. ♦

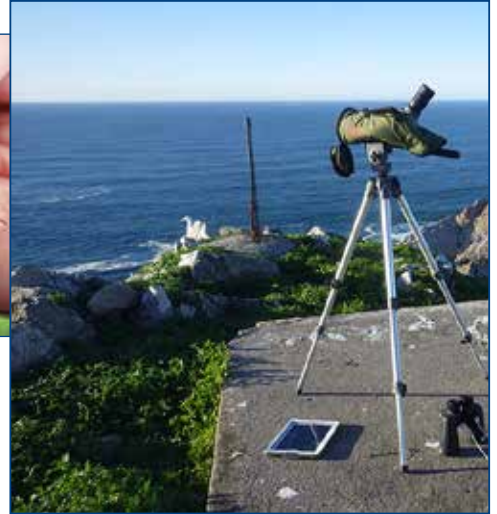


Leah at the 2006 Volunteer Celebration where she received the “Ginny Award” for her years as a volunteer naturalist and her many other contributions to FFMR. With Leah are Rangers Sarah Lenz and Steve Durkin.

She graduated from the Earth Sciences/Life through Time course at the California Academy of Sciences in 1990 at age 70, also earning college credit, and spent many years there as a docent.



More photos from "An Intern's Life on The Farallon Islands," p. 6



L to R: Twins?, Counting Salamanders, A great spot for whale watching

A True Friend of FMR Passes

by Tom Ciotti

The March 29, 2017 edition of the Half Moon Bay Review contained an obituary of Cecelia Clare Goldthorpe. She passed away on March 6, 2017, in Incline Village, Nevada.

Cecelia and her husband George built their house at 201 Nevada Street, directly west of the FMR parking lot and adjacent to the ramp that leads from the parking lot to the ocean. George was a medical doctor and he co-founded the hospital in Moss Beach. After living there for many years with their three daughters, they sold the house to Jon and Janine Miller. Janine is a long time FFMR volunteer naturalist and past president of FFMR.

Cecilia Goldthorpe was instrumental in the establishment of FMR. During the 1960s she tirelessly lobbied the county government and the State Legislature to enact law to create the reserve, often traveling to Sacramento to promote and support the legislation. Without her efforts, the reserve would not have come into existence in 1969. After the founding of FMR Cecelia befriended the San Mateo County Parks Rangers who were stationed at FMR. An entry in an early FMR Ranger log book reports that she donated the ice plant which for many years flanked the ramp leading from the parking lot to the ocean.

Cecelia was a dedicated environmentalist to whom all Friends of Fitzgerald Marine Reserve owe a debt of gratitude. ♦

Friends of Fitzgerald Marine Reserve

Membership Secretary, P.O. Box 669, Moss Beach, CA 94038, or through our website: www.fitzgeraldreserve.org

Contribution Levels:

- \$25
 \$100
 \$1000
 \$50
 \$500
 Other _____

- I want to double the value of my gift through my employer's matching gift program (please enclose the matching gift forms).

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Email _____