

# 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

D e c e m b e r   2 0 2 2

## Marine Marveling: Growing up with the Fitzgerald Marine Reserve

by Angel Tinetti

Editor's Note: Angel is a student at Half Moon Bay High School where she is in AP Environmental Science, is president of the Environmental Club and leads the District Environmental Committee meetings. Angel started volunteering at Fitzgerald Marine Reserve in April 2022 under the supervision of Ranger Rob Cala.

Growing up half a mile from the Fitzgerald Marine Reserve, I was always amazed by its beauty—from the archway of cypruses and winding wooden staircase leading to the ocean, to the pockets of tidepools and marine life stretching along the shore. As a four-year-old crouching knee-deep in the tidepools, I was sure I had discovered a magical world, but instead of dragons and unicorns I marveled at opalescent nudibranchs and glowing sea anemones.

I loved the reserve so much that I signed up for the FFMR summer junior naturalists camp and spent a week exploring the marine life and learning from the FFMR Naturalists. This inspired me to conduct my 5th grade science fair project at the reserve, and soon I was sketching field maps and counting ochre sea stars out on the glittering reefs. I was captivated by the reserve, and it welcomed me with cool salty breezes, the gift of curiosity and a love for exploring.

Six years later, with the crashing of the waves in my ears and the fog twisting through my hair, I continue down the familiar sandy dirt path until I reach the overlook in which I will set up the spotting scope that is slung across my back. The scope will be used for spotting harbor seals down on the warm beach, and will help me collect data and observations on their behavior and numbers. I was given the opportunity to do this as a part of my community service requirements

for school, for which I immediately thought of FMR and the possibility of returning to the windswept cypruses and glimmering waves. I reached out to FMR, and two weeks later I was taught how to use the scope, given a green FMR jacket, and began my journey volunteering at the reserve.

Volunteering at the reserve has had a huge impact on my life. Though it can sometimes be hard to carve out the time to volunteer between homework and studying for AP classes, sports practices, and extracurriculars, it is always worth it. Being out in the fresh air, observing a harbor seal smiling through the scope, and seeing the visitors' ecstatic reactions when they realize a blue heron is standing right there always helps ground me through the chaos of everyday life. The magic of the reserve is still the same as it was when I was an excited four-year-old splashing through the tides. It can be discovered in the graceful dance of the waves, the wisdom of the trees, the vibrance of trentepohlia winding up the cypresses. It's revealed in the penetrating gaze of a blue heron, the happiness of a harbor seal basking in the sun, and the steadiness of a chiton. But most of all, it's reflected in the feeling I get as I stride down to the shore where the waves lap gently and I feel closer to nature than anywhere else.

*continued on page 3*



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*I was captivated by the reserve, and it welcomed me with cool salty breezes, the gift of curiosity and a love for exploring.*

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P.O. Box 669  
Moss Beach, CA 94038  
[www.fitzgeraldreserve.org](http://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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## Letters to the Editors

We were so interested in your article about the owl pellets. There are several pairs of Great Horned Owls residing in our back yard and we often see their pellets. My husband and I decided to dissect a couple of them. He's a physician and he identified these amazingly tiny bones and teeth and he compared them to those of larger mammals and the human skeletal system. We recently found one pellet that held pieces of crab shell and crab legs. We were surprised that crab would be in an owl's diet!

-Deanna and Michael Osborne



The Nature Journaling art received lots of admiration.

The nature journaling is beautiful!  
What a wonderful contribution to our  
Fitzgerald Marine Reserve Newsletter.

-Kimberly

Wow—these drawings are works  
of art! I'm so impressed— they are  
gorgeous.

-Miranda

I took a quick look at the September  
issue, it looks great! Bravo to all of you!

-Elaine.

We want to hear from you. What do you like about the newsletter? What type of articles would you like to see in *Between the Tides*? What article could you write for us? Please contact the

Editorial Board at: [betweenthetides.editorial-board@gmail.com](mailto:betweenthetides.editorial-board@gmail.com) and we will be in touch.

See you out on the reef! ♦

## King Tides are Coming

There are 4 days of King tides in this date range. Note that these same days also have very low tides. For more information and a list of events and talks in the Bay Area, and to see photos of recent King Tides, visit <https://www.coastal.ca.gov/kingtides/>

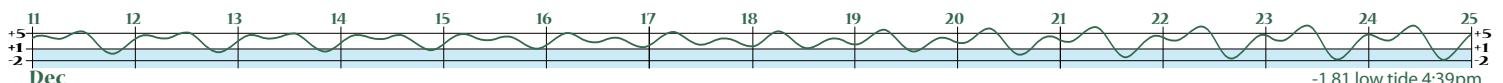
December 23 (9:25am +7.24)  
December 24 (10:12am +7.11)  
January 21 (9:16am +7.21)  
January 22 (10:08am +7.13)

The graph displayed across the page bottoms shows tides for 12/11/22 to 4/30/23 at Princeton Harbor. Where the date appears is midnight. Reefs are accessible for exploring at low tides during hours when FMR is posted as "Open." Low tides at least +1 or below are best for tidepooling. See: [fitzgeraldreserve.org/lowtides/](http://fitzgeraldreserve.org/lowtides/)

The winter afternoon low tides change 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 at Princeton Harbor:

-1.81	12/23	4:39pm	-0.42	2/4	4:33pm
	<i>5th lowest of 2022</i>		-1.29	2/18	3:37pm
	2023			<i>5th lowest of 2023</i>	
-.68	1/05	4:19pm	-1.2	3/4	3:29pm
.1	1/10	7:05pm	-.74	3/18	3:26pm
-1.70	1/21	4:42pm	-.34	4/14	1:06pm
	<i>2nd lowest of 2023</i>				





## Registration for 2023 FFMR Volunteer Naturalist Training Class

The 2023 FFMR Volunteer Naturalist Training Class will consist of 9 Saturday classes, plus 6 additional hours spent at the reserve with a mentor. The classes will be held on the coastside near the Reserve and at the Reserve. The proposed schedule for 2023 is: Jan. 21, 28, February 4, 11, 18, 25, March 4, 11, 18. The times of the classes have yet to be determined. Volunteer naturalists must be physically capable of navigating rocks, the reef and must be 17 years of age.

Volunteer naturalists are required to volunteer a minimum of 6 hours per month. Space is limited. Your Registration Form and Fee must be received prior to the deadline to hold a space. Registration deadline is Jan. 14, 2023. No refunds available after Jan. 14.

Mail the completed Registration Form with a \$80 check made payable to FFMR to:

Susan Evans  
FFMR Training Class  
P.O. Box 493  
Half Moon Bay, CA. 94019

For more information please e-mail Susan Evans at [susanmtnvw@aol.com](mailto:susanmtnvw@aol.com)  
or visit our web site: [www.fitzgeraldreserve.org](http://www.fitzgeraldreserve.org)

Name: \_\_\_\_\_

Address: \_\_\_\_\_ City \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone (cell and/or landline): \_\_\_\_\_

Email: \_\_\_\_\_

How did you hear about the training class? \_\_\_\_\_

Tell us a little about yourself (any prior volunteer experience; any education, travel, or experiences relating to marine science).  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Marine Marveling *continued from page 1*

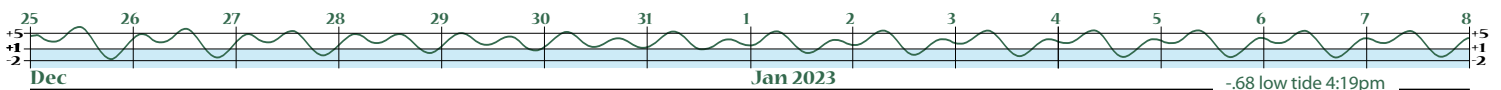
The magic of the Fitzgerald Marine Reserve is something that has miraculously been present since I was very young. However, this is not the case in all marine ecosystems across the world. Between 1970 and 2022, marine populations have faced a 69% decline on average, a rate which is only continuing to worsen.\* Even at FMR, I can't help but notice the decrease in population diversity compared to just a few years ago. Ten years ago it was not uncommon to spot a many-legged sunflower star, which is now added to the IUCN Red List,\*\* classifying it as "critically endangered." Though the reserve is more protected than other marine areas, climate change and human interference will continue to chip away at the health and biodiversity of

marine areas globally, and will impact all of them, including the reserve. It is essential now more than ever to take action, to spread awareness, to do all that can be done to lower our ecological footprint and preserve these beautiful and necessary ecosystems. If we act now, we can provide future four-year-olds in generations to come the opportunity to be inspired and connected with nature, just as I was at four years old, exploring the tides and marveling at the beauty that is the Fitzgerald Marine Reserve. ◆

\* WWF, World Wildlife Fund, <https://www.worldwildlife.org>

\*\* The International Union for Conservation of Nature's Red List of Threatened Species, <https://www.iucnredlist.org>

*The magic of the reserve... can be discovered in the graceful dance of the waves, the wisdom of the trees... It's revealed in the penetrating gaze of a blue heron and the happiness of a harbor seal basking in the sun...*





People tidepooling and taking photos for Snapshot Cal Coast at Pillar Point



Tidepools at Pescadero Point



A beautiful Pacific Rock Crab, Romaleon antennarium, framed by algae at Pillar Point



One of my favorite nudibranchs, Babakina festiva! I saw this slug for the first time this summer at Pistachios Beach, Pigeon Point

## Snapshot Cal Coast

by Rebecca F. Johnson, Ph.D.

Co-Director, Center for Biodiversity and Community Science

California Academy of Sciences

(and former FMR Park Aide 1997-1999)

Over the last decade, the Community Science team at the California Academy of Sciences has been developing a community of naturalists—scientists and non-scientists alike—working together to document biodiversity, connecting people to their local nature and simultaneously collecting data critical to science and management. A number of ongoing Academy community science initiatives focus on California's coastal ecosystems. These include Snapshot Cal Coast—an annual California statewide effort to document our coastal biodiversity—as well as more frequent but more spatially limited community bioblitzes and intertidal monitoring in the San Francisco Bay Area.



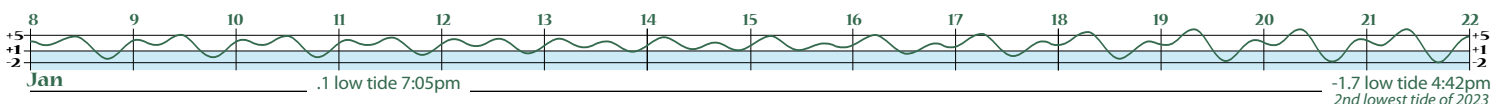
Giant Green Anemone, Anthopluera xanthogrammica, and Bull Kelp, Nereocystis luetkeana, in a tidepool at Pillar Point

Launched by the Cal Academy in 2016, Snapshot Cal Coast is a community campaign that encourages and provides opportunities for people to make and share observations of plants, animals, and seaweeds along the California coast using the iNaturalist app. We work with partners like the San Mateo Marine Protected Area Collaborative, Friends of the Fitzgerald Marine Reserve, and many more to hold a series of coastal bioblitzes over two weeks every summer. We focus on intertidal zones inside and outside California State Marine Protected Areas (MPAs), but we are also interested in data from any coastal-influenced habitat along the California Coast, including sandy beaches, bays, wetlands, coastal bluffs and prairies, and docks. Snapshot Cal Coast is led by the California Academy of Sciences, funded by the California Ocean Protection Council, with support from the California Marine Protected Area Collaborative Network and many, many other partners.



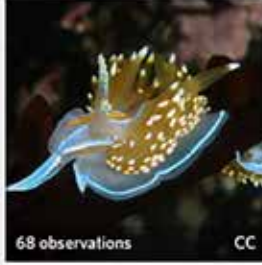













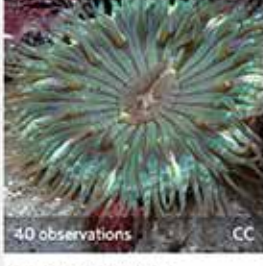








From Del Norte to San Diego and everywhere in between, we work together to build an annual snapshot of biodiversity along the California coast that is useful for scientists at local, regional, and state levels. At the same time, we are building a community of observers and recorders interested in documenting California's coastal biodiversity and helping to answer research questions in support of California's ocean protection. We support partners so they can hold events that work best for them. For some, that means taking a small group of docents or summer campers out to make observations during one low tide, and for others that means organizing a larger public event. Together, we are gathering the data needed to determine species ranges now against which we can measure and monitor changes in the future.

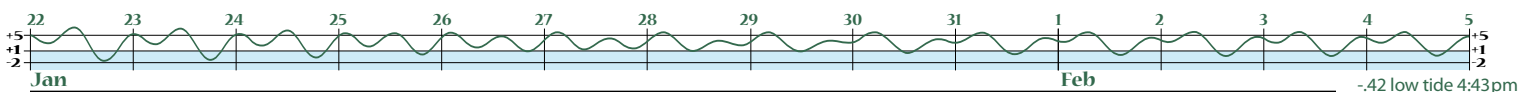
Together we are creating a snapshot in time of where species are located along our coast. In 2022, Snapshot Cal Coast was June 13th-July 4th. Over that two-week period, 4,629 people made 48,072 observations of 3997 species! Incredibly, in San Mateo County, 394 people made 9,064 observations of 1438 species. San Mateo County alone accounted for 9% of all observers and almost 19% of all observations! We have an amazing, active, marine-loving naturalist community!

We are in the process of setting dates for 2023, so stay tuned! ♦



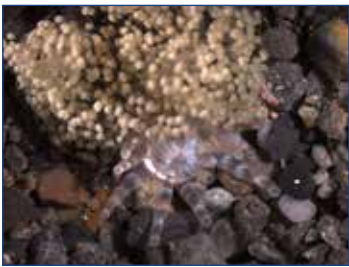
# The top 25 most observed species from San Mateo County for Snapshot Cal Coast 2022

 <p>104 observations CC</p> <p><b>Brown Pelican</b> <i>(Pelicanus occidentalis)</i></p>	 <p>97 observations CC</p> <p><b>Ochre Sea Star</b> <i>(Pisaster ochraceus)</i></p>	 <p>68 observations CC</p> <p><b>Opalescent Nudibranch</b> <i>(Hermissenda opalescens)</i></p>	 <p>67 observations CC</p> <p><b>Stubby Dendronotid</b> <i>(Dendronotus subramosus)</i></p>	 <p>60 observations CC</p> <p><b>Seaside Woolly Sunflower</b> <i>(Eriophyllum staechadifolium)</i></p>
 <p>55 observations CC</p> <p><b>Western Gull</b> <i>(Larus occidentalis)</i></p>	 <p>53 observations CC</p> <p><b>Seaside Buckwheat</b> <i>(Eriogonum latifolium)</i></p>	 <p>50 observations CC</p> <p><b>White-crowned Sparrow</b> <i>(Zonotrichia leucophrys)</i></p>	 <p>48 observations CC</p> <p><b>Striped Shore Crab</b> <i>(Pachygrapsus crassipes)</i></p>	 <p>48 observations CC</p> <p><b>Coastal Bush Lupine</b> <i>(Lupinus arboreus)</i></p>
 <p>46 observations CC</p> <p><b>Common Yarrow</b> <i>(Achillea millefolium)</i></p>	 <p>43 observations CC</p> <p><b>Great Blue Heron</b> <i>(Ardea herodias)</i></p>	 <p>42 observations CC</p> <p><b>Coast Tarweed</b> <i>(Madia sativa)</i></p>	 <p>42 observations CC</p> <p><b>Coyote Brush</b> <i>(Baccharis pilularis)</i></p>	 <p>41 observations CC</p> <p><b>Giant Green Anemone</b> <i>(Anthopleura xanthogrammica)</i></p>
 <p>40 observations CC</p> <p><b>Harbor Seal</b> <i>(Phoca vitulina)</i></p>	 <p>40 observations CC</p> <p><b>Sunburst Anemone</b> <i>(Anthopleura sola)</i></p>	 <p>40 observations CC</p> <p><b>California Mussel</b> <i>(Mytilus californianus)</i></p>	 <p>39 observations CC</p> <p><b>Poison Hemlock</b> <i>(Conium maculatum)</i></p>	 <p>38 observations CC</p> <p><b>Aggregating Anemone</b> <i>(Anthopleura elegantissima)</i></p>
 <p>38 observations CC</p> <p><b>Wild Radish</b> <i>(Raphanus sativus)</i></p>	 <p>36 observations CC</p> <p><b>Hilton's Aeolid</b> <i>(Phidiana hiltoni)</i></p>	 <p>35 observations CC</p> <p><b>California Gull</b> <i>(Larus californicus)</i></p>	 <p>35 observations CC</p> <p><b>Brush Rabbit</b> <i>(Sylvilagus bachman)</i></p>	 <p>35 observations CC</p> <p><b>Ruby Chalice Clarkia</b> <i>(Clarkia rubicunda)</i></p>



# Halcampa Anemones of Fitzgerald Marine Reserve

by Jacqueline Rajerison, photos by Jacqueline Rajerison except where noted



Jacqueline Rajerison with Gregg Langlois, Marsha Cohen, and Christine Tauscher

Meet the anemones that love to play hide and seek! These cnidarians are some of the less common anemones in Fitzgerald Marine Reserve. During an exploration into the tide pools near Seal Cove, I—with the aid of FMR naturalists and docents Marsha Cohen, Chris Tauscher, and Gregg Langlois—spotted two species of the elusive *Halcampa* genus. At the bottom of some gravelly tide pools were the cryptic burrowing anemone (*Halcampa crypta*) and the ten-tentacled burrowing anemone (*Halcampa decemtentaculata*). While the genus *Halcampa* contains many species of burrowing anemone, I want to focus on these two local species and elaborate on the characteristics that make them great at hiding.

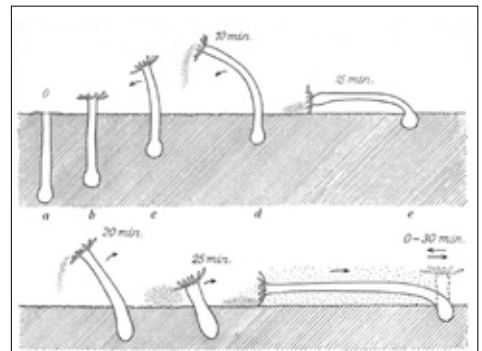
What makes these *Halcampa* anemones so good at hide and seek? They can disappear quickly! As their common names indicate, these cnidarians burrow into the substrate. As previously noted in a *Creature Feature* by Dr. Tom Niesen, *H. decemtentaculata*, and other species of *Halcampa*, use their aboral, or “foot” ends to burrow down into soft substrates. This includes digging into crevices, between various-sized rocks, into sandy bottoms, or even around surfgrass roots and kelp holdfasts. Unlike other anemones, *Halcampa* anemones do not attach their base to a rock or hard surface. Similar to other anemones, *Halcampa* species can retract their tentacles to protect themselves against predators. They take this defense a step further and use their burrowing ability to pull themselves below the substrate and completely out of view

How do they dig? They dig via peristalsis, similar to how food travels down your throat. These coordinated waves of muscle contractions allow for the anemone to shrink, push, expand, and maneuver parts of its body into the soft benthic habitat.

Now for a closer look at the *Halcampa* anemones that call Fitzgerald their home. *H. crypta* and *H. decemtentaculata* share many similarities. Their current ranges include the west coast of North America. In pockets from Alaska

to Baja California, you can find them nestled in rocky shores from the low intertidal zone to depths of 398m. Both can move around, but tend to stay in the same place. These are solitary anemones but several can settle in the same tide pool. I once found 40 anemones within a 5m radius. However, it's more typical to find 4-10 anemones relatively close to each other.

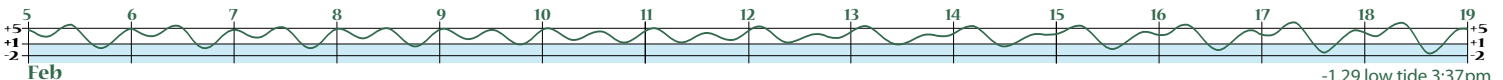
When measured from tentacle tip to tentacle tip, both of these species are 1-2cm in diameter, or about the length of your thumbnail. The length of the striped column can be three or more times longer than this depending on circumstances. One case is when they extend themselves into the water column to expel their gametes when reproducing. This is a phenomenon documented by Kahl-Georg Nyholm in a close relative, *Halcampa duodecimcirrata*.



*Halcampa duodecimcirrata*. Source: Nyholm, 1949 article: "On the development and dispersal of Athenaria Actinia with special reference to *Halcampa duodecimcirrata*. M. Sars."

Speaking of reproduction, *H. crypta* and *H. decemtentaculata* have olive green eggs measuring an average of 500  $\mu\text{m}$  and 330  $\mu\text{m}$  respectively—about the diameter of a pencil lead. The latter's eggs are contained in a gelatinous mucus case.

What are the key differences between *H. crypta* and *H. decemtentaculata*? Typically *H. crypta* has 12 tentacles while *H. decemtentaculata* has 10. According to Siebert and Hand, what sets *H. crypta* apart is its internal anatomy. *H. crypta* has holotrichs (a unique type of nematocyst) in its tentacles. The body cavities of both species are partitioned, but *H. crypta* has 12 partitions whereas *H. decemtentaculata* has 10. There are differences in color patterns that are useful for telling them apart in the wild. True to its name,



the cryptic burrowing anemone *H. crypta* has patterning that blends into the rocks and sediment around it. Sometimes it's nearly transparent with scattered brown, white, and purple markings. Other times it's opaque white with maroon rays on the oral disc. Many other forms are derivatives of these patterns. *H. decemtentaculata* has some common patterns that I will go into more detail below

While the burrowing ability is what these *Halcampa* anemones are named for, an equally fascinating feature is their striking polymorphism. In the context of biology and evolution, polymorphism refers to the observation of individuals within a species that have many distinct phenotypes, or appearances. Polymorphism can have genetic or non-genetic causes. Color and pattern polymorphisms occur in many invertebrates and may arise via natural selection for camouflage or predator avoidance. Great examples of polymorphic FMR species include juvenile *Cancer productus* (the red rock crab with diverse coloration and patterns) and adult *Pisaster ochraceus* (the purple/ochre sea star with its various color morphs). The local *Halcampa* anemones also come in a variety of colorful morphs.

In a 1974 article titled "A description of the sea anemone *halcampa crypta*, new species," authors Siebert and Hand describe *H. crypta* as "extremely polymorphic." This is evident in the variety of patterns I previously described. This sparked my curiosity. To what extent is this observation true for its relative, *H. decemtentaculata*? I set out to find the answer by surveying populations along the coast of Northern California. And here is what I learned so far.

There are 11 main traits that vary from anemone to anemone. The oral disc comes in one of three main base colors; *dark (A)*, *light (B)*, or *completely transparent (C)*. The following traits can be present or absent in the oral disc: *dark center (D)*, *dark ring (E)*, *dot pairs at the base of each tentacle (E & F)*, *speckles (G)*, *mustache (D & H)*, and *symmetrical rays (with 3 variations: short (H), long rays that extend from the oral disc and into the tentacles, or light divisions (C & G))*. *Tentacle pattern* is also a main trait that comes in 3 variations: *light (A)*, *striped/banded (E, G, & H)*, or *transparent (C)*. Other tentacle traits include *speckles (E & G)*, *2 out of the 10 tentacles being a different color (H)*, and *alternating tentacle coloration (B, F & G)*.

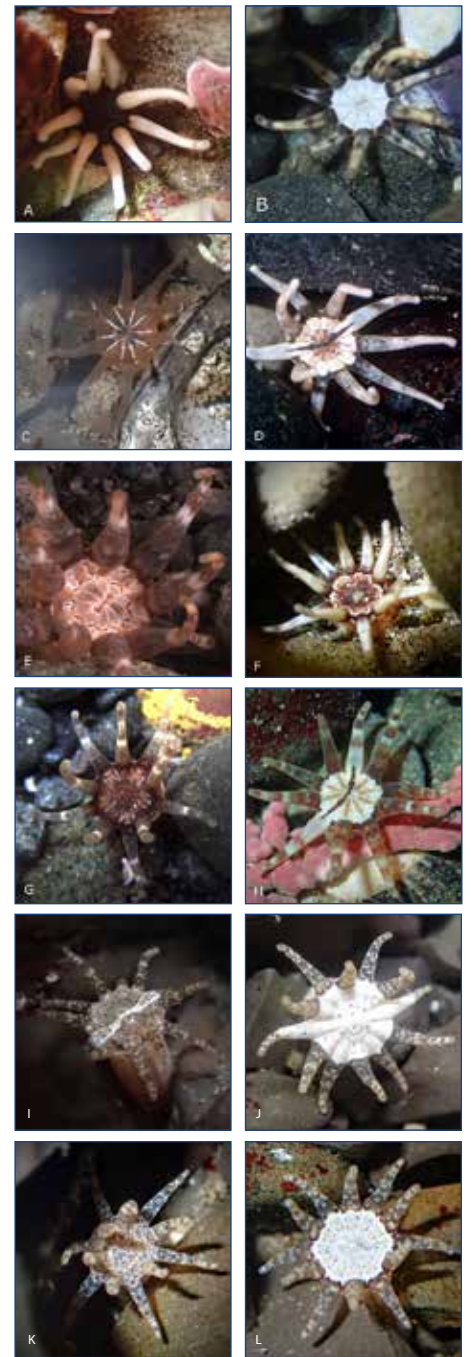
The observation of many color and pattern morphs leads to the question: *what drives this divergence in phenotype?* My current guess is that newly arising variants present at low frequency may be at an advantage relative to older, more frequent varieties. A visual predator (such as a tide pool sculpin) may develop a search image of what their prey looks like. Therefore *Halcampa* anemones that have a less frequent phenotype within the population are more likely to evade predation and reproduce. Through repetition of this process, many morphs can arise and exist at the same time.

You may be wondering how many anemones and color morphs the docents and I found on our most recent hunt for *Halcampa* in Fitzgerald? We found a total of... drum roll please... 4 *H. crypta* and 4 *H. decemtentaculata*! All 4 *H. crypta* had unique oral disc traits (*mustache (I)*, *opaque light base with 2 pale tentacles (J)*, *transparent base with multi-colored markings (K)*, and *a light base with rectangular markings (L)*). The only *H. decemtentaculata* morph we encountered was *the transparent one with light divisions on its oral disc (C)*. The frequency and assortment of morphs can certainly vary over space and time. I wonder what other morphs are a part of the marvelous mosaic of polymorphisms found in Fitzgerald.

If you're curious about the other anemone species that call Fitzgerald home, Dr. Tom Niesen does a splendid job detailing them and diving into cnidarian zoology in the June 2022 edition of *Between the Tides*.

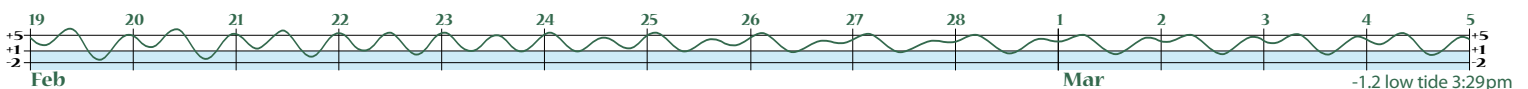
Next time you're in a game of hide and seek with the creatures in the tide pools, I hope you keep an eye out for the tiny and colorful *Halcampa* anemones.

Special thanks to Marsha Cohen, Chris Tauscher, Gregg Langlois, and Tom Ciotti for their invaluable help in the quest to find the *Halcampa* anemones at Fitzgerald! ♦



*Polymorphic features of burrowing anemones*

Photo C: *H. decemtentaculata* in FMR.  
Photo H: Dr. Eric Sanford, UC Davis  
Bodega Marine Lab



# How a Statewide Tidepool Working Group was formed to address Californians' concerns about harmful tidepool practices

by Nicole Palma, MPA Collaborative Network

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*Others were conducting a more hands on investigation by turning over rocks, picking up seastars, poking at anemones, and placing animals in buckets to bring home. Some had tools and were prying mussels, snails, and limpets from the rocks.*

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*...the conclusion: we must come together to better protect this fascinating but sensitive habitat!*

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Hundreds of people milled about the reef. Many were hunched over, closely examining the life within the small pools of ocean water trapped between the rocky formations during low tide. These tidepools offer coastal visitors a glimpse into a colorful world that only exists where the land meets the sea. Others were conducting a more hands on investigation by turning over rocks, picking up seastars, poking at anemones, and placing animals in buckets to bring home. Some had tools and were prying mussels, snails, and limpets from the rocks.

Most did not know that tidepool animals have special regulations that limit the species and number that can be taken, how they can be taken, or that there are mussel quarantines at certain times of the year. They may not have realized a valid sport fishing license is needed to collect from tidepools if you are age sixteen (16) or older. The visitors may not have known that they were in or near a Marine Protected Area (MPA) where collection is prohibited. The sheer number of people on the reef overwhelmed local volunteers, scientists, and rangers. The California Department of Fish and Wildlife noted an increase in the number of visitors to the rocky shore in the summer of 2020 and had to share a reminder of the rules governing tidepool harvest. Stories like this have been repeated across the state with

the same conclusion: we must come together to better protect this fascinating but sensitive habitat!

In 2019 and 2020, a series of fifteen Marine Protected Area (MPA) Community Compliance Forums were held for each coastal county by the MPA Collaborative Network, a boundary organization with a mission to empower coastal communities to advance MPA

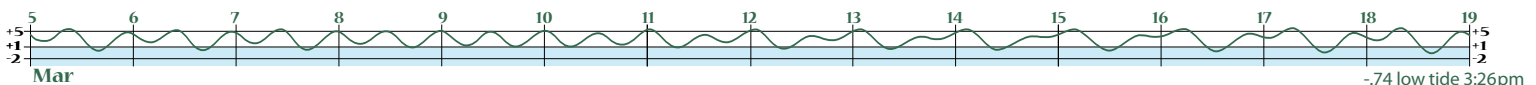
management and encourage ocean stewardship. The forums provided space for local stakeholders, community members, and partners to voice their MPA, ocean, and coastal compliance concerns as well as brainstorm ideas for solutions. Five hundred people participated, resulting in over 2,200 compliance concerns and solutions mentioned over forty hours of engagement. Statewide, the fourth most mentioned compliance concern was "harmful tidepooling" and it was the top concern for the San Mateo area. Specific factors contributing to noncompliance were also identified, including a lack of awareness, an increase in visitation (especially during the height of the COVID-19 pandemic in 2020), confusion about regulations/boundaries/jurisdictions, and a shortage of uniformed personnel/enforcement officers.

To address the community-identified MPA compliance concerns, each of the fourteen county-based collaboratives in the MPA Collaborative Network received Compliance Small Grant funding from Resources Legacy Fund to carry out locally relevant projects. The San Mateo MPA Collaborative's project established the Pillar Point Tidepool Stewards program to address the harmful increase in unsustainable harvesting practices observed at the Pillar Point reef near Half Moon Bay. Many other collaboratives also chose projects to address harmful tidepooling, including the printing and installation of "Good Tidepooler Rules" signs, piloting the use of digital road signs to increase awareness of "No Take" areas, and creating brochures and webpages with information on responsible tidepooling.

After hearing many of the same concerns across the state, the MPA Collaborative Network formed a statewide Tidepool Working Group (TWG) to support the efforts of collaboratives, members and partners to reduce harmful tidepooling. The TWG is open to anyone interested in connecting across county lines and sectors on tidepool topics. The purpose of the TWG mirrors the purpose of the MPA Collaborative Network, which is to bring diverse people together to increase the efficacy of resource management efforts.



*Life in a tidepool at Pillar Point reef. Photo by Amanda Fischedick, Pillar Point Tidepool Stewards program.*







*Harvesters at Pillar Point reef during low tide. Note the many white buckets. Photo by Amanda Fishedick, Pillar Point Tidepool Stewards program*

This first meeting of the TWG focused on learning from each other. Attendees introduced themselves and their programs, including the geographic focus area, compliance issues faced, successes and challenges. Following the first meeting, participants also completed a survey to inform the direction of the working group based on participants' own interests. Priority topics identified for discussion include impacts of trampling and how to address it; tidepool etiquette; Indigenous connections and harvesting; and funding opportunities/collaborations.

The second meeting focused on the impacts of trampling with an informative presentation by Jay Smith, PhD from the Coastal Ecology Lab at Cal Poly Pomona and the Multi-Agency Rocky Intertidal Network (MARINE). Future meetings will focus on identifying funding opportunities, project ideas, and collaborations. They will feature expert presentations, robust discussions, and anything else the TWG participants want to see moving forward. Participants also have access to a shared Google Drive of resources such as docent education resources and tidepool research provided by the members themselves to enhance knowledge sharing and collaboration opportunities.

The TWG currently has forty-four members representing agencies, organizations, California Tribes and individuals from across the state. The group is still in the early phases of development and will continue to evolve as participation increases and interests change. If you are interested in joining the Tidepool Working Group, please sign up for the mailing list here:

[https://docs.google.com/forms/d/e/1FAIpQLSelumAN8A2jMXdDmZMnBPKKL90P3oA9srmqw\\_NAwo8XUZpjew/viewform](https://docs.google.com/forms/d/e/1FAIpQLSelumAN8A2jMXdDmZMnBPKKL90P3oA9srmqw_NAwo8XUZpjew/viewform) To get involved with your local MPA Collaborative and contribute to resource management in your area, please visit the MPA Collaborative Network's website at: [www.mpacollaborative.org](http://www.mpacollaborative.org) ◆



*Tidepool at Pillar Point reef. Photo by Calla Allison, MPA Collaborative Network*

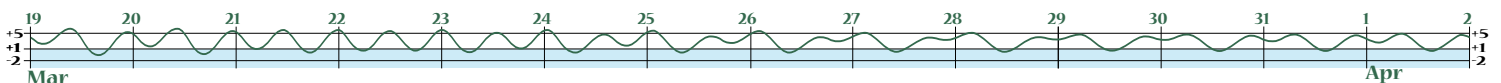


*Colorful creatures photographed for Snapshot Cal Coast in a Monterey area tidepool. Photo by Hannah Sarver, Pacific Grove Museum of Natural History.*

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*The San Mateo MPA Collaborative's project established the Pillar Point Tidepool Stewards program to address the harmful increase in unsustainable harvesting practices observed at the Pillar Point reef near Half Moon Bay.*

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Ron has served as a Fitzgerald Marine Reserve Volunteer Naturalist for over 10 years.

## Message from President Ron Olson: 50 Years of Training Volunteer Naturalists

This year marks the 50th year of training Volunteer Naturalists at Fitzgerald Marine Reserve. It was a long and often difficult journey to save the tidepools from human destruction, but we've made great strides and 50 years later we are now a Marine Protected Area.

### The Need for Protection

In the late 1960s the San Mateo County coastal communities were relatively remote. The population was much lower and traffic was only a problem on sunny weekends. Shoppers from the coast might travel across Devil's Slide to go to Pacifica. Serious shoppers needed to go "over the hill."

The tidepools at Moss Beach were well known by teachers and scientists and other aficionados who would come down to enjoy the beach and reef. Most came to pick abalone (abalone were still easy to get), to fish or pole for eel. However, the public's use of the area became totally unfettered. Marine life harvesting was rampant—people carried out buckets filled with sea stars to dry and use as decorations, collected shellfish for food, and took home living souvenirs to display in aquariums. Vandalism was equally pervasive with the rest rooms being regularly damaged and even fire-bombed on occasion. Motorcyclists used Strawberry Hill and the beach as a motocross course. Unsupervised school field trips visited the tidepools daily. In those days it was not unusual to have a couple dozen school buses parked in the area.

In the mid-1960s, local resident Cecelia Goldthorpe championed efforts to protect the natural beauty surrounding her home by enlisting the help of long-time San Mateo County Supervisor James V. Fitzgerald. In 1969 the San Mateo County Board of Supervisors, led by Fitzgerald, passed a bill officially designating the Moss Beach tidepool area as a State Marine Life Refuge. In November Bob Breen became the first supervising naturalist.

Bob had great natural skills and his quiet unassuming nature made him quite approachable. He also had a great mind for facts and faces. He would approach repeat visitors to find out their interests. This soon became a plan in which people who truly appreciated the park could share their experiences with the public as trained naturalists.

### 1971: The Reserve's Naturalist Training Program, Seashore Docents

Bob initiated a first-of-its-kind public education program to meet the need to preserve and protect the reserve for future generations. Bob saw the opportunity to turn the school field trips into less disruptive, meaningful lessons about ecology and stewardship. But he needed help. So he collaborated with Virginia ("Ginny") Welch, a long-time volunteer with Coyote Point Park, Filoli, and the Girl Scouts, to form a band of volunteer "Seashore Docents" to supervise the field trips. While Bob undertook the task of teaching the new docents about marine biology, the reserve, and how to guide school groups, Ginny handled the organizational and administrative needs of the band. Under their guidance field trips were transformed from search and unintended destroy missions into exciting lessons in marine ecology and ocean stewardship.

### Friends of Fitzgerald Marine Life Refuge

In 1985 the Seashore Docents formally organized and incorporated as the Friends of Fitzgerald Marine Life Refuge. Since 1972 there have been naturalist trainings sessions almost every year, held first at Sanchez Adobe in Pacifica, then at Coyote Point Museum, next at Oceanshore Depot in Half Moon Bay and currently in Moss Beach. In 50 years 100s of naturalists have been trained and participated in protecting the treasure that is the tidepools of Fitzgerald Marine Reserve.

The first Junior Rangers Program began in 1987 and continues to be a popular summer activity and learning experience for hundreds of students.



Page from a scrapbook Mary Breen put together for Bob's 2004 retirement.

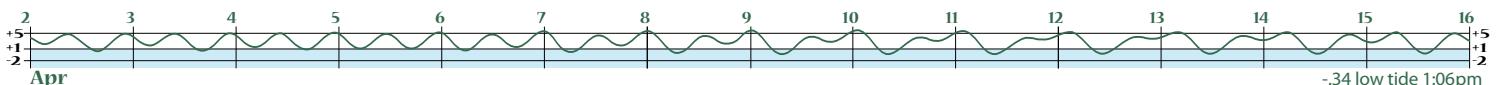


1988 Tidepooling Training



Junior Rangers in 2002

A number of special Night Tidepooling Adventures have been held over the years to popular acclaim.



In 1995 Bob began an advanced placement class in biology and intertidal interpretation at Half Moon Bay High School which continues today as programs in Marine Biology and Marine Ecology.

The *Between the Tides* newsletter began publication in 1988. Communication to the public of activities and information is essential to the preservation of the reserve.

### Protection of the Tidepools Needed to Expand

As his research on FMR problems continued, Bob Breen realized that many of the problems could only be solved on a regional or global level. Fish and shellfish were being taken at an unsustainable level. Unless something was done, there would be a total collapse of the California fishery.

In 1999 California enacted the Marine Life Protection Act (MLPA). That Act contemplated the establishment of a network of Marine Protected Areas (MPAs) along the entire length of the California coast.

In order to be a credible participant in the process of implementing the MLPA Bob felt he needed more academic credentials. Thus, at 64 he went back to school and earned a Masters Degree in Marine Biology. His knowledge and communication skills were called upon to get commercial and sport fishermen at the table with scientists and environmentalists.

The MPAs along the San Mateo Coast became effective on May 1, 2010. The Fitzgerald Marine Reserve now lies within the Montara State Marine Reserve and the Pillar Point State Marine Reserve and the Pillar Point State Marine Conservation Area. The protection extends seaward three nautical miles from the mean high tide line. State Marine Reserves are given the highest level of protection by the MLPA, and no living, geological, or cultural marine resource may be taken from them.

### Moving Forward

While our mission statement hasn't changed in 50 years, our appreciation for what we have grows. Our ability to educate the public hasn't stopped at the shoreline. We are working at ways to improve access to underserved communities. In addition, we are looking at ways to help people appreciate the parkland by making information on plant life, history and geology available to the public. Furthermore, we are reaching out to help other communities develop their own volunteer naturalist training program.

We will still be out at the tidepools to help people find or identify a marine critter, but we might point out how environmental conditions might affect our harbor seals, or point out effects of coastal erosion or evidence of sea rise and the warming of coastal waters. Our commitment to work on ways to address both new and ongoing problems by developing skills to address them is the core of our focus.

### Not bad for a group of volunteer naturalists.



*Tidepooling 1989*



*Tidepooling 2007*



*Naturalists-in-training check out creatures under the pier at the harbor*



*A favorite continuing education event for FMR Naturalists is a boat tour of Elkhorn Slough.*



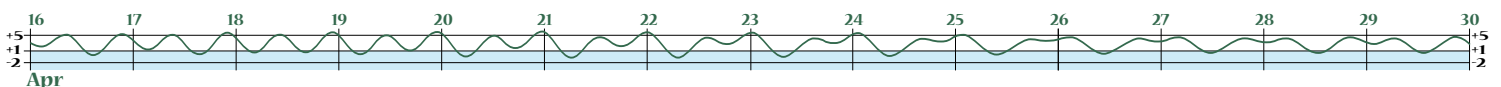
*Training Class 2022*

### Your Contribution Will Support Our Ongoing Efforts

For over 50 years volunteer naturalists have provided an invaluable service at Fitzgerald Marine Reserve. They have worked hard to serve and to educate the public with a focus on protecting the environment.

All of the funding for our organization comes from tax deductible donations. Those funds are used to support our naturalist training program, our informative newsletter and scholarships for high school students centered on marine biology and ecology. We also have an ongoing research project at FMR to monitor for environmental changes. Your contributions will support our efforts. Please donate to the Friends of Fitzgerald Marine Reserve.

Thank you,  
Ron Olson  
President, Friends of Fitzgerald Marine Reserve

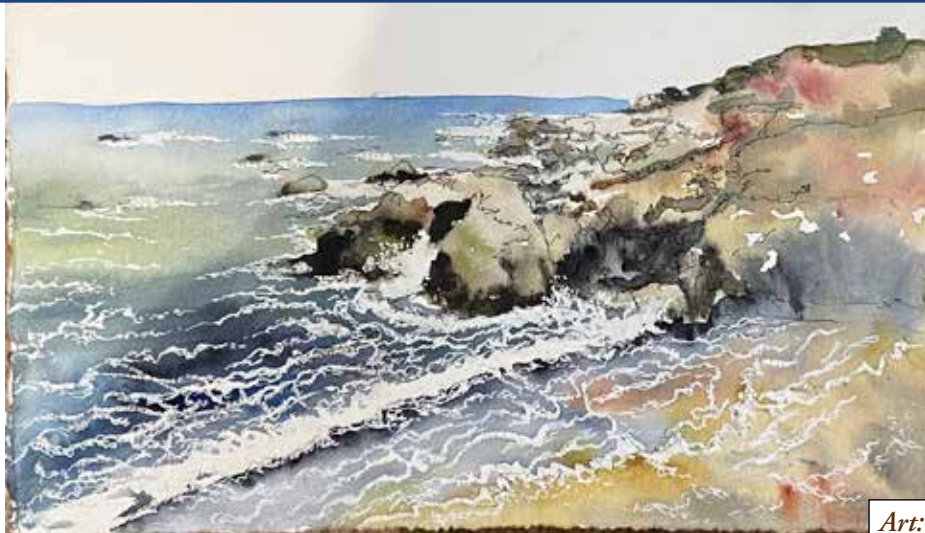


## More on our Volunteer Naturalists



In 2009 the Marin Mammal Rescue Center trained the naturalists in a technique to guide a seal (bowling ball) into a cage.

Volunteer training takes place on the beach, in the tidepools and in the classroom.



Art: Kathy Kellerman

Tidepools and Cliffs at Fitzgerald Marine Reserve

### Friends of Fitzgerald Marine Reserve

Donation Chair, P.O. Box 669, Moss Beach, CA 94038, or through our website: <https://www.fitzgeraldreserve.org/donations>

#### 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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