

# 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 4

## Our Aging Cypress Trees

by Kathy Barton, FFMR Volunteer Naturalist

I love that feeling you get when you look down the blufftop tree tunnel toward the bright ocean and horizon, the trees arching overhead. It is not surprising that many visitors fall in love with the Monterey cypress trees at Fitzgerald Marine Reserve (see photo on page 2). Unfortunately the trees are approaching the end of their lifespan and we may soon see them coming down. The best guess as to their age is about 125 years. Tom Ciotti in a previous issue of BTT has deduced they were planted by the Smith family as a property barrier sometime around 1900. According to the US Forest Service, Monterey cypress trees in San Francisco parks are considered overmature at 70 years of age. Overmature trees are those that have largely ceased growth and are beginning to decay.

But Monterey cypress can live much longer. At Point Lobos State park, the site of one of the native stands of Monterey cypress trees, it is estimated that they can live to ages of 200 to 300 years. They can also live a much shorter lifespan—Monterey cypress trees planted inland in southern California typically have a lifespan of only 30 years.

So what determines how long a tree lives? To keep a tree alive, three types of cells, called meristems, have to be kept alive. The shoot meristems are at the tips of branches and make new leaves. The root meristems are at the tips of roots and add new roots. And perhaps most importantly the cambial meristem is located as a sheet just underneath the bark and makes new transport cells. These transport cells shuttle water and nutrients through the plant. They transport water and minerals from the roots up to the crown of

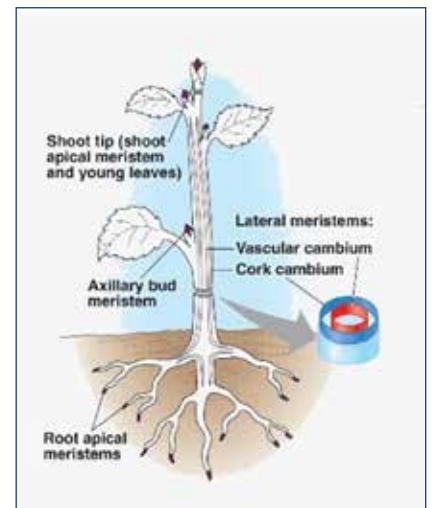
the tree and they transport sugars made by the leaves down into the roots. Death of the transport cells or the cambial meristems that regenerate them kills any branches or roots connected to that region of transport cells. If all of the transporters in a trunk are destroyed by pests or infection, a process called girdling, all of the tree will die.

Cells in the meristems are thought to be effectively immortal—as long as they are supported with adequate water and nutrition they can continue to grow forever. Scientists have found no signs of markers for aging or senescence in them. If true, this means that trees are potentially immortal and their lifespan is limited

by external factors - insects, bacteria and viruses, fire, disease, wind, flood, cold, drought—rather than some kind of internal clock. This is distinct from life span in human beings where recent studies suggest that conquering diseases will not allow us to outlive a built-in lifespan maximum somewhere around 120 years.

I will add the caveat here that failure to find evidence of senescence or aging in the meristem cells of trees is not conclusive proof of immortality. Maybe we don't yet know the right aging markers or molecules to look for. But the more markers of senescence we look for without finding them the stronger this theory becomes.

So how does the environment affect tree lifespan? Obvious examples of tree killers include fire and pests. Historically fire would have been a recurring event in California. Monterey cypress



*Meristematic Tissue*

Source: <https://www.pngkit.com/>

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*At Point Lobos State park, the site of one of the native stands of Monterey cypress trees, it is estimated that they can live to ages of 200 to 300 years.*

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*continued on page 3*

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View toward the ocean down the iconic Monterey cypress tunnel at FMR. The trees are close together and have grown tall. Photo: Kathy Barton

**We want to hear from you.**

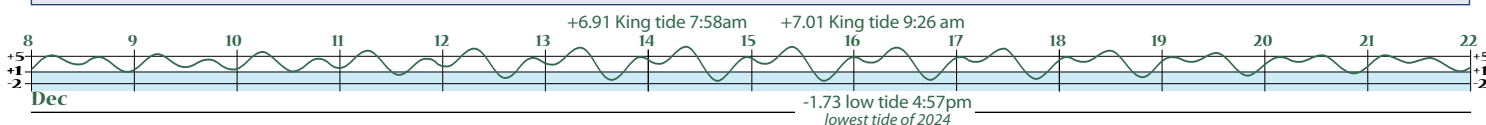
What do you like about the newsletter? What type of articles would you like to see in *Between the Tides*? What article could you write for us? Please contact the Editorial Board at: [betweenthetides.editorialboard@gmail.com](mailto:betweenthetides.editorialboard@gmail.com) and we will be in touch. See you out on the reef!

**The lowest tides this period at Princeton Harbor:**

-1.72	12/15	4:57pm	-1.01	1/29	4:59pm
<i>lowest tide of 2024</i>			-0.87	2/10	3:47pm
-1.09	12/31	5:25pm	-0.72	2/26	3:51pm
2025			-0.37	3/10	3:42pm
-1.36	1/12	4:02pm	-0.96	4/1	7:50am
<b>King high tides Dec. 13 and Dec. 15</b>					
+6.9	1/13	7:58am	-7.01	12/15	9:26am

The graph displayed across the page bottoms shows tides for 12/8/24 to 4/27/25 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: <https://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.*



**Cypress Trees** *continued from page 1*

trees themselves are not fire resistant and generally perish in fire. Their cones however open in response to fire as high temperatures melt the resin that seals them shut. The seeds are protected from the flames as the cone scales surrounding them char rapidly, extinguishing the flames.

Drought damages trees by causing emboli, or air bubbles, to form in the transport cells. These air bubbles disrupt the water column which must be kept intact to function. This disruption is often irreversible.

Monterey cypress, especially when grown away from the ocean, is sensitive to canker, a fungus that attacks them through the bark, killing the living cambial cells underneath the bark and preventing nutrient and water transport to the limbs. Trees growing closer to the sea are less susceptible to canker, likely because the salty air and soil inhibits fungal growth.

Other pests that damage Monterey cypress and contribute to disease and death include beetles, moths, scale insects and bacteria.

The growth history of the tree can affect its ability to survive challenges from drought or pests. Rapid growth, especially early in the plants life, can render it more susceptible to drought and disease. Slower growing trees have anatomical features that make them more resilient: They make smaller water carrying vessels that are less likely to develop emboli during drought periods. Slower growing trees may also put more energy into incorporating resins and anti-insecticidal compounds that make them less attractive to pests. More compact trees are more resistant to wind damage. A shorter distance between the root and crown of the tree may decrease the odds of damage to the water column in the transport system.

It's not surprising then that within a species the oldest trees are not necessarily the largest trees. Determining the age of a tree definitively requires sampling of the tree trunk and this can bear some risk to tree survival. Instead the following characteristics are good non-destructive indicators of old trees: 1/ relatively large branches with a mixture of live and dead wood, 2/ flat or spiked tops, 3/ deeply fissured bark and 4/ the ability to make water sprouts, or epicormic branches, that replace branches lost to damage. These characteristics are found in one of the old-



Example of a very large isolated Monterey cypress tree located along Pescadero Creek Road. This tree is listed in the California Big Trees Registry as one of the largest Monterey cypress trees in the world. I have been unable to find the age of this tree but a specimen tree of similar size growing in New Zealand is estimated at 146 years. Photo: Kathy Barton

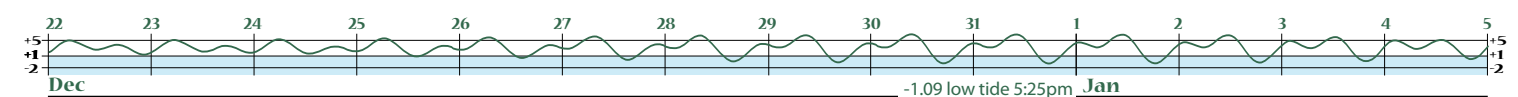
est existing Monterey cypress trees, the Old Veteran Tree at Point Lobos, which is thought to be somewhere between 200 and 250 years old.

Returning to our local Monterey cypress trees in the tree tunnel, the trees on the east side are from the original planting. The trees on the other side are inside the perimeter and are likely younger. It is quite likely that the close spacing of the trees in the tunnel caused them to grow tall and in the long run more susceptible to various insults such as drought and pests. Crowding of the trees in the tunnel causes competition for water, nutrients and light. A steady stream of visitors may unwittingly bring with them new pathogens. It is likely some combination of these factors will contribute to a less than maximal life span for these trees.

A similar tunnel in Point Reyes, planted in the 1930s is aging out. That tunnel has been declared a historic feature and according to the National Park Service website will be maintained. <https://www.nps.gov/articles/000/pore-monterey-cypress-plant-story.htm> As of current day, I do not believe it is known what will replace the Monterey cypress tunnel at Fitzgerald Marine Reserve as it declines in the next decades. ♦

For more in depth information on tree lifespan, see "On Tree Longevity," Piovesan and Biondi, *New Phytologist* (2021) 231: 1318–1337 doi: 10.1111/nph.17148

*It is quite likely that the close spacing of the trees in the tunnel caused them to grow tall and in the long run more susceptible to various insults such as drought and pests.*



Photos shown are approximately proportional



Green sea turtle on the reef in Kenya; Greens can be 3-4 feet long; 300-350 lbs. Source: The Olive Ridley Project



Olive Ridley sea turtle being fed tuna at the ORP Marine Turtle Centre in the Maldives; they run 2-2.5 feet long, and average 100 lbs. Source: The Olive Ridley Project



Leatherback sea turtle: 6+ feet long, up to 2,000 lbs. Source: <https://www.fisheries.noaa.gov>

## What's At The Visitor Center? Part 3: Sea Turtles

by Tom Ciotti, FFMR Volunteer Naturalist

To some indigenous groups the Fitzgerald Marine Reserve is located not in North America, but on Turtle Island. That's because their creation stories teach that our continent was formed on the back of a turtle.<sup>1</sup>

Appropriately tucked into the southwest corner of Turtle Island's Fitzgerald Marine Reserve Visitor Center is a display consisting of a Green sea turtle shell, an Olive Ridley sea turtle shell and a Leatherback sea turtle skull. The Green and Leatherback are commonly found in the ocean off Northern California, while the Olive Ridley rarely ventures this far north.

Sea turtles are reptiles that DNA analysis has shown to be most related to birds, crocodiles and dinosaurs. The earliest known ancestor of today's sea turtles lived about 260 million years ago. It evolved into four taxonomic families, two of which are now totally extinct. Today, of these two families, only six species (including the Green and Olive Ridley) of one and one species (the Leatherback) of the other still exist. As reptiles all of these species require air to breathe and land to lay their eggs. But they spend most of their lives underwater holding their breaths. A resting sea turtle can hold its breath for at least several hours.

The Green and Olive Ridley have hard shells composed of a top portion, called a carapace, and a bottom portion, called a plastron, which are fused together at each side with what's called a bridge. Both portions consist of two separate layers. The inner layer is made of dermal bone plates that lie between and fuse with the turtle's ribs as the turtle grows. The outer layer is made of tightly packed interlocking keratin scales called scutes. The composition and geometry of the scutes allow the shell to be strong yet flexible enough to withstand moderate pressure without cracking. The scute patterns of each species of hard-shelled sea turtles are different and can be used as identifiers. Fig. 1 shows the scute patterns of the six different species of hard-shelled sea turtles. The hard shells protect the sea turtles and prevent water loss.

**The Green sea turtle** is the largest of the hard-shelled sea turtles. Adults are typically 3-4 feet long and weigh 300 to 350 lbs (the Green carapace at the Visitor Center is clearly that of a juvenile). As adults Green sea turtles are herbivores and prefer to eat seagrass. They have finely serrated jaws that help them shear and eat seagrass and they are often called the lawnmowers of the ocean. The chlorophyll in the sea grass they eat colors their fat green and gives this turtle its name.

**The Olive Ridley** is the second smallest of the hard-shelled sea turtles. Adults are usually 2-2.5 feet long and weigh around 100 lbs. They get part of their name from the color of their somewhat heart-shaped carapace. The origin of the other part of their name is apparently unknown. The females of all sea turtles nest in the tropics or subtropics on or near a beach where they were born. Many Olive Ridley females engage in a unique nesting behavior called "arribada" (meaning arrival by sea, in Spanish). Arribada involves synchronized mass nesting with the largest arribadas estimated to attract about a half million female Olive Ridelys. It is believed they are cued to congregate offshore and come onshore en masse to nest by lunar cycles, hormone release, a safety in numbers strategy to

enhance hatchling survival or some combination thereof. Unlike Greens, adult Olive Ridelys are omnivores and eat a variety of marine animals, algae and seagrass.

**The Leatherback**, the official state marine reptile of California, is the largest sea turtle and the only one that does not have a hard shell with scutes. Instead its shell is composed of a thick flexible blubbery skin in which is embedded thousands of small bony plates called osteoderms which give the shell strength. The shell has a series of longitudinal ridges, called keels, that improve the hydrodynamic performance of the shell. The leathery texture and appearance of the shell gives the turtle its name. The Leatherback is the behemoth of sea turtles. Adults can be more than 6 ft long and weigh up to 2,000 lbs! Leatherbacks feed almost exclusively on jellyfish, many of which migrate diurnally between the ocean surface and depths of several thousand feet. In order to pursue jellyfish to such depths Leatherbacks have a variety of deep diving adaptations. The most apparent of those adaptations is their flexible leathery shell which is able to compress under the extreme pressures at such depths. If their shells were hard they would crack.

Sea turtles migrate between nesting and foraging sites or seasonally to warm waters. The Leatherback is at the top of the migration distance leaderboard. The Leatherbacks seen off the west coast of North America are from the Western Pacific population. That population breeds and nests in the Solomon Islands, New Guinea and Indonesia and then migrates an average of about 7,000 miles across the Pacific to feeding grounds off the west coast of North America. They stay in those feeding grounds for a few years and then migrate back across the Pacific to their breeding and nesting sites. The Western Pacific population is small and is believed to be declining. Fig. 2 is a NOAA Fisheries graph of Leatherbacks observed foraging off the U.S. west coast from 1990 to 2017.

Sea turtles are able to sense the earth's magnetic field and they use that sense to navigate their way in the ocean between foraging and breeding and nesting sites. They may also be able to use celestial navigation and sense of smell to help determine their location and direction.

Sea turtles are listed as endangered and protected by multiple international conventions and

by the laws of many nations, including the U.S. And there are sea turtle conservation efforts being made worldwide. Despite all this, sea turtle populations are in danger from pollution, habitat loss, bycatch, ship strikes, illegal harvesting and the effects of global warming. One of the problems posed by global warming relates to how sea turtle sex is determined. Unlike humans whose sex is determined genetically, sea turtle sex is determined by the temperature at which the eggs are incubated. Low incubation temperatures produce males whereas high temperatures produce females. Scientists have dubbed this the "hot chicks, cool dudes" phenomenon. With global warming many nesting sites are producing almost entirely females—a result that long-term does not bode well for species survival.

This article has only scratched the surface of the sea of information about sea turtles. If it has whet your appetite for learning more about these fascinating sea creatures, come visit our little corner of Turtle Island. ♦

<sup>1</sup> The creation story is told beautifully in the 2015 book *Braiding Sweetgrass* by Robin Wall Kimmerer, a botanist and a member of the Citizen Potawatomi Nation. She is a SUNY Distinguished Teaching Professor of Environmental Biology, and the founder and director of the Center for Native Peoples and the Environment.

*Low incubation temperatures produce males whereas high temperatures produce females. With global warming many nesting sites are producing almost entirely females—a result that long-term does not bode well for species survival.*

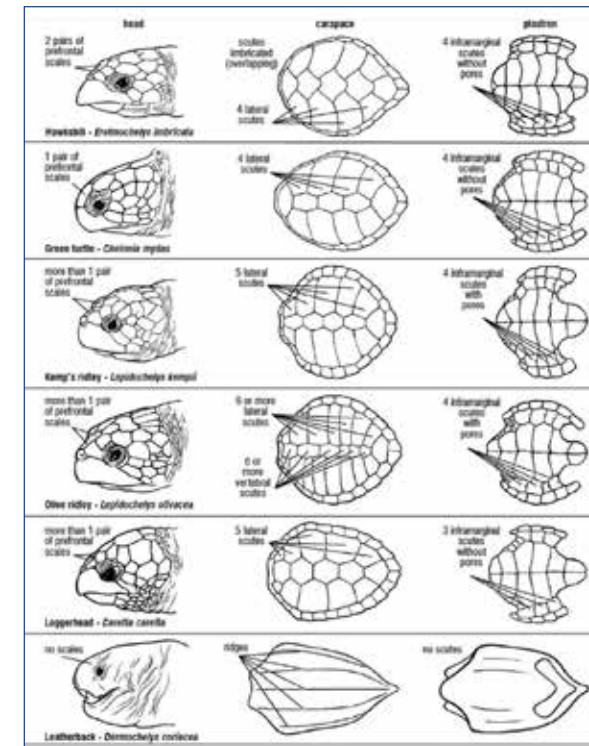


Fig. 1: Scute patterns and shell morphology of the 7 sea turtle species. Reproduced from Wyneken, 2001, illustrations by Dawn Witherington.

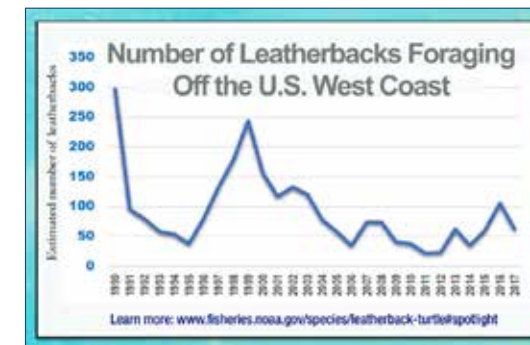
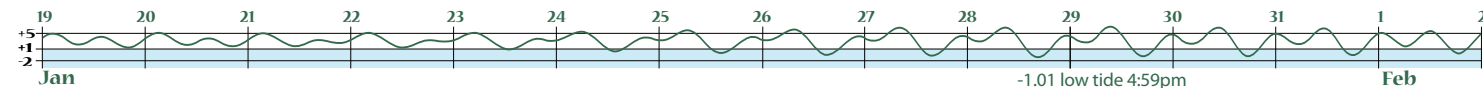
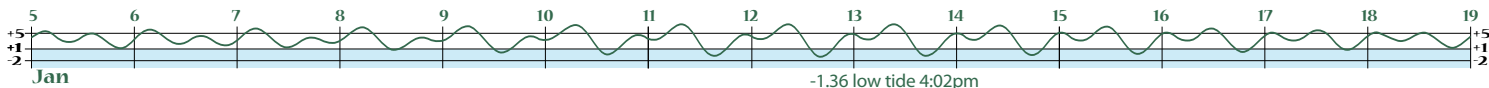


Fig. 2 Source: <https://media.fisheries.noaa.gov>



# Report on San Mateo County MPA Collaborative

## October 17, 2024 Quarterly Meeting

by Tom Ciotti, FFMR Volunteer Naturalist

“By uniting tribes, agencies, enforcement officers, environmental networks, fishermen, and scientists, we are transforming the management of marine protected areas. Through this partnership, we harness not only natural resources but also the unique knowledge and expertise each group brings. Together, we aim to preserving the ocean’s health for future generations.”

Pursuant to the California Marine Life Protection Act a series of 124 **Marine Protected Areas (MPAs)** was established sequentially along the California coast beginning in Southern California. In 2010 the Montara State Marine Reserve and the Pillar Point Marine Conservation Area were established. Those two MPAs cover the entire area of the previously established Fitzgerald Marine Reserve and enhanced the legal protection of the marine environment thereof.

In 2012 the **MPA Collaborative Network** was founded to provide a forum for local coastal entities and members of the public to work together to promote awareness and understanding of MPAs and support their management. The San Mateo County MPA Collaborative was the first Collaborative formed and FFMR and San Mateo County Parks participated in its founding. Numerous governmental agencies, non-profit organizations and citizens interested in protecting the marine environment of the San Mateo County coast are involved in the San Mateo County MPA Collaborative and attend its meetings.

The October 17, 2024 meeting was held in person and via Zoom. About 30 people attended the meeting. After a welcome by Collaborative co-chairs Natalie Downe and Marina Luccioni (both FFMR Volunteer Naturalists), Calla Allison, Executive Director of the MPA Collaborative Network, announced that the Network had partnered with the North Coast Native Protectors to produce a wonderful new children’s coloring book titled *Ancestral Waters: A Coloring and Activity Book on Indigenous Connections to California’s Marine Protected Areas*. It is available on the Network’s website, [mpacollaborative.org](http://mpacollaborative.org). FFMR plans to obtain printed copies of Ancestral Waters to give to children visiting FMR’s Visitor Center.

The main agenda item of the meeting was to initiate a Rapid Vulnerability Assess-

ment (RVA) process of the climate change effects on the Montara State and Pillar Point MPAs. The San Mateo County Collaborative was selected by the MPA Collaborative Network to pilot the RVA process with the expectation that the process will ultimately be conducted statewide on all MPAs. The coastal environment consulting group, Sea & Shores Solutions (S&S), was hired by the Network to lead this effort. The goals of the RVA are to establish an understanding of the vulnerabilities of the MPAs to climate change effects and evaluate the potential to take adaptive action to reduce those vulnerabilities.

S&S gave the meeting participants an overview of the RVA process and conducted a survey of the participants to identify which assets (species and habitats) of the MPAs were believed to be at most risk, which climate change effects (ocean warming, sea level rise, acidification, etc) were believed to pose the most risk to the MPAs’ environments and the timeframe over which the participants believed the assessment should be conducted. Using the results of the survey S&S will prepare a plan and worksheets the Collaborative will use to undertake the assessment and evaluate adaptive strategies. You can sign up to join the Collaborative and this effort on the MPA Collaboratives/Central Coast/San Mateo page of the Network’s website: <https://docs.google.com/forms/d/e/1FAIpQLSfX360L4AKRcpAvFP8x1xYFmtLACEy4Kj9XqTF7U8YQ0NsrhQ/view-form>

Two S&S-led workshops are scheduled to occur before 2024 year end during which Collaborative members will confer with experts and begin implementing the plan.

Stay tuned for further information about this important undertaking by the San Mateo County MPA Collaborative and the MPA Collaborative Network. ♦

### MISSION

“The mission of the MPA Collaborative Network is to empower diverse communities to engage in marine protected area stewardship for a healthy ocean. The vision of the MPA Collaborative Network is to ensure the health and sustainability of our natural and social environments through civic engagement in local marine management and stewardship.”



## Message from President Ron Olson

December seems to be the perfect time of year to reflect upon how well things went in 2024. It helps in identifying programs that were successful and those that require more attention to succeed. It also is a time to think about considering new projects.

Our energies continue to focus on education and coastal protection. We are very proud of our accomplishments this year. Our 2024 naturalist training class stepped up to help us fully staff our scheduled tours. This year a record number of Title 1 schools were able to experience our tidepool tours. FMR also hosted events that provided a meaningful coastal experience for families from underserved communities. Volunteer naturalists provided educational sessions to more classrooms at local schools with the goal of further expansion. Naturalists reached out to communities across the county by staffing informational booths at several events.

Our new bridge across San Vicente Creek made our park whole again, allowing us to provide a summer camp for 50 children from San Mateo County.

The quarterly “Seal Cove Research Project” allows us to collect data to monitor changes in species populations and monitor for invasive species. You can read more about the project in the 2024 September edition of *Between the Tides*, “Fourteen and Counting—Research Surveys Update.”

Some valuable programs have proven to be very popular but need more attention to fully realize their potential. Our Visitor Center has proven to be a great asset. The examination of plankton and algae has been added to the experience there. While in its infancy, the program has the potential to help us to understand the importance of this vital part of our food chain. Our gray whale skeleton display serves as a magnet to attract visitors looking for answers to an uncountable number of questions. FFMR recognizes that our Visitor Center is understaffed. We are looking at ways to have our Visitor Center open on more days throughout the year.

The Seal Sitter program has always been well received by the public. Our spotting scopes

help to get an up-close view of these magnificent creatures. Naturalists are there to answer questions and to educate the public about the role of harbor seals in our ecosystem.

Our Senior Land Tour and our Terrestrial Land Guide provide ways for visitors to experience our park while keeping their feet dry. Both of these programs are relatively new with FFMR looking at ways to reach more people.

The *Between the Tides* newsletter continues to produce something truly spectacular. More help is needed for us to continue to provide such a quality item. We are always looking to expand our members on the Editorial Board. They have proven to be a very supportive group that works well together. Membership of this Board can also be a great way to get that article published!

Now, with 2025 quickly approaching, FFMR will continue to look at ways to be relevant for our coastside community. The replanting of our picnic area is scheduled to start soon and should provide us with an attractive spot in which to enjoy nature.

Our 2025 naturalist training class starts in January with the lofty goal of producing an even more enthusiastic group than last year’s class. Our tour schedule is filling up and is as popular as ever. We will continue our participation in classroom visits, summer camp and local events.



And finally, by the time of our next BTT issue seal pupping will have started, with perhaps the chance to witness a live birth.

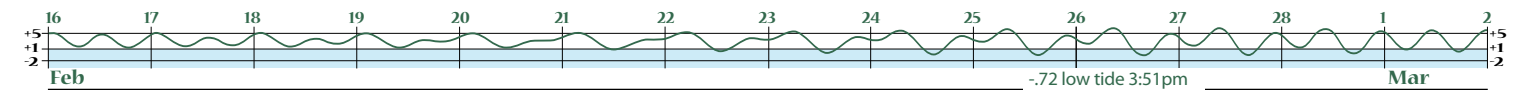
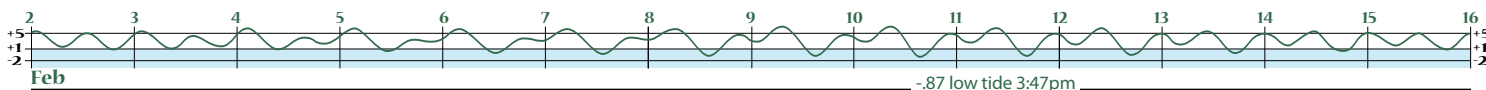
This year we’ve seen more visitors to our park than ever before. There’s always room for one more. We hope to see you soon. ♦



Harbor Seal & Black Oyster Catcher at the Reserve  
Photo: Rob Cala

...by the time of our next BTT issue seal pupping will have started, with perhaps the chance to witness a live birth.

Ron Olson in his role as a Volunteer Naturalist leads groups of students through the Reserve.



## Annual Volunteer Luncheon

by Jeanette Heyer, FFMR Volunteer Naturalist



In October we held the annual Volunteer Appreciation Lunch. Everyone found their tropical shirts and put them on, as it was coincidentally one of the hottest weekends of the year. We used the lovely community room in the Half Moon Bay Library and about 28 Naturalists attended.

President of the Board **Ron Olson** gave a recap of the year and reminded us to be on the look out for **Elaine Reade's** emails: tour season started in October and slowly but surely the calendar is filling up. For naturalists who can't make tour schedule times, Ron filled everyone in on all the other great ways to be active at FMR: Seal Sitting, Weekend Roaming, Visitor Center, Land Tours, and being on the editorial board of the *Between the Tides* newsletter.

### Extra appreciations were extended to:

\*\*The newest naturalists, **Class of 2024**, who jumped right into the action on school tours, community festivals (SummerFest and Pacifica's WhaleFest), and special events (such as the quarterly Reef Survey and the new Plankton Pop-ups at the Visitor Center). **Susan Evans** reminded us all that in the new year there will be a new naturalist class, and provided posters so that we could spread the word. \*\*The 'Visitor's Center Focus Group' of **Marsha Cohen, Karen Kalumuck** and **Gregg Langlois**, who have dedicated a great deal of time to rethinking that valuable space. They have worked to catalog, organize, clean, preserve, and curate the specimens and to develop outreach, so that visitors who come

without checking the tide chart will still learn about our beautiful and special reef. **Carol Ferguson, Ann Mangold** and **Tom Ciotti** have also been instrumental in opening up the Visitor's Center on a regular basis.

\*\*Our webmaster naturalist **Galen Goyer**, who is constantly tweaking and improving our digital presence. The website is a treasure trove of gorgeous photos, archived *BTT* issues, and be sure to check into the Educational Resources Page, under the Educator's Tab; it is an amazing collection of selected internet offerings.

### Awards were given out:

**The Ginny Award**, which recognizes a volunteer who has distinguished themselves by being active for many years and in various ways to further the FFMR mission, was presented to **Linda Ciotti**, for the immeasurable amount of work she has done for FFMR.

**The Sea Star Award**, which recognizes a new volunteer who has distinguished themselves in their first year, was awarded to **Cynthia Giovannetti**. Cynthia racked up extra mentoring hours and started leading tours as soon as she was allowed to, and participated in many of the other activities where FFMR was involved.



The event was capped off by the presentation of the 2024 Critter Pin. Very fittingly, it is a **Gray Whale**, and will remind us all that this is the year that our very own FMR whale was given an appropriate display stage.



Thank you to Julie Walters, Kristen Tinetti and Martie Sautter for photographing the event. ♦ [More photos](#) ➡

## FFMR'S Critter Pins

Linda Ciotti, FFMR Volunteer Naturalist

For the fourteenth year, critter pins were given to FFMR Volunteer Naturalists who attended this year's annual Volunteer Appreciation Luncheon. I have been asked to write something about those pins.

In 2008, Sarah Lenz, one of the rangers assigned to Fitzgerald Marine Reserve, surprised our volunteers at the Volunteer Appreciation Event with our first "critter pin": a harbor seal. We were so excited to receive that pin. Thanks to Sarah, she started a tradition that has been continued each year since, except for the two Covid-years! I took over the job of obtaining critter pins after Sarah took another job and left FMR. The selection of the pin has always been a well-kept secret so no one knows what they will get until they are presented at the Volunteer Appreciation luncheon.

Thankfully, the person Sarah had discovered for making the pins was happy to continue working with me beginning in 2011. The first pin I chose was a red rock crab. I provided a photo to the artist and he created a model for my approval

and we were off! Each year I have continued to select a new critter and the process repeats itself. Although the last two years Tom Ciotti made the suggestions.

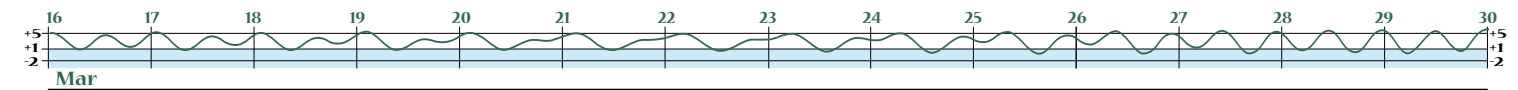
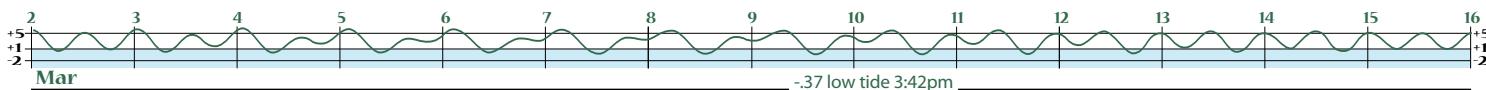
What is unique about our pins is the artist. Les Douglas creates a wax model that he carves and then uses to make a mold for each pewter pin. Les's company, Creative Pewter Designs is located in Washington State and at the time that Sarah found him at an Outdoor Sportsman Expo he mostly made only fish pins. He has always been happy to create an animal pertinent to our organization, even if it is one that most people haven't heard of before, like a chiton!

Here are the critters that have been given out, in chronological order: harbor seal, rockfish, ochre sea star, rock crab, octopus, hermit crab, abalone, chiton, giant green anemone, barnacle, limpet, bat star, pelican, and this year, gray whale. I suspect there are only a handful of volunteers with all of the pins – please let us know if you're one of them (and provide photographic proof)! ♦



*The selection of the pin has always been a well-kept secret so no one knows what they will get until they are presented at the Volunteer Appreciation luncheon.*

### Annual Volunteer Luncheon, continued



# Christmas Anemone, *Utricina crassicornis*

by Martie Sautter, *Between the Tides* Editorial Board member

## Utricina crassicornis

*Utricina crassicornis*, commonly known as the mottled anemone, the painted anemone or the Christmas anemone, is a large and common intertidal and subtidal species of sea anemone. Its habitat includes a large portion of the coastal areas of the northern hemisphere, mainly polar regions, and it lives a solitary life for up to 80 years. Mottled anemones are similar to Dahlia anemones (*U. felina*) and both are commonly referred to as northern red anemones. Wikipedia



Photo: Kevin C. Charpentier  
Source: <https://www.pexels.com/>  
Location: Mer Rouge, Égypte



Photo: Alex Shure  
Source: iNaturalist  
Location: Beverly, Mass.

## Skookumchuck Narrows

In the mystical waters north of Vancouver, Canada, lies a narrow channel called Skookumchuck Narrows, or simply "The Skook." It is a hidden jewel in the Salish Sea that boasts a unique spectacle: a tumultuous dance of tides and currents that attracts adventurers and spectators from around the world.

The allure of diving the Skook lies in the vibrant marine ecosystem fuelled by the relentless currents. Ocean currents act as nature's turbochargers, transporting nutrients that transform places like Skookumchuck Narrows into underwater havens with colourful life thriving amidst the rocky terrain. Nirupam Nigam, editor-in-chief of "Underwater Photography Guide," experienced this thrilling flow to capture images of the prolific life beneath the surface of the Skook, see his photos at right.



Photos: Nirupam Nigam  
Source: Divernet.com  
Location: the "Skook"

For the full Divernet article on the Skook see, <https://divernet.com/world-dives/north-central-america/the-skook-diving-the-worlds-fastest-tidal-rapids/>



Skook:  
3 photos



text sources:

Le Isole di Tahiti, I Tesori Sottomarini  
Divernet.com



## Registration for 2025 FFMR Volunteer Naturalist Training Class

The 2025 FFMR Volunteer Naturalist Training Class will consist of 10 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 2025 is: Jan. 11, 18, 25; Feb. 1, 8, 15, 22; March 1, 8, 15. The times of the classes have yet to be determined. Volunteer naturalists must be physically capable of navigating rocks, the reef and must be 18 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 January 5, 2025. No refunds available after January 5.

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

Susan Evans  
FFMR Training Class  
P.O. Box 222  
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: \_\_\_\_\_

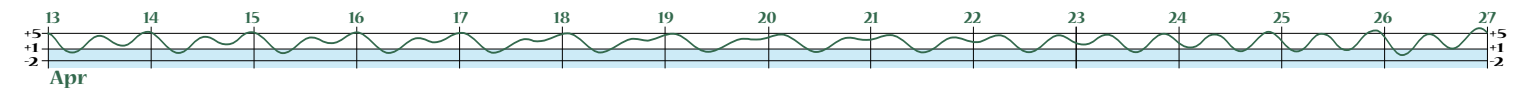
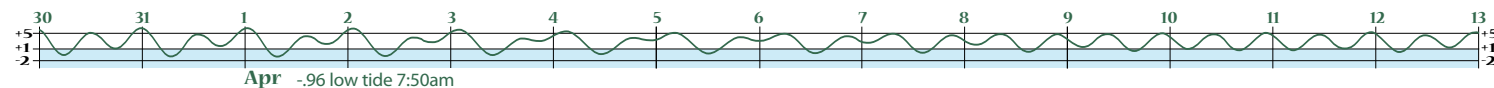
How did you hear about the training class? \_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Land Acknowledgment Statement

The Friends of Fitzgerald Marine Reserve acknowledges that the Reserve is located on the unceded ancestral homeland of the Ramaytush Ohlone Peoples. As guests, we recognize that we benefit from the beauty and diversity of this land and seashore. We wish to pay our respects by acknowledging the ancestors and relatives of the Ramaytush community and by affirming their sovereign rights as First Peoples to govern their communities and preserve their cultures. Finally, we seek to honor the Ramaytush community's sacred relationship with ocean and marine ecosystems by educating the Reserve's visitors and protecting the Reserve for future generations.



**NOAA FISHERIES**

## The Longest Journey: How Western Pacific Leatherback Turtles Reach the U.S. West Coast

**7,000-mile migration across the Pacific**

The United States protected leatherbacks by closing a large area off the West Coast to gillnet fishing when turtles are present.

Leatherbacks spend up to a year swimming across the Pacific Ocean, a circuit they may repeat several times in their lifetimes.

The turtles nest on sandy beaches in Indonesia, but still suffer from poaching, hunting, and habitat loss.

During these migrations, many leatherbacks are caught and killed by fishing vessels from many nations.

Leatherbacks forage off the West Coast for three to five seasons, swimming near the coast in summer and fall and migrating to warmer waters in winter. They feed largely on jellyfish.

The journey begins & ends on the nesting beaches of Indonesia.

Winter-nesting turtle migration to southern hemisphere foraging grounds

U.S. Exclusive Economic Zone  
Pacific Leatherback Turtle Conservation Area federally established in 2001

### Number of Leatherbacks Foraging Off the U.S. West Coast

Year	Estimated number of leatherbacks
1990	300
1991	100
1992	75
1993	60
1994	50
1995	45
1996	55
1997	65
1998	100
1999	240
2000	150
2001	130
2002	120
2003	100
2004	80
2005	60
2006	45
2007	70
2008	75
2009	60
2010	50
2011	40
2012	55
2013	60
2014	45
2015	55
2016	100
2017	60

Learn more: [www.fisheries.nos.gov/species/leatherback-turtle/hotlight](http://www.fisheries.nos.gov/species/leatherback-turtle/hotlight)

*Group viewing seals at the Reserve. With so many visitors, it is important that people stay at a distance from the seals, especially during pupping season. A mom might be frightened away from her pup and not return, leading to the possible death of the pup.*



## 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).

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Email \_\_\_\_\_