

BETWEEN the TIDES



Friends of Fitzgerald Marine Reserve

June 2010

Stronger Protection in Effect at FMR

by Karen Garrison

Editor's Note: Karen Garrison is Co-Director of the Oceans Program at the Natural Resources Defense Council. She worked closely with former FMR supervising ranger Bob Breen during the designation process. — JK

Last summer marked a major milestone for ocean conservation in California: the state Fish & Game Commission approved a plan to protect underwater habitats between Half Moon Bay and Mendocino County, creating 18 marine protected areas (MPAs) and granting full protection to 80 square miles of our region's most

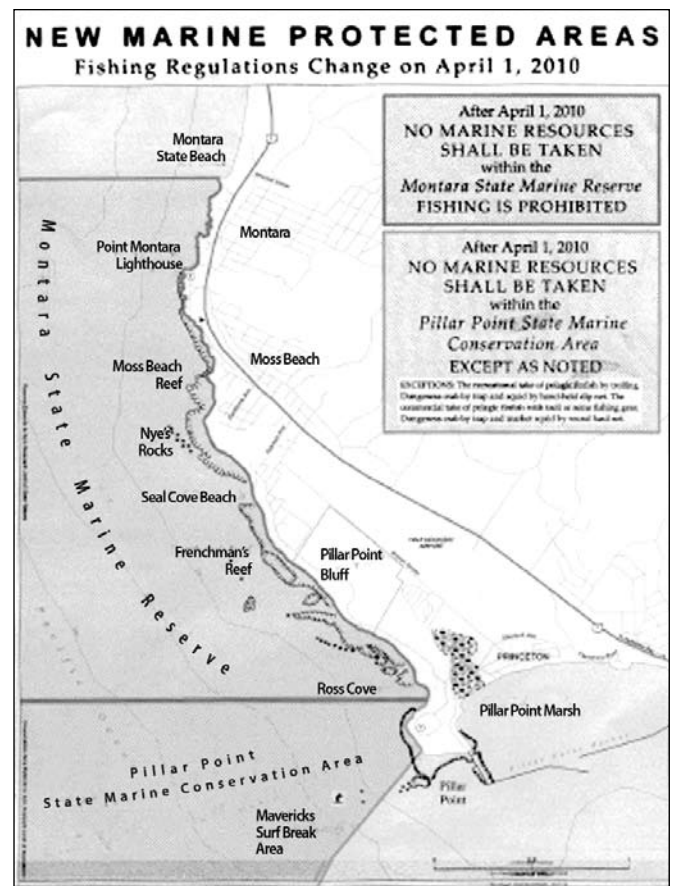
productive coastal waters. When this network went live in the water on May 1, 2010, Friends of Fitzgerald had special cause for celebration. As part of the new network, Fitzgerald Marine Reserve was extended out about three miles into the ocean, to the edge of California's state waters. The expanded protections will provide a continuous refuge for the varied, interconnected marine communities that live at a range of depths. In recognition of its tremendous natural

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and recreational value, this area has been given the highest level of protection—no take of marine life allowed at all. And, the plan renames it the “Montara Marine Reserve” for the places it protects.

Editor's Note: At this time here are no plans to change the name of the James V. Fitzgerald Marine Reserve, originally designated and named in 1969; it has simply become part of the larger “Montara State Marine Reserve.” — JK

Studies from all over the world have shown that well designed protected areas work: fish and other sea life are more abundant, larger, more productive, and more diverse inside marine reserves than outside. And increasingly, studies are documenting that



Fitzgerald Marine Reserve has stronger protection and increased size under the new MPA designation. Map by Tim Reed, SIMoN/Gulf of the Farallones National Marine Sanctuary.

continued on page 4

Friends of Fitzgerald Marine Reserve

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Our Mission:

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

The graph displayed across
the page bottoms shows tides
for 5/24/10 to 12/20/10.
Where the date appears
is midnight. The reefs are
accessible for exploring only
during low tides. See: www.fitzgeraldreserve.org/resources.html
and click on "high and
low tides," for a more detailed
tide chart. Note: the lowest
tides this period are:

-1.39	5/28	5:41 am
-1.62	6/13	6:03 am
-1.47	7/12	5:44 am
-1.01	8/9	4:38 am
-0.87	10/9	6:33 pm
-1.33	11/6	5:30 pm
-1.00	11/23	5:38 pm
-1.40	12/5	4:19 pm

News from the Board of Directors

We are pleased to announce the election of Joseph Centoni and Bill Kennedy to the board of directors of Friends of Fitzgerald Marine Reserve.



Joseph Centoni

Joseph has been associated with FFMR for most of his life. He began visiting FMR as a toddler, was a Junior Ranger, took Bob Breen's marine biology class at Half Moon Bay High School, and now teaches the marine biology class at HMBHS. We are thrilled to have Joseph aboard and look forward to having his help in expanding our educational outreach to secondary students. Read a more complete profile of Joseph in the April 2009 issue of *Between the Tides* (BTT).

Bill works at Haynes Beffel & Wolfeld LLP in Half Moon Bay, a law firm specializing in intellectual property rights. Bill has degrees in biology and law, and extensive experience in many aspects of biotechnology and biomedical technology. His first visit to FMR was as a student. We'll profile Bill in an upcoming issue of BTT.

Unfortunately, John Albers-Mead has resigned from the board. John has relocated to Southern California to pursue a great career opportunity. He reports that there are some great tidepooling opportunities and lots of nudibranchs in his new stomping grounds. We miss him already and wish him all the best.



Amy and John Albers-Mead

John's wife, Amy Albers-Mead, has been our volunteer scheduler since September of 2007. Since she and their children will be moving to join John, she stepped down as docent scheduler in April. The position has been taken over by Jessica Donald, a familiar face around FMR. Jessica has worked as a park aide for several years. She just completed her B.S. in Marine Biology at San Francisco State University and will begin working on a Master's degree over the summer. You can read more about Jessica in the March 2010 issue of BTT.

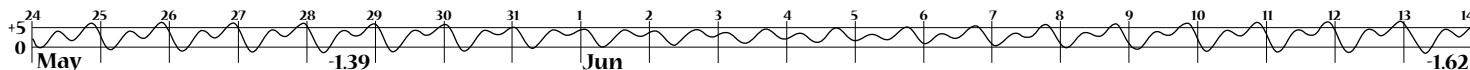


*Jessica Donald is our new
Volunteer Scheduler as well
as a Park Aide.*

Our annual financial report is now available to interested members. To obtain a copy, send a self-addressed, stamped envelope to FFMR Treasurer Hope Suchsland at the address listed in our masthead, or contact her by email at hope_suchsland@comcast.net.

And finally, you might notice something missing from our masthead this month...we've dissolved our Advisory Board, which has been inactive for a number of years. ♦

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Nuts About Nudibranchs

by Julie Walters

On January 30th, 2010, FFMR volunteers had the opportunity to meet with Dr. Terry Gosliner of the California Academy of Sciences (CAS) to learn more about one of our favorite intertidal creatures, the nudibranch. (Often referred to as "nudis," easy to remember if you think of them as being nude—without a shell.)

Terry has discovered 800-900 species of nudibranchs—of about 6000 nudibranch species known worldwide. Terry became interested in nudibranchs when he was in high school and went on a field trip to the tidepools and saw nudis for the first time.

He attended UC Berkeley, then the University of Hawaii, and went on to receive his PhD from the University of New Hampshire, where he studied the evolution of nudibranchs.

Currently, he does research through the CAS on the tropical habitat of the western Pacific, specifically the Philippines. He is going to the Philippines this spring to explore new places for

Terry notes that nudibranchs are usually doing one of two things: eating or mating.

nudis. Terry is currently working on a California Sea grant to monitor changes from Monterey to Bolinas.

In 1970, a diversity study on nudibranchs found 68 species of nudibranchs at Duxbury Reef in Marin County, and 66 species in San Mateo county, mostly at FMR and Frenchman's Reef. There are probably 4-5 more species found here now.

Terry was with Bob Breen at Fitzgerald when he made an exciting find of a 3-4" long *Babakina festiva*, a nudi he has only seen once. They found this beautiful nudibranch right at the bottom of the trail from the parking lot.

Terry notes that nudibranchs are usually doing one of two things: eating or mating. (*Phidiana* and *Hermisenda* combine these behaviors—they are the only two that feed on each other after mating.) Interspecies breeding has been ob-

served but scientists do not know if it has been successful.

The best time of year to see the greatest number of nudibranch species is early summer.

During an El Nino year like we are having now, Terry says to expect to find new species that typically would be found in more southern locations. Nudibranchs migrate in the larval stage, during which they have a shell! Currents from the south now carry the larvae further north. An example is the seahare *Aplysia californica*.

One example of the effects of global warming is *Phidiana hiltoni* (Pugnacious), which was previously not seen north of the Golden Gate Bridge. Now it is the most common nudibranch on Duxbury Reef in Marin County. It feeds on other nudis so the presence of the Pugnacious could have a negative impact on other nudibranch species.

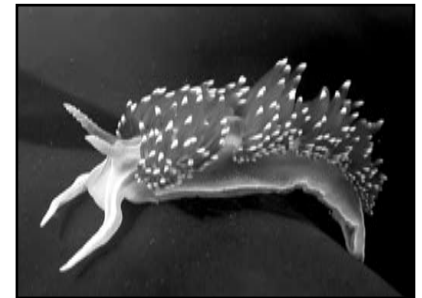
When you can't make it out to the reef and you need to get your nudibranch fix, go to the California Academy of Sciences in Golden Gate Park. Look for the nudibranch display case opposite the harbor seal cutout on the lower level. Typically you can view sea lemons, ringed dorids, and the occasional *Hermisenda*. ♦



yellow-edged cadlina



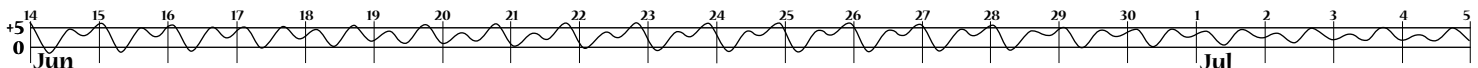
yellow-gilled sea goddess



Hermisenda



Dr. Terry Gosliner of the California Academy of Sciences lectures volunteer naturalists at Fitzgerald Marine Reserve.



What made this agreement possible?

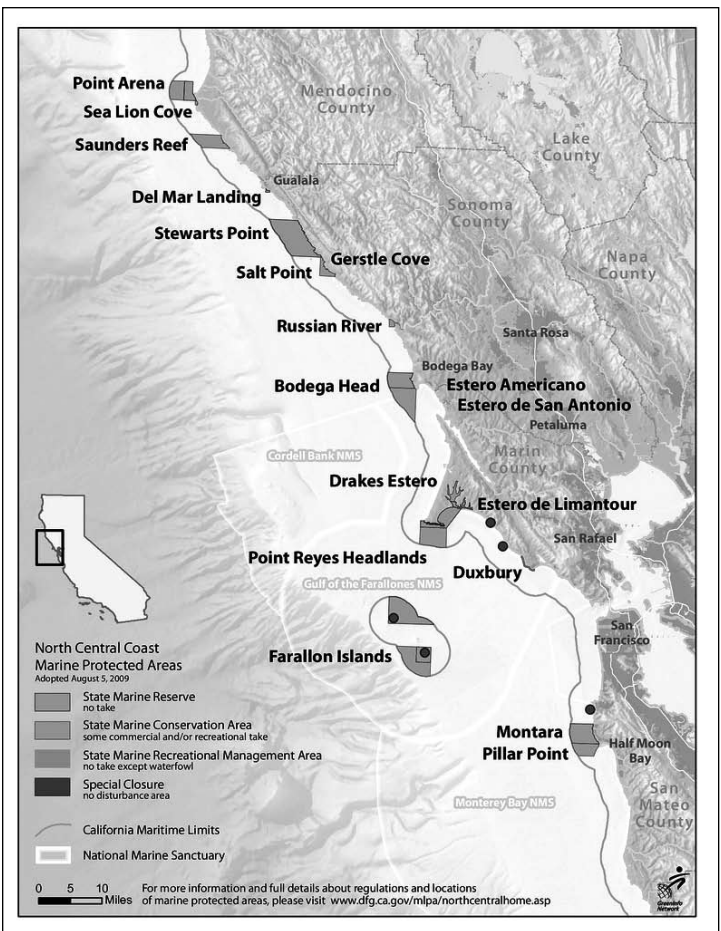
The winning formula has many ingredients, not the least of which is good documentation of the amazing biodiversity of life on the reef and the prolonged declines in landings of abalone, finfish and eels.

reserves can increase fishery yields outside their boundaries. The Marine Life Protection Act requires the state to create a network of protected areas along its whole coast.

This Montara Marine Reserve success story didn't come easily. The Friends have been laying the groundwork for decades as they watched local marine life become scarcer. They have gradually instilled a stewardship ethic in visitors to the reef, but lacked the authority to prohibit all fishing. Habitat as productive and diverse as the Moss Beach reef is an ideal candidate for protection because it packs many varied habitat niches into a small space and because of its high educational value. But such rich areas are often popular fishing sites, too, so securing a "fully protected" designation becomes a challenge. The Friends tried to get fishing banned by legislation six times in the 1980's only to have their efforts defeated by opponents. This time, the Friends managed to achieve near consensus on expanding and strengthening protection of the reserve, with help from the Marine Life Protection Act.

What made this agreement possible? The winning formula has many ingredients, not the least of which is good documentation of the amazing biodiversity of life on the reef and the prolonged declines in landings of abalone, finfish and eels. When Bob Breen started his career as a ranger over three decades ago, he had to watch his footing to avoid stepping on wriggling monkey face prick-back eels—a choice meal for great blue herons and other shore birds and a vital part of the reef's

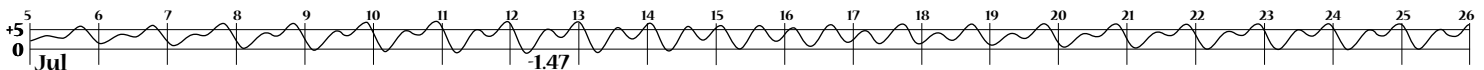
This Montara Marine Reserve success story didn't come easily. The Friends have been laying the groundwork for decades as they watched local marine life become scarcer.



The regional network of MPAs that went into effect May 1, 2010. Map courtesy of GreenInfo Network.

food web. Today visitors rarely spot those heavily fished eels. Decades of data on landings from Moss Beach show a clear pattern of decline.

Another key factor helped win these new protections: the power of strong community support. The recent history of this reef shows how caring people can change social values, and, in the process, allow nature to rebound. Bob Breen served on the Regional Stakeholder Group (RSG) charged with advising the north central coast Marine Life Protection Act process. This diverse group of scientists, wildlife watchers, fishermen, conservationists, divers, and surfers worked together over two years to devise alternative marine protected area designs that were then merged into one plan



to keep local sea life and habitats healthy. Bob helped educate the RSG and decision makers about Fitzgerald and the science of protected areas. Steve Durkin, Mary DeLong and numerous



Some of Bob's fellow stakeholders on an outing to the Farrallon Islands during the MPA process.

FFMR volunteers spoke at Marine Life Protection Act meetings, talked to reporters, and spread the word with visitors. With the strong public support Moss Beach has generated as a community asset, a source of wonder, a teaching tool, and an engine for the local economy, proposals for greater protection here won the backing of local elected officials and the news media, and eventually the Fish and Game Commission. The new protections owe a tremendous amount to the people who make up the Friends of Fitzgerald Marine Reserve community.

The new marine protected area network will benefit many areas besides Moss Beach, and

the network design will make sure that the benefits from those areas are greater than the sum of their parts. New protections for ecological hot spots like the remarkable Farallon Islands—home to the largest seabird colonies in the continental U.S. south of Alaska—will be a boon for the marine food web; for petrels, tufted puffins, cormorants, rhinoceros auklets, and the penguin-like murre; and for those who enjoy watching them. The plan also includes other regional hot spots: the rocky reefs off Bodega Bay, Point Reyes Headlands and Stewarts Point, and the honeycomb reef off Point Arena.

We all owe a big debt of gratitude to the hardworking people who saw this effort from idea to reality. Through the Marine Life Protection Act, California will soon have the nation's first science-based statewide network of marine protected areas. The new north central coast marine protected areas will connect with the network of "underwater parks" already in place on the central coast, and the process for extending similar protections for the north and south coasts is well underway.

This effort will help ensure that California's coastal waters—which mean so much for our quality of life, and the health of the ocean wildlife we love—will remain healthy and vibrant for future generations to enjoy.

For more information on the ongoing MLPA process, visit <http://www.caloceans.org> or <http://www.dfg.ca.gov/mlpa/>. ♦

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Friends of Fitzgerald Marine Reserve

Membership Secretary, P.O. Box 669, Moss Beach, CA 94038

Contribution Levels:

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

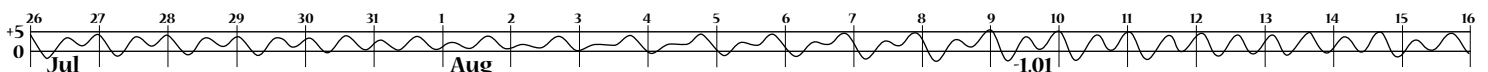
- I want to double the value of my gift through my employer's matching gift program (please enclose the matching gift forms).

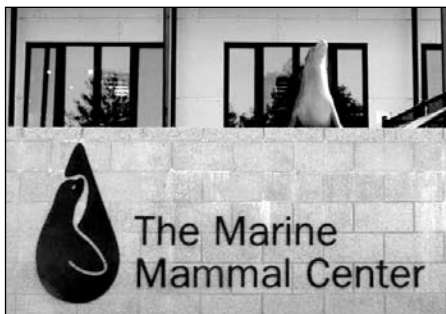
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Seal-ebrity Rehab

Text and photos by Richard Lau

Summer is the perfect time to visit The Marine Mammal Center (MMC), since March through November sees a steady stream of incoming patients. Plus, the Marin Headlands is a beautiful area for a refreshing hike or relaxing drive.



them sure had healthy-sounding lungs!

The strange sounds struck the other human visitors at the center, too. A few folks recorded the sounds to use as ringtones for their cell phones. Re-

recording seal sounds is not a new activity, as a docent pointed out that these very same sounds had been recorded for several movies, including *How to Train Your Dragon*, *Lord of the Rings*, and *Jurassic Park*.

And while we understood how human sounds could be stressful and distracting to the recovering patients, we couldn't help but quietly chuckle at the irony of having the "No Noise" sign pointed in the direction of the spectator gallery.

Another activity we had not witnessed before was "Fish School." Mother elephant seals will suckle their young only for a short period and then head out to sea, leaving the pups to fend for themselves. Pups then teach themselves to hunt in the ocean. The ones that don't learn quickly end up malnourished and in need of rescue.

While recovering at the MMC, the pups are fed a variety of "fish mash" made from herring and water. [See sidebar for the tasty recipe!] However, before they are released, caretakers try to teach the pups to chase and consume whole fish. They tie a hand-sized fish to a piece of string and drag it through the water in hopes the seal will chase it.

A few folks recorded the sounds to use as ringtones for their cell phones.

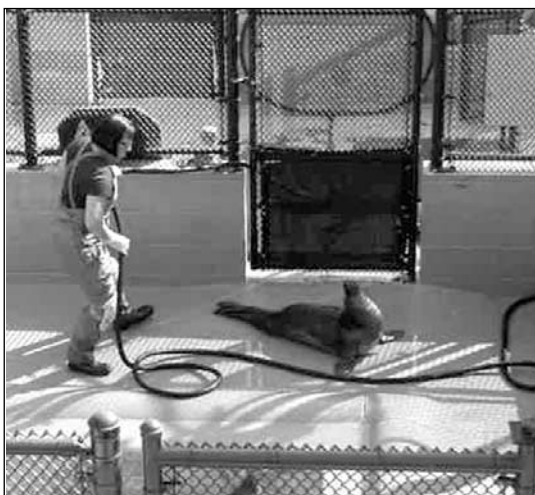
...before they are released, caretakers try to teach the pups to chase and consume whole fish. They tie a hand-sized fish to a piece of string and drag it through the water in hopes the seal will chase it. Easier said than done.

We had visited the MMC twice before, but never during this peak period. Even before we approached the rehabilitation pens, we immediately noticed a difference. What the heck was all that noise? It was like the combined chatter and grunts of chimpanzees and shrieking calls of jungle birds in a Tarzan movie.



The rehabilitation pens.

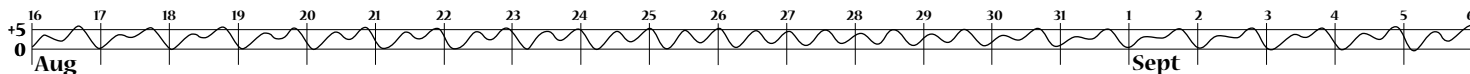
It was the elephant seals! Now we had visited Año Nuevo, and we're familiar with the deep, gurgling sound that the adult males make, but we never heard the pups like this! Perhaps they were calling for their mothers, wanting to return to the ocean, or simply wanted to be fed, but many of



An elephant seal pup calls for room service.



An elephant seal pup relaxing and recovering in the sun at the Marine Mammal Center.



Easier said than done. First, you have to get the seal—usually one of five in a pen—into the water. MMC personnel try to do this by using large, flat wooden shields to nudge a specific seal into the enclosure’s pool. (The December 2009 issue of *Between the Tides* described volunteers practicing by herding a bowling ball through an obstacle course.)

In one pen, we witnessed two seal students cooperating against the instructor. As one seal was being nudged toward the pool, another pup got between that pup and the pool, and the instructor had to struggle moving two significantly heavy objects that definitely did not want to be moved.

And once the pup is in the water, how do you keep it from hopping out while you’re getting the fish? Then there is always that one seal that has learned its lesson too well and has no qualms about stealing the fish of the seal that’s still being trained.

We were reminded of our cat and its refusal of its tuna-flavored pills as the MMC instructor tried to interest the seal pup by rubbing the fish on its very closed snout.

While there is much to look at and learn at the MMC, perhaps most impressive is the statue of a fully grown adult male elephant seal. These creatures can grow to be up to 15 feet long and weigh 4,500 pounds.



The author’s wife, Barbara Lau, posing with elephant seal sculpture.

But can one really grasp the concept of something that massive until one stands right next to it? Since you never want to get too close to a real elephant seal, visit the statue at the Marine Mammal Center instead! ♦



The Marin Headlands - beautiful backdrop to the Marine Mammal Center

Make Your Own Fish Mash!

Based on their age and time of year, this recipe makes one meal for approximately three elephant seals, or four sea lions, or eight harbor seals, or one very adventurous human.

Ingredients:

- 1 kg herring
- 1 liter water

Grind whole fish in the meat grinder.

Add water and about half of the ground fish in a blender.

Blend on low for 10 seconds.

Add the rest of the ground fish.

Blend on low for 10 seconds, and then run on medium for 30 to 40 seconds. Do not run the blender for more than 1 minute at a time.

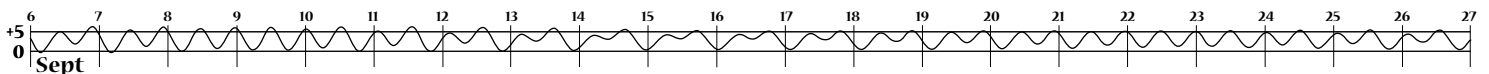
Pour into a container and label with the type of formula, date, and time. After all, you wouldn’t want to confuse the mixture with a fruit smoothie!



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...a fully grown adult male elephant seal...can grow to be up to 15 feet long and weigh 4,500 pounds.

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High Surf and Tsunami Warning Enliven Naturalist Training Class

by Linda Ciotti



Linda Ciotti and Tom Niesen examine a critter found on the floating docks of Pillar Point Harbor in the 2010 training class.

Our annual Volunteer Naturalist Training Class was a success, despite some unfavorable tides and weather, and even a tsunami advisory which caused us to cancel one class! Nineteen people registered for the class, including five San Mateo County Parks Department staff—two full time rangers and three park aides who help staff FMR. Classes were held on Saturdays from January 9 through March 6, 2010,

The marine biology subjects which covered all of the major phyla we find at FMR were ably taught by Bob Breen, Dr. Tom Niesen and Sabarajah (Sabbie) Hopkins.

We spent part of the class which covered sponges, tunicates and worms under the guidance of Tom Niesen down on the docks at Pillar Point Harbor where we observed an amazing array of critters not easily found at the reserve.

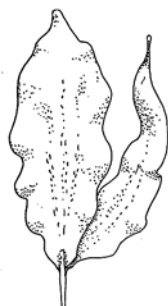
We were also lucky to have Sue Pemberton from the Marine Mammal Center teach the class covering harbor seals and sea lions.

In addition to the classroom instruction, we spent part of each Saturday at FMR helping students identify the algae and animals and learn where they are likely to find various species.

In addition to the instructors listed above, I would like to thank Tom Ciotti, Ellen Gartside, Mary DeLong, Susan Evans, Casey Passmore, and Nicole Larson for their help in making this year's class a success. And a special thank you to the volunteer naturalists who provided mentoring time to this year's class. ♦

with a potluck graduation party held at Linda and Tom Ciotti's home in Montara.

The class covered a vast range of pertinent subjects: tides; zonation; history of FMR; tide-pool ecosystems; and the important new designation for FMR as part of the statewide Marine Protected Area (MPA) for the north central coast.



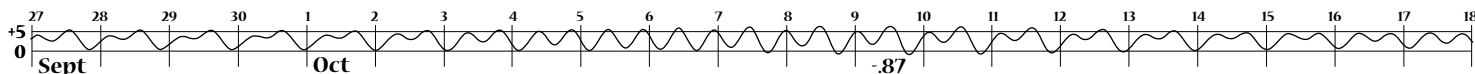
Sea lettuce

Welcome to Our New Naturalists

Carol Davies, Jessica Donald, Ben Forchini, Sasha Greenawalt, Shaun Griffith, Ann Hurley, Greg James, Clive Jones, Amanda Jurinen, Martin King, Scott Lombardi, Danila Mehta, Leighton Nakata, Sasha Nealand, Dot Norris, Janet Pelinka, Robin Tierney and Bernadette Yamat.



At the Pillar Point Harbor docks the 2010 training class observed an amazing array of critters not easily found at the reserve.



Cleaning Up More Than the Beach

by Jenna Kinghorn

Many thanks to all the volunteers who came out for our Earth Day cleanup at Surfer's Beach on April 24. Together they picked up 300 lbs of trash and 100 lbs of recycling. The haul included the remains of a broken crab trap and several plastic crates.

We used the picnic tables at Mirada Surf as our registration area. Ranger Sarah Lenz, Park Aide Jessica Donald, and volunteer naturalists Jenna Kinghorn, Kumi Ishida, Mary DeLong, Carol Davies, Greg James and Tom Ciotti all helped with registering volunteers, answering questions, and loaning out our new beach cleanup fashion accessories: EZReacher pickup sticks and bright orange and yellow safety vests with the FFMR logo on them! At the end of the day they gave out thank-you gifts of metal water bottles and travel cups provided by the Pacifica Beach Coalition.

The tide was only part-way out and reduced access to the beach at the 9 a.m. start, which gave our volunteers a chance to turn our "beach cleanup" into a "beach, streets, trails, and parking lots" cleanup. Wielding pickup sticks and trash and recycle bags, workers spread out over the grassy Mirada Surf bluff, went north and south along the highway margins, and patrolled adjacent parking lots. They also covered the rip-rap along the edge of the bluff, went into the dunes and beach area enclosed by the breakwater, and moved on to Surfer's Beach itself as the tide receded.

Thanks to groups of volunteers from The Love Awakening, a Bay Area University of Michigan alumni group, and neighborhood friends, 48 adults and 9 kids got involved in the cleanup. Special thanks go to FFMR volunteer naturalists Julie Walters, Carol Ferguson and her husband Dennis, Dorothy Baughman, Jack Vidosh, and Dominic Marconi.

If you missed our Earth Day cleanup, you have two more chances to participate this year. Meet us at the Mirada Surf picnic area in El Granada again on Saturday, June 5 from 8-11 a.m. and Saturday, September 25, from 9-noon. ♦



Volunteers picked up about 300 lbs of trash and another 100 lbs of recycling in the Surfer's Beach vicinity.



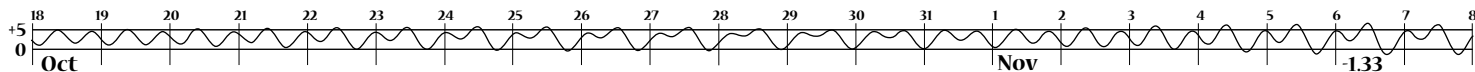
Volunteers of all ages participated.



FFMR volunteer naturalist Carol Ferguson and her husband Dennis found the largest item, a broken crab trap.

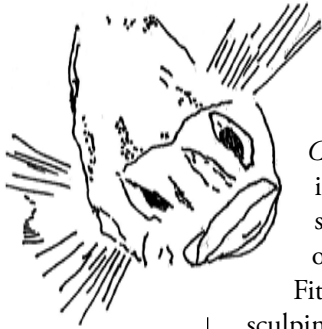


A father and daughter model our new safety vests and use pickup sticks on our Earth Day 2010 cleanup.



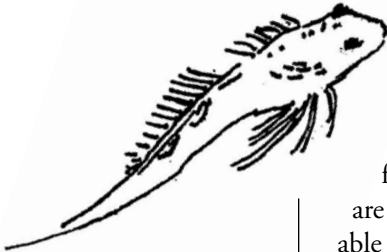
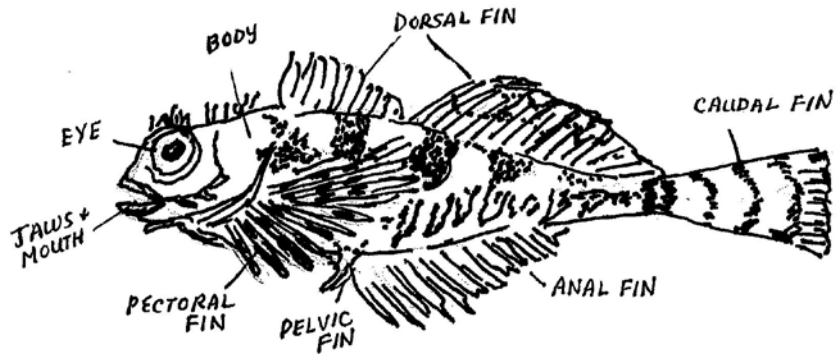
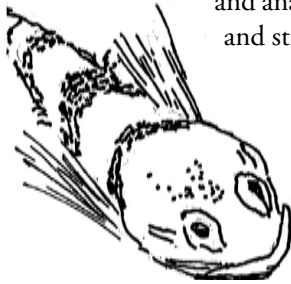
Tidepool Sculpin

Text by Denise Dowsett · Sketches by Kelly Huber



The hardy tidepool sculpin, family *Cottidae*, is one of the most abundant of intertidal fishes. There are more than 300 species worldwide, more than 70 species on the California coast, and 24 species at Fitzgerald Marine Reserve (FMR) alone! But sculpin are easy to overlook despite their abundance, since they are expert at hiding in plain sight.

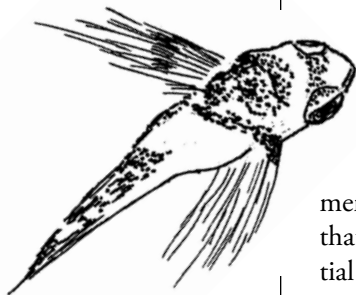
Sculpin sport large heads, elongated bodies, oversized pectoral fins, large second dorsal and anal fins, a first dorsal fin with flexible spines, and strong spines on the pre-operculum, located



forward of the gill cover. Most lack scales and are speckled or spotted in an intricate and variable color pattern, so masterfully blended with colors that match the rocks and algae around them that the sculpin melts into the background when still. They are rocky habitat bottom dwellers, where they hunt worms, crabs, squid, octopus, fish and shrimp.

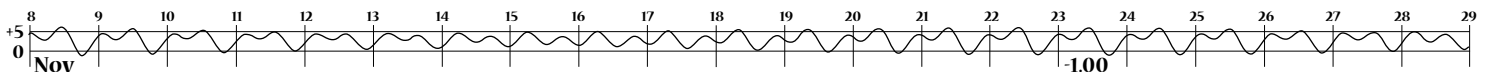
their gill covers. They can survive for long periods out of water if kept moist. Their lack of scales aids in absorption of oxygen.

Their triangular, flattened body shape and large fins give sculpin stability on rocky substrate in surging water. Large pectoral and tail fins give them powerful thrust to quickly accelerate into narrow rocky crevices to evade predators. Sculpin are a lie-in-wait ambush predator, and this body conformation allows them to launch surprise attacks on hapless prey.



These fish are always poised to flee into small rocky crevices at the slightest threat. They have acute eyes set high on their heads for detecting shadow or movement, and highly sensitive specialized organs that detect the slightest vibration from a potential predator or approaching footstep. Sculpin are easiest to spot when they are in motion, but since they are one of the swiftest inhabitants of the intertidal, you may quickly lose sight of them again.

Even after their cover is blown and you learn what to look for in a telltale shift of the tide pool floor, you'll be hard-pressed to differentiate the most common Tidepool sculpin (*Oligocottus maculosus*) from the also common Fluffy sculpin (*O. snyderi*) or Woolly sculpin (*Clinocottus analis*), or less common Buffalo, Smoothhead or Rosytip sculpin.



To tell the various species apart you must count or measure the density of the clumps of short cirri (hair-like tufts) on their backs, sides and head, or note the shape or number of spines sported, or the existence of a pelvic fin or a few rows of small scales on their sides, or the slope of their heads. Positive identification is hard to achieve in an environment such as FMR, where the fish rarely sit still long enough for you to view these details, and the motion or turbidity of the water interferes with your view. Because color is so variable and depends on the particular habitat, it is not very helpful in species identification.

...sculpin are easy to overlook despite their abundance, since they are expert at hiding in plain sight.
 ...Be prepared to squat quietly and patiently with magnifying glass in hand!

The Fluffy Sculpin is so-called because of the clumps of cirri on its sides, back and head. But the Woolly Sculpin, which also has dense clusters on its pre-operculum, has less abundant cirri when younger and then can closely resemble the Fluffy Sculpin. The upper tide pools are full of youngsters so size does not help in identification as it might with adult sculpin.

The Buffalo Sculpin (*Enophrys bison*) can be identified by its long, horn-like pre-opercular spine extending behind its big, bony head, and grows to a seldom-seen 14 inches in length. The Smoothhead Sculpin (*Artedius lateralis*) has a sloping head profile, a relatively large mouth and a few rows of small scales on the side -- most sculpin lack scales. The Rosylip Sculpin (*Ascelischthys rhodorus*) is distinguished by the lack of pelvic fins and scales, as well as by the presence of frilly cirri behind each eye.

The Sailfin Sculpin (*Nautichthys oculo fasciatus*) has an interesting addition to the typical sculpin conformation. It sports a sail-like first dorsal fin and velvety skin texture caused by tiny, modified ctenoid (margin toothed like a comb) scales. Yellowish brown to grey with a dark brown stripe through each eye, it is found deeper than most sculpin in the intertidal, up to 413 feet. Primarily nocturnal, it reaches a maximum size of 7 to 8 inches.

Another interesting variation on sculpin physiognomy is the Grunt Sculpin (*Rhamphocottus richardsonii*). With a velvety yellowish,

brown-streaked body, and reddish-orange fins, it swims awkwardly with its head up. It seems to “crawl” along the bottom in short hops and makes startling grunting noises when handled. Mostly intertidal to shallow subtidal, it reaches a maximum of 3-3/8 inches at 5 years old. During August to October spawning, the female is the aggressor

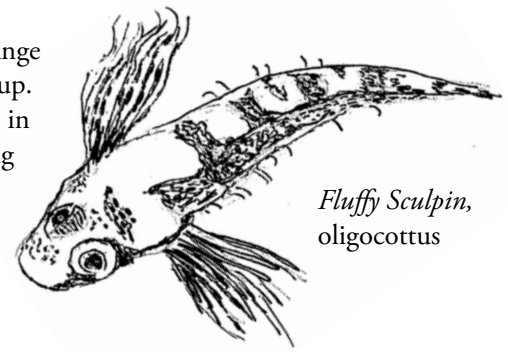
and pursues the male until she traps him in a niche, small rocky cavern, or cul-de-sac. There she keeps him trapped until she lays yellow-orange eggs (only about 150) and

he fertilizes them. Depending on the water temperature, eggs hatch in 16 to 20 days.

Most *Cottidae* are under 4 inches in length, but the largest, the Cabezon (*Scropenichthys marmoratus*)—so named for its resemblance to the scorpion fish—can reach 39 inches long and 25 pounds. When Cabezon fry are about 2 inches long they gather in tidepools looking for small crustaceans. They move deeper into the intertidal as they grow larger, and eventually live in deep water as adults.

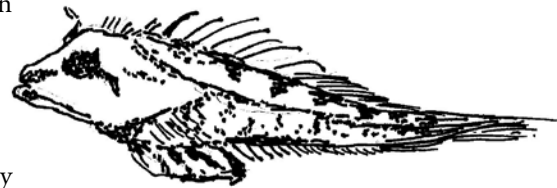
The next time you visit FMR, take the opportunity to view the amazing Tidepool, Fluffy, Woolly, Buffalo, Rosylip, and Smoothhead Sculpin, and perhaps even young Cabezon, in their natural habitat. Be prepared to squat quietly and patiently with magnifying glass in hand! Although the sculpins will be the most abundant fish present, you may also see very young rockfish, greenlings, clingfish, snailfish, midshipman, kelpfish, pricklefish, and gunnels.

For easier viewing of the Cabezon, Sailfin Sculpin, Grunt Sculpin and more “exotic” sculpin, visit the Monterey Bay Aquarium or California Academy of Sciences. ♦

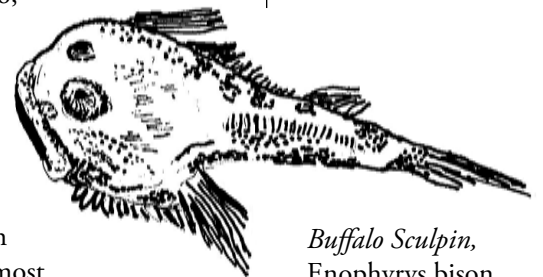


Fluffy Sculpin, oligocottus

- 4-6 dark saddles on back
- tufts of “cirri” on head
- dorsal fin base and lateral line
- upper spine - 2 points
- 3 pectoral fin rays
- pectoral fin 13-15 rays
- dorsal fin 7-9 fins
- anal fin 12-15 rays

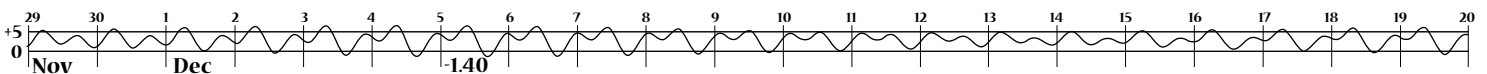


Fluffy Sculpin



Buffalo Sculpin, Enophrys bison

- horn-like, upper pre-opercular spine behind head
- lower spine: points downward
- pelvic fin - 1 spine, 3 rays
- 2nd dorsal fin
- anal fin






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A Note from the President



*Please join us June 5
for a Beach Cleanup
in honor of
World Oceans Day.*

Greetings! Spring is here and there is lots going on at Fitzgerald Marine Reserve. Spring is the peak of our tour season and the harbor seals are pupping. Congratulations to the graduates of our volunteer naturalist class! Through our education programs and naturalist-led tours we inspire and motivate future generations to take conservation action. Together, we can make a difference!

This April marked the 40th Anniversary of Earth Day! Thank-you to all who turned out for our April 24 Beach Cleanup.

If you weren't able to make it for Earth Day, please join us June 5 for a Beach Cleanup in honor of World Oceans Day. We will once again meet at Mirada Surf Picnic Area near the corner of Hwy 1 and Coronado Street in El Granada from 8-11 am.

World Oceans Day is officially recognized by the United Nations and observed on June 8th each year. The theme of Oceans Day for 2010 is "Ocean of Life," focusing on our ocean's great diversity of life and how we can all help in its conservation.

Visit <http://www.theoceanproject.org/index.php> to find out more about events and actions you can take for World Oceans Day.

As we head toward the summer solstice, the low low tides are getting lower and earlier in the morning. These are great tides to find and appreciate nudibranchs, sunflower stars, and gumboot chitons. Join us for Breakfast at the Reserve on Thursday, July 15 from 7:30 to 10:30 am. Treat yourself to an inspirational early morning tidepool visit before heading to work.

Happy Tide Pooling!

Ellen Gartside, President
Friends of Fitzgerald Marine Reserve



Volunteers gather around the pile of debris they picked up on Earth Day this year. The total was about 300 lbs of trash and another 100 lbs of recycling.