



UPWIND

from the Arcata Marsh
Interpretive Center
Vol 25, Issue 2, Spring 2018

Our Mission: To stimulate understanding of the Arcata Marsh & Wildlife Sanctuary, its relationship with Arcata's integrated wastewater treatment system, the surrounding watersheds and bay, and their link with the Earth's water cycle

In This Issue: Upcoming Lectures... Arcata Marsh Book Release June 8... Amphitheater Grand Opening July 6... New Board Members... Volunteer Help Sought... What's New at AMIC... Dog Waste Recycling... Thanks Godwit Days Volunteers... Science Fair Awards... Blue Lake Rancheria Talk... Frog Talk... Fish Talk... Student Bird Art Contest Results... Marine Protected Areas Talk... Visitor Info & Comments... Calendar... Members & Donors



Tiny Maria with her mushroom lamp.

Upcoming Lectures

On Friday, May 18, Maria Friedman will speak about "Fungi in the Arcata Marsh Ecosystem." She will discuss the roles of fungi, showing photos of specific species and pointing out where to find examples at the Marsh. Maria teaches biology, botany, and environmental science at College of the Redwoods.

No lecture is scheduled at the Interpretive Center during June, due to the special Arcata Marsh celebration on Friday, June 8 at the Arcata Community Center (see this page).

On Friday, July 20, FOAM president and retired high school science teacher Elliott Dabill will expound on "The Origins of Birds." He will discuss the modern picture from 30 years of stunning fossils, covering the assembly of modern birds from their theropod ancestors.

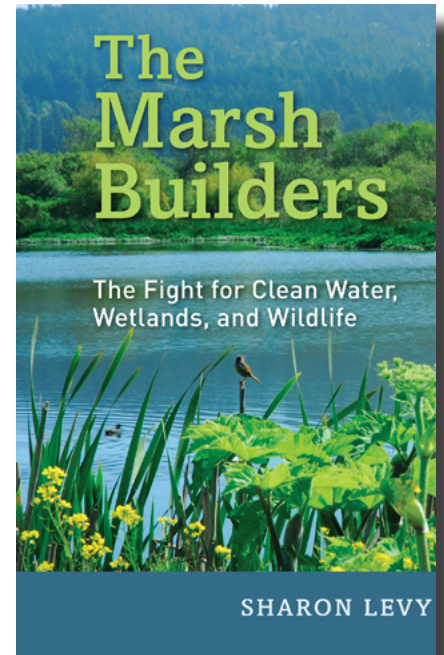
All lectures are free and begin at 7:30 pm at the Interpretive Center. Seating is limited to 50 people. To guarantee a seat or get more information, call 707-826-2359.

Arcata Marsh Book Release Celebration June 8

Local science writer Sharon Levy has penned "The Marsh Builders: The Fight for Clean Water, Wetlands, and Wildlife," which centers around the story of how citizens in 1970s Arcata fought for an alternative way to treat sewage that has inspired treatment wetlands worldwide.

To celebrate the book's release, Friends of the Arcata Marsh and the City of Arcata are cosponsoring a free public event on Friday, June 8 in the Arcata Community Center's senior dining room. All are invited to a reception from 5 to 6 pm, with Sharon signing copies of her book starting at 5:30 pm. Those wishing to purchase a book must bring cash

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Cover of Sharon's book, published by Oxford University Press.

2017-18 Board of Directors & Officers

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(no bills higher than \$20) or a check; no credit cards can be accepted. At 6 pm, Sharon will give a Powerpoint presentation, followed by commentary from panelists who were involved in the political and scientific process that resulted in the creation of the Arcata Marsh and Wildlife Sanctuary.

On June 9, Sharon will collaborate with session panelists on a special 2-hour Marsh tour starting at 2 pm. That free public walk departs from the Interpretive Center, located at 569 South G Street.

Because 2018 also marks 25 years since the dedication of the Arcata Marsh Interpretive Center, there are twice as many reasons to celebrate! For more information, contact sueleskiw1@gmail.com.

Marsh Amphitheater Grand Opening July 6

On Friday, July 6 at 6:30 pm, FOAM is sponsoring a free public event to formally unveil the amphitheater that was partially underwritten with funds raised during our capital campaign. Members of the Wiyot tribe will bless the amphitheater on the banks of Butcher Slough, plus the Marsh in general. Then, Juwaksh Ted Hernandez, the Wiyot's cultural director, will give a talk on the history of ceremonies. To access the amphitheater: From the South G Street parking lot, start walking toward the Interpretive Center but don't turn off to the left. The amphitheater is straight ahead on the left.

FOAM Welcomes Two New Board Members

We are pleased to announce that two HSU professors recently joined the Board, adding more scientific heft to our roster. Dr. Richard Brown is in the Wildlife Department, where he specializes in ecology and management of mammalian populations, communities, and associated disease agents. Dr. Mark Wilson is in the Biology Department, where he specializes in environmental microbiology and genetics. He enjoys bird-

ing, hiking, and gardening, and has long been interested in wastewater treatment. Last year, his introductory biology class carried out a semester-long research project isolating antibiotic-producing bacteria from Arcata Marsh samples (that will be summarized in a future UPWIND).

FOAM Seeks Help with Lectures, Slow Tours

Volunteer extraordinaire Jane Wilson will be leaving the Board in October and is also stepping back from these two activities. Slower-speed tours currently occur the last Tuesday of each month starting at 2 pm. They meet at the first parking lot on South I Street in from Samoa Boulevard and are intended for visitors who are unable to keep up on the regular Saturday tours. This task would begin in November 2018.

FOAM lectures currently are scheduled on the third Friday of each month at the Interpretive Center, starting at 7:30 pm. The volunteer would be responsible for lining up speakers on local natural history topics. Jane currently writes up a newsletter article about each talk, but that wouldn't necessarily have to be done by the lecture scheduler. Lectures are set up through November and December is optional, so you'd have plenty of time to get prepared before January 2019.

If you're interested in taking on either of these tasks, contact FOAM president Elliott Dabill at edabill@me.com.

What's New at AMIC

By Gretchen O'Brien

Spring is my favorite time of year: birds are singing, Humboldt Bay owl's clover is blooming, and ducklings are dabbling in a line on the ponds. The shorebird flocks number in the tens of thousands and create an awe-inspiring illusion over the waters of the Bay.

The past four years at the Arcata Marsh Interpretive Center have been enjoyable: creating new displays, enhancing event opportunities with an upgraded projector system and outdoor amphitheater, and

reviving the native plant garden. It has been a pleasure working with the FOAM Board on events, additions to the exhibits, and educational outreach. Sharing information about the history of the Arcata Marsh, wildlife, and ecology with visitors from all over the nation and the world has been exciting and fulfilling.

What's new at AMIC this time around will be a change of staff. It is time for me to move on to my next adventure, but the Arcata Marsh will always be a part of me.



Dog Waste Recycling Efforts

By Cindy Kuttner

Some communities are recycling their dog waste. Williamsburg East River State Park in Brooklyn, NY provides two cedar wood stations housing dog-waste buckets (actually compost bins), paper bags, and pooper-scoopers for pick up. Park officials put sawdust atop the poop to alleviate the smell and help the composting. Bins are traded out and taken to a facility to complete the composting process.

Envirowagg is a company that processes dog waste into commercial compost. Its product, Doggone Good Compost, is made in controlled aerobic conditions to create a fertilizer that (the company website reports) is superior to cow manure. Dog waste must be composted properly to eliminate pathogens specific to raw carnivore feces, and the soil can be safely used in landscaping. However, Envirowagg reports that its "professional composting system carefully monitors temperatures and includes a long curing period. All finished material is tested to meet EPA standards and is safe for handling and for growing herbs, fruits, and vegetables."

Well, I'm not ready for that quite yet, but I do compost my dog's backyard waste in two, rotating compost bins. I add plant material

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The intrepid bird art hanging bunch. Not shown: Carolyn Merz, Mary Severdia.



*FOAM nature craft leaders.
Not shown: Katy Allen.*

Godwit Days Volunteers

By Sue Leskiw

FOAM sends out a heartfelt thank you to the following people who volunteered to help with FOAM activities at the 23rd Annual Godwit Days Festival in April:

- ▶ FOAM's Bird Fair booth was staffed by Gail Coonen, Denisse Hernandez, Sue Leskiw, Suellen Lowery, Bob Rasmussen, and Jane Wilson.

- ▶ Helpers who hung the 795 pieces of student bird art were Katy & Tom Allen, Donna Clark, Gary Friedrichsen, Sue Leskiw, Carolyn Merz, Susan Penn, Bill & Carolyn Prescott, Jean Santi, and Mary Severdia. Thanks to Sue Leskiw, Janet Zich, and several members of the Fortuna CCC for taking the show down.

- ▶ Jay Seeger for snapping photos of the art winners and Alex Stillman for setting up the refreshments at the award ceremony.

- ▶ Katy & Tom Allen, Cindy Kuttner, Sue Leskiw, Mary Ann Madej, and HSU students Natalie Sanman, Mei Shimizu, and Esmerelda Villareal welcomed about 50 children plus their parents during 2 hours of nature craft activities. Stations were clay Marsh critter ornaments, paper bird hats, peace dove hand prints, rock owls, toilet paper tube owls, and oyster shell refrigerator magnets.

- ▶ George Ziminsky and Dave Couch led a combined bird walk/wastewater treatment plant tour.

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and ash. Within a few months, the bin is full of soil that I only use for non-edible plants and landscaping. The soil has no smell, but I do use gloves handling it.

A Reminder of What Dog Waste Bacteria Can Do to Wildlife at Our Marsh

Raw carnivore feces could contain roundworms, whipworms, hookworms, tapeworms, parvo, corona, giardiasis, salmonellosis, cryptosporidiosis, campylobacteriosis, and other destructive diseases. These do not belong in any sensitive wildlife habitat. We don't want (for instance) our sweet otters picking up any bacteria foreign to their habitat. Please pick up your dogs' poop!

Dates for Poo Cleanups, sponsored by Humboldt Pet Supply, May 19, June 16, July 14, August 18, September 15, October 20, November 10, and December 8. They are hoping for more volunteers this summer when more dog walkers frequent the Marsh. Poo Cleanup volunteers get friendly and appreciative feedback from folks at the Marsh. to help, show up at the South G parking lot at 9:30 am. Coffee and snacks provided. Pick up is from 10-11:30 am. Tools are provided. Families and dogs are welcome.

Congratulations to dog owners! As one volunteer who empties the trash from a Doggipot station at the Marsh, I have noticed a general improvement in dog poop hygiene. So, thank you and good job!



Otter ornament. Photo by Sue Leskiw.



Feather art. Photo by Sue Leskiw.



Rock owls. Photo by Sue Leskiw.



Fridge magnet. Photo by Sue Leskiw.



Science fair winners Perrin Turney (left) and Zoe Macknicki.

FOAM's Science Fair Awards

By Sue Leskiw

For the 13th year, FOAM sponsored an award at the Humboldt County Science Fair in mid-March for the best project related to wetlands. Due to the quality of the projects in 2018, judges Elliott Dabill and Sue Leskiw awarded a second-place prize also. Both students actually performed their research on samples from the Arcata Marsh!

First prize of \$50 went to Zoe Macknicki, a 7th-grader at Kneeland Elementary School, for her project on effects of parking lot runoff on two species of small freshwater crustaceans.

She hypothesized that *Daphnia* (water fleas) and *Cyclops* would die when chemical-containing runoff from the Arcata Marsh parking lot was added to Marsh water. Her experiment found that *Cyclops* are less tolerant of pollution than *Daphnia*. Both species of adult organisms died, but the water flea eggs survived better due to their shells, hatching when the pollutant level returned to near normal. Carbon dioxide from car exhaust raised the acidity of the samples; motor oil and transmission fluid are other possible automobile-related pollutants.

Second prize of \$25 was awarded to Perrin Turney, a 12th-grader at Six Rivers Charter High School, for his project examining effects of acidification on freshwater microorganisms. This project was the culmination of a 4-year study of components of a warming planet: acidification, temperature, industrial and agricultural pollution, and salinity, using the Arcata Marsh as a sampling site. [Perrin won a first place award from FOAM in 2015 and a second place in 2016.]

Perrin hypothesized that dissolved carbon dioxide will increase acidity, which will decrease calcium carbonate and other necessary minerals in the water for microorganisms to use to create their exoskeletons. Increase acidity would increase metal levels, raising mortality rates of microorganisms other than algae. Algae and other aquatic plants will take advantage of higher CO₂ and grow, further inhibiting survival of other freshwater microorganisms. He used tanks of water from the Log Pond, diffusing different levels of CO₂ into them to reach specific pH levels. He also used the mortality of *Daphnia* and *Cyclops*, plus amphipods, diatoms, and observed unicellular organisms, as a measurement. Perrin found that mortality rates increased more in the lower pH (5.0 and 5.5) tanks than at 6.0 pH. Multicellular organisms were more tolerant of lower pH than single-celled creatures.

Both projects were among the 16 from Humboldt County selected to compete at the state science fair in April. Perrin won third place (as well as receiving honorable mentions in 2016 and 2017). Both projects will be displayed at the Interpretive Center through June.

Tradition & Technology at Blue Lake Rancheria

By Jane Wilson

David Narum, HSU adjunct professor in environmental resources engineering, was FOAM's January lecturer. He works on resilience initiatives for Blue Lake Rancheria. He writes grants for many environmental projects. The rancheria began in 1908 as a home for homeless Native Americans from across the US. It has 350-400 members living on 111 acres.

This small group has received many awards: one of the few Climate Action Champion awards under the Obama Administration and a community preparedness award from FEMA. They work with the Red Cross and partner with HSU departments and students, as well as many federal and state agencies. Because of their many awards and grants, the Rancheria often has experts come to be in residence to share resources on projects.

The rancheria runs a casino, a hotel (one of the first green hotels), and a convenience store. The profits go to social programs, which include a job for members who can work and a home. Rather than being divided up among members, profits but instead support projects such as an environmental department, educational scholarships, a microgrid project, biodiesel plant, wetland mapping and restoration, food production, and community meals (where anyone is welcome). One project is making a safe haven for people after a calamity, such as an earthquake. Three concepts important to the rancheria are self-reliance, sovereignty, and self-determination.

One fourth of the rancheria's annual energy use comes from renewables. There has been a 60% energy improvement from 2007. By 2030, the rancheria hope to have a 100% renewable power base.

Dr Narum called the Arcata Marsh a great example of regenerative capacity, a place as a living landscape.

Frogs: Amphibians, Goddesses? Cute? Wise?

By Jane Wilson

What a great story teller is Ellin Beltz, author of "Frogs: Inside Their Remarkable World." It was standing room only at her February talk. She is great at making all kinds of frog sounds!

The difference between frogs and toads is often conceptual. The categories are switched in different cultures. All toads are frogs, but all frogs are not toads. Toads have become toxic. Frog eyes are positioned so they can watch their backs. Frog legs are made for jumping. Frogs are smarter than toads. If shown a prey hopping across a screen until it disappears, frogs will look behind the screen. If a number of frogs are put in a cage, they will build a pyramid of their bodies until the top one can hop out. Frogs existed before the dinosaurs and haven't changed a lot. They persist through many calamities, such as comets and chemicals. Their body style is very conservative with a restricted number of ribs. They chemically stun their prey from inside their mouths. So, if you have a pet frog inside a cage, keep your fingers away from their mouths. They also have teeth and may mistake your finger for prey.

Want frogs in your garden? Don't keep it too neat. Compost piles, abandoned moist pots, buckets with water and something for frogs to climb out, and moist tarps are places frogs find tempting. Our friends the red-legged frogs love water cascades. They are the heroes of Mark Twain's short story, "The Jumping Frogs of Calaveras County." There's also a yellow-legged frog that lives away from the coast at higher elevation.

The tailed frog occurs in fast-flowing, high-gradient streams. They use their tails to insert sperm. They lack calls, as the streams make too much noise. Their tadpoles cement themselves to algae-covered rocks so they won't be swept away.

The Pacific tree frog's "ribbit," a warm-up call, is famous because Hollywood recorded frog sounds in a local pond and uses those sounds in all kinds of movies, even outer space.



The Western toad can be found at Centerville Beach.

American bullfrogs are introduced predators from the Boston-New Hampshire area. If you have any recipes, don't hesitate to eat them. They have huge tympanic membranes covering their ears, the better to hear mating calls of other species. They find the mating frogs and eat them.

Before a fish was the resurrection symbol for Christianity, it was a frog. They were the goddess of childbirth and herbal medicine. Their followers, skilled in healing knowledge, became known as witches when sacred frogs fell out of favor. Frogs being considered cute and cartoonish originated in the Victorian era and led to the wise Muppet, Kermit. The real Loch Ness monster is a toad found 324 meters underwater!

Fishes of Humboldt Bay

By Jane Wilson

Research by the state Department of Fish and Wildlife benefited us in James Ray's and Katherine Meyer's March lectures about fish. James is an ecologist in the aquaculture and bay management project and Katherine studies state-managed fin fish.

Humboldt Bay is a sheltered, very productive habitat. It's a shallow bay in which the mean low tide exposes 70% of the bottom. Eelgrass beds provide a productive habitat that is especially good for juvenile fish, a great neighborhood for raising young. The beds are in good shape, compared to historically. Mudflats—elevations above eelgrass beds—provide a rich assortment of inver-

tebrate species, food for fish. Fringes (transition zones) are the salt marshes, in which micro-channels, pickleweed, and saltgrass provide protective cover from carnivores. Unnatural reef habitats, made of riprap, pilings, pipelines, and such, provide places for other fish such as red tail surf perch.

One hundred thirteen species of fish live in Humboldt Bay. Some live there their whole lives, while others are migratory, coming to spawn, raise their young, or feed. Shiner surf perch, bay pipe fish, staghorn sculpin, bay goby, wall-eyed surf perch, and top smelt are some of the residents. Northern anchovy, Pacific herring, speckled sand dabs, English sole, bat rays, leopard sharks, surf smelt, and sardines are among the migrants.

Pipefish are long and green and spend their time in eelgrass beds. They are similar to sea horses with their suction method of eating crustaceans and fish larvae.

Bat rays use Humboldt Bay as a breeding ground and nursery. They dig pits and feed on mudflat clams, crabs, etc., which they crush in their jaws. They have up to three defensive spines to protect themselves from sevengill sharks and can hurt the unwary barefoot wader.

The northern anchovy, a highly migratory, schooling, pelagic fish, filter feeds on plankton from April to the first rains.

Surf perch bear live, fully developed young. They tend to be silvery without much color. Sand crabs are their food choice.

Pacific herring is everybody's choice of food, including eggs, juveniles, and adults. They lay their eggs on eelgrass or anything that resembles it, such as a long shrimp body. The eggs are a high-energy food when there's not a lot of that around.



Student Bird Art Contest Results

By Sue Leskiw

Nearly 800 local K-12 students pulled out paints, pencils, pastels, or paste to enter the Fifteenth Annual Student Bird Art Contest, held in association with the 23rd Annual Godwit Days Spring Migration Bird Festival in mid-April. FOAM and Redwood Region Audubon Society (RRAS) cosponsored the competition.

All entries were displayed at the Arcata Community Center during the festival, and copies of the first-, second-, and third-place winners, as well as Best Bird in Habitat awards, are hung at the Arcata Marsh Interpretive Center through June. A booklet containing the artwork, as well as group photos of the winners taken during the awards ceremony, will be posted at www.arcatamarshfriends.org in late May.

Thirty-nine monetary prizes totaling \$615, plus 28 honorable mention certificates, were awarded.

Kindergarten

1st Place: Story Mintey, Freshwater Elementary, Spotted Owl

2nd Place: Amie Sadana Rodriguez, Dow's Prairie School, Wood Duck; Carissa Gonzalez, Dow's Prairie School, Marbled Godwit

3rd Place: Kylie Gayner, Dow's Prairie School, Belted Kingfisher; Mason Boone, Dow's Prairie School, Wood Duck

Grade 1

1st Place: Bony McKnight, Coastal Grove Charter, Northern Flicker; Everett Gruetzmacher, Dow's Prairie School, American Goldfinch

2nd Place: Zoey McBroome, Dow's Prairie School, Steller's Jay; Amaya Teraoka, Dow's Prairie School, Wood Duck

3rd Place: Leslie McLaughlin, Orleans Elementary, Pileated Woodpecker

Grade 2

1st Place: Jade Frimodig, Fuente Nueva Charter, American Robin; Grayson Finen, Mistwood



Educational Center, White-tailed Kite; Aubrey Lloyd, Cuddeback School, Western Meadowlark

2nd Place: Natalie Williams, Mattole Valley Charter, American Avocet; Myah Visser, Dow's Prairie School, Osprey; Emma Hovie, Fuente Nueva Charter, Wood Duck

3rd Place: Sebastian Amaro, Fuente Nueva Charter, Snowy Plover; Maliah Cheng, Pacific View Charter, Spotted Owl; Penelope Love, Pacific Union School, Mallard

Grades 3&4

1st Place: Malia Andersen, Union Street Charter, Snowy Plover; Mason Jia Yang Li, Washington Elementary School, Peregrine Falcon

2nd Place: Allison Wibbenhorst, Pacific View Charter, Marbled Godwit; Rowan Magnusen, Six Rivers Montessori, Black-crowned Night-Heron

3rd Place: Nora Brumbaugh, Union Street Charter, Pileated Woodpecker; Hazzard Guthrie, Fuente Nueva Charter, Snowy Plover

Grade 5

1st Place: Saanvi Virnave, Fuente Nueva Charter, Steller's Jay

2nd Place: Zinnia Clifford, Pacific View Charter, Great Blue Heron

3rd Place: Ayla Weiss, Six Rivers Montessori, Red-breasted Nuthatch

Grade 6

1st Place: Meguire Bartosz, Alder Grove Charter, Bufflehead

2nd Place: Reny Sharp, Pacific View Charter, Anna's Hummingbird

3rd Place: Aurora Amaral, Mattole Valley Charter, American Kestrel

Grades 7-12

1st Place: Amaya Bechler, Northcoast Preparatory Academy, White-throated Sparrow

2nd Place: Karlene Vang, Eureka High, Great Blue Heron

3rd Place: Rebecca Nguyen, Eureka High, American Robin

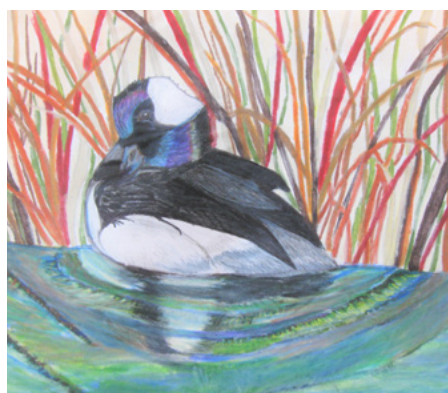
Best Depiction of Bird in Habitat

Maxwell Collins, Grade 2, Garfield School, Marbled Murrelet; Araya Bennett, Grade 2, Scotia School, Mallard; Annika Bucklin,

Grade 4, Union Street Charter, Spotted Owl; Bodhi Jennings, Grade 6, Six Rivers Montessori, Northern Flicker; Mathias Keely, Grade 6, Mattole Valley Charter, Pileated Woodpecker

Honorable Mentions

Kindergarten: Kaleo Major, Arcata Elementary, Pileated Woodpecker; Hunter Aiton, Dow's Prairie School, Wood Duck; Phoebe Rogers, Jacoby Creek School, Black Phoebe; Jacob Bucciarelli, Dow's Prairie School, Anna's Hummingbird; Natalie Helms, Dow's Prairie School, Marbled Godwit; Alexis Waxler, Dow's Prairie School, Belted Kingfisher. **Grade 1:** Hudson Caldwell, Ridgewood School, American Goldfinch; Michael Mackay, Redwood Coast Montessori, Peregrine Falcon; Meena Hardell Moreno, Redwood Coast Montessori, Snowy Plover. **Grade 2:** Kyla Benzinger, Garfield School, California Quail; Jordan Thuesen, Dow's Prairie School, Spotted Towhee. **Grades 3&4:** October Mintey, Freshwater Elementary, White-tailed Kite; Shaylee Daggett, Scotia School, Wood Duck; Carlo Campagna, Redwood Coast Montessori, Osprey; Jocilyn O'Donnell, Mistwood Educational Center, Western Grebe; Lily Bazemore, Cutten Elementary, Blue Jay. **Grade 5:** Maile Russell, Union Street Charter, American Crow; Wynne Pevec, Fuente Nueva Charter, Steller's Jay; Solana Mendle-Nickle, Fuente Nueva Charter, Western Meadowlark; Lilly Church, Mattole Valley Charter, Black-capped Chickadee; Harvey Beard, Mattole Valley Charter, Great-horned Owl. **Grade 6:** Natalie Marie Parker, Cutten Elementary, Anna's Hummingbird; Jackson Burger, Cutten Elementary, Blue Jay; Sarah Domingo-Franklin, Green Point School, Western Tanager; Nikolas Robinson, Mattole Valley Charter, Barn Swallow. **Grades 7-12:** Maizie Fugate, Mattole Valley Charter, Mourning Dove; Rogue Russell, Sunny Brae Middle School, Anna's Hummingbird; Adam Treegan, Zoe Barnum High, Red-breasted Nuthatch



Initial State of Local Marine Protected Areas

By Jane Wilson

Dr Sean Craig, one of my favorite people, is a marine biologist at HSU. His research ranges from the evolutionary ecology of colonial marine invertebrates to applied problems. He hangs out at the marine laboratory in Trinidad. I have taken two OLLI classes from him. Sean's research focuses on three areas: rocky reefs where kelp beds used to live; rocky intertidal regions where sea stars roam; and sandy beaches where surf perches and sand crabs relate.

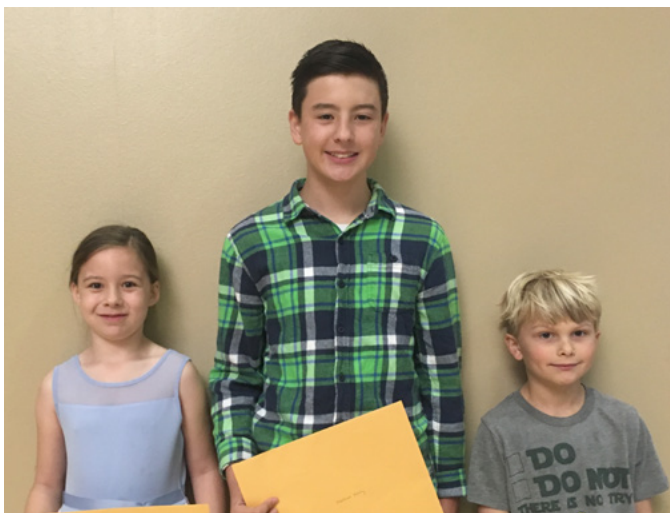
Marine Protected Areas (MPAs) are ocean areas protected for conservation. There are 1600 in the US, with different ranges of protection. Some are protected from oil pollution; some allow fishing.

Their goals are greater numbers and size of fish and higher species diversity. MPAs have been successful on some of these: 28% bigger fish and 160% more commercial fish. By enhancing the population within MPAs, it is hoped the fishing outside the protected areas will be improved.

Except for Point Cabrillo, established 40 years ago, most of the local MPAs were established in 2012. Six years is hardly enough to get credible results, which may also be influenced by conditions such as warmer ocean water.

Communities vary, depending on where they are along the coast. In rocky reefs, kelp beds have almost disappeared. Pink crustos algae, purple urchins, and red urchins have increased more inside MPAs than outside. Abalone, which eat kelp, are disappearing and starving. The urchins, whose natural predators such as sea otters and sea stars (sunflower stars) have disappeared, are decimating the kelp. All of this is slightly worse in the MPAs than outside. "Urchin barrens" and "the perfect storm" are two descriptions of these conditions.

The rocky intertidal MPAs, where sea stars roam, have been decimated by viral sea star wasting disease, a very ancient disease that



Student Bird Art Contest winners (from top): Grades K-1; Grades 2-4; Grades 5-12; Best Bird in Habitat awardees. Photos by Jay Seeger.

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FOAM wishes Gretchen O'Brien (second from left) good luck using a yummy cake.

May is Wetlands Month!
Celebrate by visiting
the Arcata Marsh.

Visitor Info & Comments

Since the last issue of UPWIND, visitors from the following states have signed the guest book: Alaska, Colorado, Idaho, Illinois, Maine, Maryland, Massachusetts, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Texas, Washington, Wisconsin, and Wyoming. International guests hailed from Canada, England, and Wales. There was a delegation from the Oregon Institute of Technology, the College of the Redwoods Social Opportunities Class, and Arcata Brownie Troop 90039.

Reading visitor comments reminds us locals how special the Marsh is. Here are some highlights (note the preponderance of exclamation points!): "We stopped just to see the marsh. Thanks for saving this beautiful area"... "Awesome adventure"... "Very impressive project. Lots of birds!"... "Great stuff for kids!"... "The waterfowl are truly marvelous!"... "Wow! Then WOW!"... "Love what you're doing"... "My 3-year-old son loves it!"... "I love your birds"... "A++"... plus many "Beautifuls," "Love its," and "Thank yous."

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some conditions have brought back with a fury. It has wiped out sunflower stars by almost 100%. It has also been determined that within MPAs, there are fewer tidepool fish species.

Sandy shore MPAs are where sea perch eat mole (sand) crabs and mole crabs proliferate. You should never remove the wrack?? from the sand because it kills many life forms that live, breed, and eat there, changing the community to Dead Man's Land.

Lots of bad news but remember, we've only been studying this for six years. There is funding for studying MPAs, for studying the seastar wasting disease, and rocky and sandy shore, so stay tuned.

Thanks to Our Supporters, January to mid-May 2018

- ▶ Life Member: Mark Wilson*
- ▶ Best Friends (\$100+): Karen Isa; Lorraine Miller-Wolf
- ▶ Sponsors (\$50-\$99): Richard Brown*; Esther & Neil Gilchrist; Glen & Dee Anne Jones
- ▶ Friends (\$18-\$49): Pam Brown; Luther Cobb & Mary Ellen Mahoney; Ann Diver-Stamnes & Steve Stamnes; Christopher & Teresa Fife (Mountain Center)*; Joyce Hough & Fred Neighbor; Lynn & Steve Jones; Marie Kelleher-Roy (Alameda); Alan Laurent; Patricia Marien (Ft Bragg); Maggie & Heal McKnight; Audrey Miller; Chet Ogan; Jean Santi & Whitney Buck; April Small; Nancy & Michael Stone (Los Angeles)*; Phyllis & Robb Willis
- ▶ Donations: \$450 from the employees of Capital Impact Partners (Oakland), in honor of Richard Cortez Day; \$35 from Life Members Lee & Claude Albright

* = New member

Calendar of Events

[Docent tours leave the Interpretive Center every Saturday at 2 pm]

May & June—Winners of 15th Annual Student Bird Art Contest

May 18—Fungi at the Marsh lecture, Maria Friedman, 7:30 pm (see p. 1)

May 19—Dog Poo Cleanup, 9:30 am (see p. 3)

June 8—Arcata Marsh book launch event, 5-7 pm, Arcata Community Center senior dining room, (see p. 1)

June 9—Special history tour, 2 pm (see p. 2)

June 14—FOAM Board Meeting, 6:30-8 pm

June 16—Dog Poo Cleanup, 9:30 am (see p. 3)

July & August—Photos by Matt Filar

July 6—Marsh amphitheater grand opening, 6:30 pm (see p. 2)

July 12—FOAM Board Meeting, 6:30-8 pm

July 14—Dog Poo Cleanup, 9:30 am (see p. 3)

July 20—Dinosaur lecture, Elliott Dabill, 7:30 pm (see p. 1)



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Mark Your Calendar for:

Fungi Lecture, 5/18

Marsh Book Launch Party, 6/8

Special Marsh History Tour, 6/9

Amphitheater Grand Opening, 7/6

Dinosaur Lecture, 7/20

MEMBERSHIP APPLICATION



Name _____

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Interpretive Center street address is 569 South G Street, Arcata.

FOAM mailing address is PO Box 410, Arcata CA 95518. You can reach us by phone from 9 am to 5 pm Tuesday through Sunday and 1 to 5 pm Monday at 707-826-2359.