

Tideline



Don Edwards / Antioch Dunes / Ellicott Slough / Farallon Island / Marin Islands / Salinas River / San Pablo Bay

This space for rent: Artificial Islands for the California Clapper Rail

By Cory Overton

Hidden in the fragmented series of marshlands of San Francisco Bay lives one of the natural rock-stars of the region. Although shy and secretive, the voice of the California Clapper Rail carries loudly over the marshland. Kek-kek-kek-kek. Like a series of stones cracked together, the territorial call of the clapper rail is one of the most important features of healthy San Francisco Bay salt marsh.

But many of San Francisco Bay's salt marshes are quiet now. Turn of the century hunting and egg collecting created posh meals in the city's restaurants. Development of marshland for the burgeoning population in the early and mid-20th century, and an increase in contaminants, novel predators, and marshland neighbors that followed people to the Bay have severely reduced the number of California Clapper Rails.

Clapper rails are much smaller relatives to Sandhill cranes and have the same general body type: long legs, neck and bill. But they are very thin. "Thin as a rail" as the saying goes. Most clapper rails live only in tidal salt marshes and thrive on the Atlantic and Gulf Coasts. The Pacific Coast boasts two types of clapper rail. The Light-footed Clapper Rail occupies marshes in Southern California and Mexico. Here in San Francisco Bay we have the slightly larger California Clapper Rail. Since the Pacific Coast is younger and the coastline steeper than the Atlantic and Gulf Coasts, habitat for clapper rails is more limited here and much of what remains is part of Don

Edwards San Francisco Bay and San Pablo Bay National Wildlife Refuges.

California Clapper Rails live only in tidal salt marshes where they forage for insects, clams and mussels at the Bay edge or tidal channels during low tides. When the waters rise, they hide in the tall marsh

surveys each year.

The California Clapper Rail first received legal protections in 1970 when populations still existed along the coast down to Elkhorn Slough near Monterey. Since that time, populations have fluctuated wildly from several thousand birds dur-



Arrowhead Marsh at high tide in October. December tides were two feet higher, flooding even more vegetation! Cory Overton/USGS

cordgrasses (*Spartina*) and yellow flowered gumplant shrubs (*Grindelia*) that grow along the channel edges. Don Edwards San Francisco Bay National Wildlife Refuge has many marshes with perfect habitat and correspondingly some of the healthiest and largest populations of clapper rails in San Francisco Bay. Two marshes near Palo Alto managed by the Refuge, Laumeister and Faber marshes, account for about 10% of the total number of clapper rails heard on

ing the 1970s to their low, a few hundred individuals—restricted only to San Francisco Bay—by the early 1990s. Populations rebounded very well into the 2000s but have declined in most areas over the last five years.

Scientists with the Western Ecological Research Center (WERC) of the U.S. Geological Survey (USGS) are now begin-

continued next page

ning to understand why. Since 2007, over 100 rails in Laumeister Marsh, Arrowhead Marsh in Oakland, Cogswell Marsh in Hayward, and Colma Creek Marsh just north of the San Francisco Airport have been fit with backpack transmitters allowing USGS researchers to monitor the rail's movement patterns and survival.

Initial observations show a dramatic decline in survival during the winter months, particularly associated with high tide levels. WERC scientists are examining multiple factors that may play a role in this pattern including: rising sea levels, vegetation change, and small, fragmented patches of marshland in San Francisco Bay. Many marshes in the Bay lack refuge cover during extremely high tides which occur in both the winter and summer months. During the summer when vegetation is vigorous and lush this doesn't present as much of a problem for the rails. However, when vegetation dies back and becomes shorter in the winter



Less than a day old, this downy black clapper rail chick ties to hide on the floating island while it's nestmates hide in the vegetation nearby. Cory Overton/USGS

the rails are forced to hide wherever they can, be that in very small isolated patches of non-flooded habitat, on levee faces, or even floating debris. This exposes rails to predators (hawks, falcons, foxes, feral cats) more than in the summer when the vegetation is taller.

The USGS researchers deployed 10 small floating islands – made of recycled plastic and anchored in the Bay – at Arrowhead Marsh in the Fall of 2010. Each



A California Clapper Rail takes refuge (and a little time for some preening) on an artificial floating island built for them in South San Francisco Bay. Cory Overton/USGS

island was wrapped in woven vegetation, creating a tent of artificial cover for the birds to hide in. The scientists wanted to see if rails really were limited by hiding places during the winter, especially when the tides come up. They hope to understand when and how limited the available refuge from high water is, and to improve rail survival at the marsh over the winter. Although the islands remain a short term solution (they only last a few years) the hope is that they will provide a resource the remaining small populations can use to prevent extinction of this species.

Each island had a camera that took a photo every minute of the day to track use by clapper rails and any other animal that came by. The rails have responded to the islands with gusto. Within a few weeks of deployment every island was being visited by rails, sometimes for hours each day. As the winter progressed the islands were used more and more, especially at high tide just as the researchers expected. The photos, nearly two and a half million of them, showed that clapper rails were the only species that frequently used the islands.

By the end of the winter most of the islands routinely hosted a pair of rails that defended the island and kept other rails off. Rails demand a lot of privacy during the breeding season and each pair will claim a territory for themselves.

This April as the project was winding down, a last check of the islands revealed a very pleasant surprise. One of the pairs liked the island well enough to build a nest, a nest that happened to be hatching on the same day that the researchers selected to

make their visit! Of the seven or so eggs that were laid two were still in the nest and a single downy black chick was walking unsteadily on the washed up vegetation on the island; it's nest-mates having hid in the tall marsh grasses a few feet away under the watchful eye of one of the parents.

This welcome surprise was much less likely in the natural marsh vegetation since storms and an early spring tide the previous week flooded almost the entire marsh. Any birds nesting in the new green plant growth most likely would have been flooded. Clapper rail eggs can survive a little bit of flooding, but the closer to hatching they are the less able they can handle the cold Bay water. Fortunately for this pair the artificial island kept their nest high and dry.

The USGS scientists want to next focus attention on the risk of nest flooding and see if smaller artificial nest platforms, similar to the floating islands deployed this past winter, may help boost rail numbers. Water levels in San Francisco Bay are already rising and habitat restoration of salt ponds around the Refuge is currently being planned with this in mind. Improvements to habitat for nesting may be just what rails need to offset the increased risk created by higher water levels.

With a little ingenuity, we hope to keep our little local rock-star “kekking” away over the marshlands of San Francisco Bay.

Cory Overton is a U.S. Geological Survey Wildlife Biologist at the Dixon Field Station of the Western Ecological Research Station and Ph.D. student at the University of California at Davis.

Conserving the Future

By Mendel Stewart

This past July, the National Wildlife Refuge System convened a conference in Madison, Wisconsin that brought U.S. Fish and Wildlife Service employees from across the country together with many of our partners including federal and state agencies and nonprofit organizations. The purpose of the *Conserving the Future* conference was to finalize a document that would chart the course of the National Wildlife Refuge System's next decade. Attendees were charged with building on the foundation of the System's last strategic plan, known as *Fulfilling the Promise*, to create an updated vision for the future of America's national wildlife refuges. I was fortunate to be able to attend a similar conference in 1998, the first for the refuge system, where hundreds of people came together with a shared passion for wild creatures and wild places to craft what is now referred to as the Promises document.

This conference in Madison was much the same, yet different in many respects. Unlike last time, this conference was held in a time of turmoil for the federal budget. In 1998, the federal budget was balanced and



Refuge Reflections

by Mendel Stewart

expanding. Today is a very different story, and budgets for our agency and many others are contracting. However, one thing remains the same. The passion for conservation remains strong, not in spite of our current turmoil, but I believe because of it. It seemed that the 1200 folks at the *Conserving the Future* conference were determined to find a path toward conservation success and they were more than willing to share their determination with others. This, combined with the speakers at the conference, contributed toward positive motivation, and the enthusiasm was intoxicating. Speakers such as Secretary of the Interior Ken Salazar, Ethologist Jane Goodall, Oceanographer Sylvia Earle, retired Coast Guard Admiral and Commandant Thad Allen, National Geographic photographer Dewitt Jones and

others joined with some of our agency's own leadership to provide inspirational messages of hope in austere times.

Locally, our refuge staff remains determined to keep up the fight and put every federal dime to the best use in meeting our conservation mission. We have accomplished much in past lean budget years by working with our partners to stretch our conservation dollar. We expect nothing less in the future. I hope you, too, will continue to keep up the fight because economic health should not compromise wildlife conservation and environmental health.

You can learn more about the *Conserving the Future* conference, watch videos of many of the speakers and review the strategic document at <http://americaswildlife.org>

Annual Sale of Native Plants



Saturday, October 15, 2011

10:00 a.m. - 4:00 p.m.

Help save water use by landscaping your yard with California native plants and attract hummingbirds and butterflies to your neighborhood. Sale will be held at the Visitor Center located at the first parking lot to your right.

Don Edwards San Francisco Bay National Wildlife Refuge
2 Marshlands Rd, Fremont, CA

For more information, call Carmen Minch at
510-792-0222 ext. 476



The San Francisco Bay National Wildlife Refuge Complex is now on Facebook!
Like us and receive timely updates about the Complex.

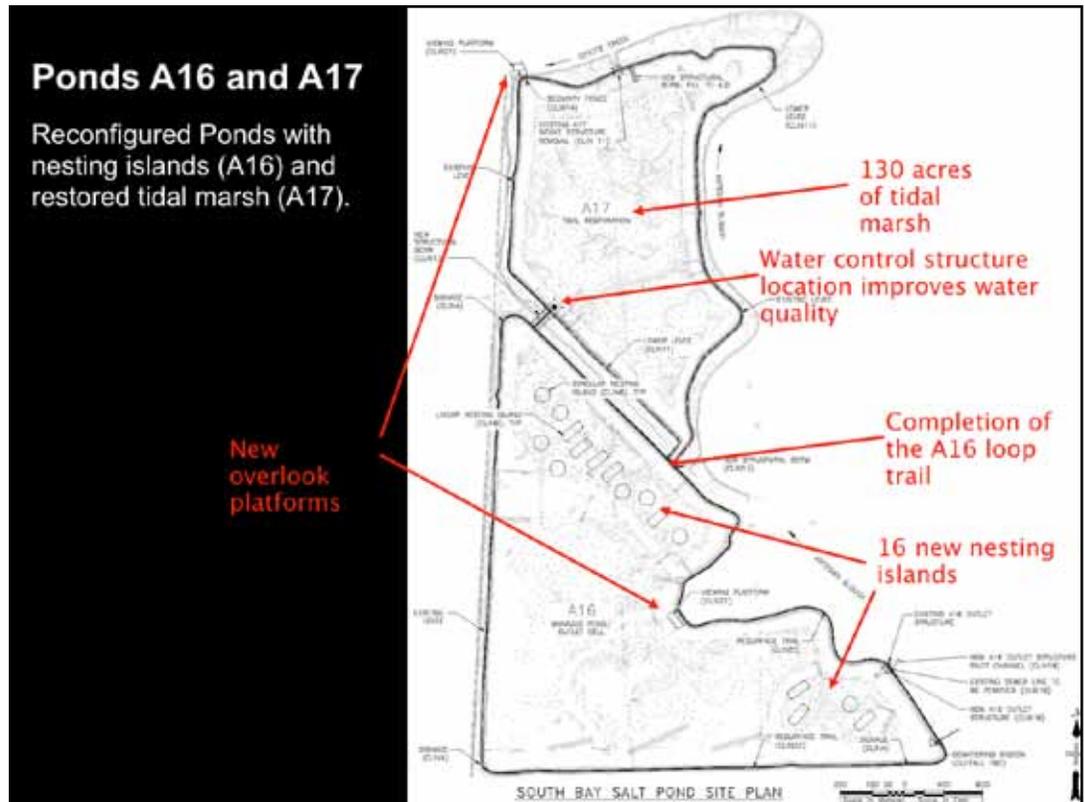
Mallard Slough Trail Under Construction

By Eric Mruz, Don Edwards
SF Bay National Wildlife
Refuge Manager

Wildlife habitat improvements and increased wildlife-dependent recreational opportunities are coming soon near the Environmental Education Center in Alviso at the Don Edwards San Francisco Bay National Wildlife Refuge. The Mallard Slough Trail, which consists of a levee surrounding former salt ponds the refuge calls A16 and A17, will be re-configured to allow for wetland restoration. As a result, portions of the Mallard Slough Trail will be closed until 2012.

Ponds A16 and A17 are integral units of the biggest wetland restoration on the west coast called the South Bay Salt Pond Restoration Project (SBSP). The mission of the SBSP Restoration Project is to: restore and enhance wetlands in the South San Francisco Bay as habitat for federally-listed endangered species and migratory birds; provide flood management; and create wildlife-oriented recreation.

Why is this project so important? San Francisco Bay has lost approximately 85% of its historic tidal wetlands. Numerous documents that outline how to improve the health of the Bay, including the Baylands Goals Project, have identified tidal marsh restoration as an important component in reaching that goal. Restoring A16 and A17 will create 130 acres of tidal marsh habitat and 240 acres of shallow water foraging habitat for migratory birds that will include nesting islands. It will have tremendous impact on regional goals to increase available tidal marsh habitats in the South Bay subregion. It will provide a continuous marsh corridor from Bair Island south and around to the east side of the South Bay. Restoration of these habitats on a regional scale also has the ability to improve regional water quality, improve the ecological and



economic productivity of Bay waters, ameliorate the effects of storms and shoreline flooding, and assist in the adaptation of South Bay communities to sea-level rise.

Wildlife observation opportunities will be increased and new facilities will be constructed with the new alignment of the Mallard Slough Trail. The trail will continue to be a loop but shortened to just over three miles rather than five miles. This allows more people to be able to complete the loop trail. In addition, there will be a trail spur to Coyote Creek where one can view the ghost town Drawbridge from across the creek. The trail will be graveled, increasing accessibility, and benches and interpretive signage will be installed. Other visitor use facilities include two viewing platforms to better observe the birds attracted to the shallow water habitat and nesting islands. One of these platforms will allow fishing.

Important Visitor Information

Water levels in Ponds A16 and A17 will begin to be lowered in August. The draining

of the ponds over the next several weeks will expose the pond bottom and allow for construction of nesting islands, water control structures, and fish screens. During our construction period, we will need to close certain portions of the trail to allow for the safety of visitors and a safe and productive work environment.

Lowered water levels and trail closures could last until Fall 2012, depending on weather and other variables that could delay construction. The refuge will be sure to update the website and post appropriate trail closure signs when information is available.

We thank all our visitors for your understanding during this exciting time of restoration in the San Francisco Bay. When complete, this restoration project will not only bring us one step closer to improving the Bay for wildlife, it will create greatly improved features for public access and recreation for all people to enjoy.

Look for updates on the refuge's website at <http://www.fws.gov/desfbay>; and South Bay Salt Pond Restoration Project's website at <http://www.southbayrestoration.org>.

Are Cows Helping Vernal Pools on Warm Springs?

By *Ivette Loreda*,
Warm Springs Unit Manager

Warm Springs Seasonal Wetland Unit (Warm Springs) of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) is a vernal pool grassland that hosts a suite of rare species. Vernal pools are precipitation-filled depressions that become inundated with water during the winter rainy season and then completely dry out in the summer. Vernal pools are home to a highly diverse and largely endemic flora and fauna, which are adapted to these annual cycles of flooding and drying. Many of the species that inhabit vernal pools are experiencing population declines due to habitat loss. Three such species that reside in Warm Springs are the federally endangered vernal pool tadpole shrimp and Contra Costa goldfield, and the federally threatened California tiger salamander.

Warm Springs was acquired by the Refuge in 1992. For most of the 20th century, Warm Springs was operated as a private duck club while being grazed by cattle. Upon acquiring the property, the Refuge removed cattle grazing in the absence of a formal management plan. Early management activities were limited and in the proceeding decade, non-native annual grasses began to accumulate in vernal pools, significantly altering plant communities. Refuge staff observed an apparent decline in abundance of native vernal pool plants and wildlife; this was consistent with research from other vernal pool ecosystems in which grazing was removed.

In the spring of 2004, cattle were reintroduced to Warm Springs upon completion of a management plan and an environmental review process. Annual monitoring was expanded and results have been very encouraging, showing a decline in the abundance of non-native grasses and an increase in native vegetation.

At Warm Springs, the most valuable information on the effects of grazing on vernal pool vegetation comes from the annual vernal pool enclosure surveys. In 2003, prior to the reintroduction of cattle to the site, Refuge staff set up four paired plots (4m x 4m size) within vernal pools. In each pair, one plot was fenced to exclude cattle

and one was left open and the corners were marked using GPS. Plots were situated a few meters from each other and were located within the same vernal pool. When they were set up, a coin was flipped to randomly determine which plot of each pair to fence off. Vegetation in these plots is surveyed each spring during the peak bloom. Vernal pool vegetation can vary dramatically both spatially (between pools within the same year) and temporarily (between years within the same pool). Therefore, this data is highly valuable because it allows us to look at the same vernal pool during the same year, with and without grazing!

It has now been seven full grazing seasons since the cows have been reintroduced and the differences between the grazed and ungrazed plots has become more dramatic. Fenced (ungrazed) plots are dominated by non-native annual grasses, while unfenced (grazed) plots have higher cover of native vernal pool plants.

To visually illustrate this vegetation difference, a properly angled photo is definitely worth a thousand words. In 2010 Cris Benton, a UC Berkeley professor and “kite aerial photographer,” was able to get these photos of the enclosures during their peak bloom. These photos were taken using a remote-controlled camera mounted on a kite. They clearly demonstrate the difference in the vegetation between the grazed and ungrazed plots.

A more thorough analysis of the grazing program at Warm Springs is currently being conducted utilizing years of data from grazed and ungrazed portions of the Refuge. However, the immediate results seen annually from the enclosure surveys are very encouraging. The Refuge will continue to monitor the vegetation and wildlife at Warm Springs, and make management changes as necessary to adapt to changing conditions and new information.



Endangered Contra Costa goldfields thrive in the grazed areas while the ungrazed plot is full of non-native grasses. Photo by Cris Benton.

CCP Watch for Don Edwards SF Bay NWR

What is a CCP?

A Comprehensive Conservation Plan is a 15-year management guide, using the best available scientific knowledge, to help managers achieve the purposes for which each refuge was established, and to contribute to the mission of the National Wildlife Refuge System. The National Wildlife



Refuge System Improvement Act of 1997 defined the mission for the Refuge System and requires refuges to have a CCP in place by 2012. The Act provides the U.S. Fish and Wildlife Service (Service) with guidance for managing refuges in a way that ensures the long-term conservation

of fish, wildlife, plants and their habitats. CCP outline goals, objectives and management strategies for a refuge to achieve during the 15-year life of a CCP.

Three alternatives have been developed through the CCP process for managing the Don Edwards San Francisco Bay National Wildlife Refuge. The draft CCP is expected to be published for public comment in Fall 2011. The three alternatives are:

Alternative A (No Action), Refuge management would continue unchanged.

Alternative B includes all actions in Alternative A, and an incremental increase in wildlife management (standardized monitoring and research of priority listed species, baseline inventory of native species), habitat management (implementation of a weed management and re-vegetation plan, reduction in carbon footprint of operations), visitor services (construction of a

visitor center, bus stop at headquarters), and environmental education (expansion of the habitat restoration program, expansion of program to include high schools and colleges).

Alternative C includes all actions in Alternative B, and a substantial increase in wildlife management (additional surveys of other listed species, investigation of reintroduction of listed species), habitat management (more aggressive weed control efforts, partnerships to monitor priority species for priority contaminants), visitor services (bus stop at the environmental education center, auto tour route) and environmental education (programs in other languages, college-level inventory and monitoring service - learning curriculum).

For more details on each of the alternatives, or for updates on the CCP process and the alternatives, see the "Comprehensive Conservation Planning" link at <http://www.fws.gov/desfbay>

Scout and Youth Group Programs

The Don Edwards San Francisco Bay National Wildlife Refuge offers free hands-on, programs for youths. During the programs participants learn about endangered species, migratory birds, wetland habitats, and the relationship between personal habits and their effects on the San Francisco Bay. These programs are designed to meet badge/patch requirements of Scout Groups, but anyone can participate. Because of the popularity of such programs, reservations are required. Badges are not provided.

Below are the names, dates, and descriptions of the programs. Programs at the Environmental Education Center are sponsored by the Santa Clara Valley Urban Runoff Pollution Prevention Program and the San Francisco Bay Wildlife Society.

Youth Group Programs at the Environmental Education Center in Alviso

Note: Ratio of 1 adult per 5 children maximum. Space is limited to 20 people, including siblings. Once the program is full there will be a waiting list. Call Debra at 408-262-5513 ext. 102.

Saturday, September 24

*** Brownie Eco-Explorer Patch**
Environmental Education Center, Alviso
10:00 a.m. – 12:00 p.m.

Come and learn about habitats, food chains, and how you can help wildlife. Then take a walk to explore the habitats at the South Bay. We'll have a special craft to round out the day. Space is limited to 20 people and program fills quickly.

Saturday, September 24

*** Junior Girl Scout Wildlife Badge**
Environmental Education Center, Alviso
2:00 p.m. – 4:00 p.m.

Calling all Junior Girl Scouts of Santa Clara County! Anyone out there need to earn a Wildlife badge? We've got the program just for you! Come to the wildlife refuge and learn about features of different creatures, observe animal behavior, see how you can help wildlife, and so much more. Take a walk to explore the habitats at the south end of the bay.

Saturday, November 12

*** Webelos Naturalist Badge**
Environmental Education Center, Alviso
2:00 p.m. – 4:00 p.m.

Anyone out there need to earn a Naturalist badge? We've got the program that's right for Webelos! Learn about birds, migration, flyways, food chains, human impact, and the importance of wetlands. Then take a walk and use our binoculars to spot birds in the wild.

Youth Group Programs at the Refuge Headquarters in Fremont

The Refuge Headquarters offer Webelos programs for up to 15 Webelos. Call 792-0222 ext. 363 for reservations. All programs are led by June Smith.

Sunday, September 11
Saturday, October 8
Sunday, November 13

Webelos Naturalist Program
10:00 a.m. – 12:00 p.m.

Attention Webelos! Earn your naturalist badge in just two hours. During this hike, learn about birds, flyways, food chains, and the importance of wetlands. Bring your binoculars, or borrow one of ours.

**Don Edwards San Francisco Bay National Wildlife Refuge
and REI Outdoor School
present**

The Amazing Refuge Race

October 15, 2011 • 2:00 p.m.

In celebration of National Wildlife Refuge Week, Don Edwards San Francisco Bay National Wildlife Refuge is hosting the Amazing Refuge Race!

Armed with GPS units, you and your team will “race” against other teams by attempting to complete required tasks on the refuge first. Teams will be given a set of coordinates where they must try to locate using a GPS unit. Once at that location, teams must work together to complete a task. When that task is completed, teams will receive the next set of coordinates. Those who complete all tasks and arrive at the finish first wins!



Intrigued? Log on to <http://www.fws.gov/desfbay> or call Carmen at 510-792-0222 ext. 476 for additional information and rules. Don't have a GPS unit? Borrow one from REI Outdoor School the day of the race at the refuge.

Registration is required! You may register up to 5 people for your team. A minimum of 2 people per team. The refuge may place individuals on teams containing fewer than 5 people to ensure maximum participation. Registration deadline is October 8, 2011. Call 510-792-0222 ext. 363 to register. There is no cost to enter.

Introduction to GPS Workshop

REI Outdoor School's Steve Wood will demonstrate how to use hand-held Global Positioning Units and will have limited number of units to practice on. No reservations necessary.

When: October 15, 2011

Where: Newark Slough Learning Center
2 Marshlands Rd

Time: 1:00 p.m. - 1:45 p.m.

Fremont, CA 94536

Cost: FREE!

No reservations necessary.

Don Edwards San Francisco Bay National Wildlife Refuge

*2 Marshlands Road, Fremont, CA
510.792.0222 ext. 363*



Thank you San Francisco Bay Wildlife Society Donors!

We gratefully acknowledge the following donors who have made gifts to the San Francisco Bay Wildlife Society between April 1, 2011 and June 30, 2011. These gifts will be used for publishing *Tideline*, capital, environmental education, habitat restoration, and interpretive programs at the Don Edwards San Francisco Bay National Wildlife Refuge.

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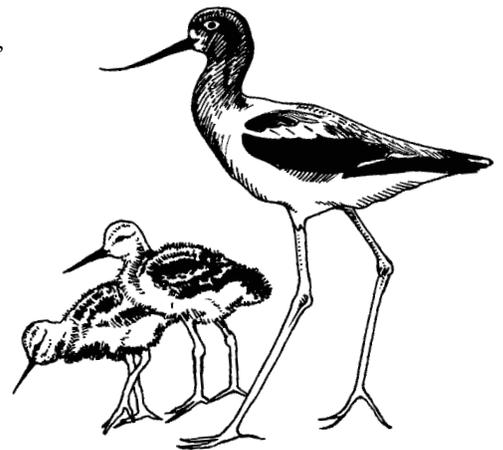
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Help Us Help the Refuge

Mail your donation to: San Francisco Bay Wildlife Society, P.O. Box 234, Newark, CA 94560. You may also fax your membership donation using a Visa or MasterCard number to (510) 792-5828.

For a gift membership, call 510-745-8170.

San Francisco Bay Wildlife Society is a nonprofit 501(c)(3) organization which raises money and awareness for the San Francisco Bay National Wildlife Refuge Complex.

YES! I want to support San Francisco Bay Wildlife Society and its programs with my membership. My dues include a subscription to *Tideline* and 15% discount at the Don Edwards SF Bay National Wildlife Refuge bookstore. Enclosed is my contribution of:

- \$20 Student/Senior
- \$35 Individual
- \$50 Family
- \$75 Supporter
- \$100 Participant
- \$250 Sponsor
- \$200 Corporation
- \$1,000 Leader
- \$500 Sustainer

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National Wildlife Refuge Week

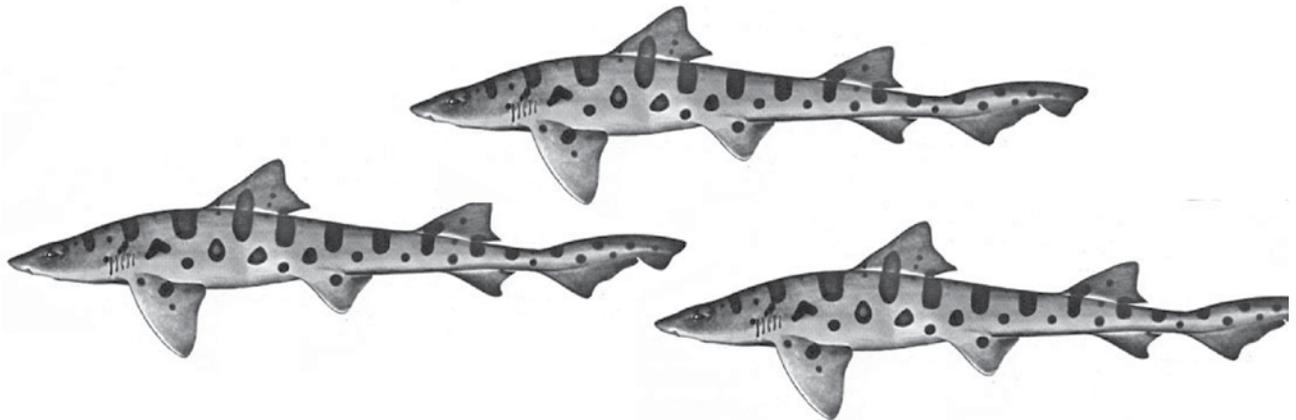


October 8 - 15

at Don Edwards
San Francisco Bay
National Wildlife Refuge

SHARK DAY

Saturday, October 8
12 to 3PM



THE SHARKS ARE COMING!!!

To The Environmental Education Center at
the Don Edwards San Francisco Bay National Wildlife Refuge

Join us for this very special FREE event, celebrating our unique native leopard sharks,
and their marshland habitats.



FREE!

GAMES, CRAFTS, PRIZES!



Visit our website for directions at:

www.fws.gov/desfbay

For more information call (408) 262-5513

Shark Day is provided by the City of San Jose (Slow The Flow Program), Santa Clara Valley Urban Runoff Pollution Prevention Program (Watershed Watchers), the U.S. Fish & Wildlife Service, and the San Francisco Bay Wildlife Society

Autumn Activity Schedule

SEPTEMBER

Sunday, September 4

Nature Yoga

Visitor Center, Fremont

10:00 a.m. – 11:30 a.m.

Enjoy the benefits of Yoga outdoors with great views of the salt marsh. Through story and postures, learn what attracted people and wildlife to the Bay. There will be a short hike to the site from the Visitor Center. Bring a yoga mat and/or beach towel. A limited number of mats are available to borrow. Wear comfortable clothing. Consult with your doctor before participating. All ages and abilities welcome. Reservations are required. Call 510-792-0222 ext. 363. Led by Carmen Minch.

***Marsh Mud Mania**

Environmental Education Center, Alviso

2:00 p.m. – 3:30 p.m.

Come and get your hands dirty during this fun and educational program about mud creatures. We will investigate a sample of mud collected from the salt marshes of the San Francisco Bay, and observe some of the thousands of incredible organisms that spend their lives in the mud! A short talk will be followed by a hands-on activity, and then a guided walk around the marshlands. RESERVATIONS REQUIRED – All Ages are welcome. Call Eric at 408-262-5513 ext. 104.

Saturday, September 10

Drawbridge Van Excursion

Environmental Education Center, Alviso

9:30 a.m. – 12:00 p.m.

There's a ghost town in the San Francisco Bay? That's right! Nestled on an island in the salt marshes of South San Francisco Bay, the town of Drawbridge once boomed. Was it a quiet, peaceful town full of nature lovers, or a rip-roaring town full of two-fisted rowdies? Find out at this program, led by Ceal Craig. We'll start with a slideshow, and then take a short van excursion to view Drawbridge across Coyote Creek. Program is intended for adults and space is very limited. RESERVATIONS ARE ESSENTIAL. Call Debra at 408-262-5513 ext. 102. (Note: we do not visit the town itself – we go to the closest spot that one can legally view Drawbridge.)

***Habitat Exploration**

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Join us as we explore all five habitats on the refuge. We will look for various types of wildlife, including insects, reptiles, and our common residents. With the end of summer approaching, we will also see signs of seasonal change.

Open to all ages but best suited to ages 9 to adult. Led by Ed Kantack. Call Debra at 408-262-5513 ext. 102 for reservations.

A Trip Back in Time

Visitor Center, Fremont

10:30 a.m. – 12:00 p.m.

Revive the vanishing knowledge of the history of the Don Edwards San Francisco Bay National Wildlife Refuge grounds by strolling the trails with docent Ray Studer. Ray spent most of 2004 researching the on-site salt production, railroads, and homes that were located on the refuge grounds until the 1950s. Using a collection of old photographs, the last vestiges of a way of life can be traced back to the 1850s that led to the construction of the town of Newark in 1876.

***Discover Ohlone Uses of Plants**

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Are you learning about the Ohlone Indians at school, or are you just curious? If so, then this is the program for you! Explore the plants that were traditionally used by the original inhabitants of this area, the Ohlone Indians. Then enjoy a guided walk around our native plant garden. Fun for the whole family! Led by Pat Hartinger. Call Debra at 408-262-5513 ext. 102 for reservations.

Twilight Marsh Walk

Visitor Center, Fremont

6:30 p.m. – 8:00 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the refuge as night descends. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222 ext 363. Led by Mary and Gene Bobik.

Saturday, September 17

Coastal Cleanup in Alviso

Environmental Education Center, Alviso

9:00 a.m. – 12:00 p.m.

Come help out as we join others around the world in an effort to keep our coastal areas clean! Together with the City of San Jose, we'll pick up trash and tidy up a wetland area near the refuge. Come with a hat, sunscreen, a great attitude, and we'll provide the rest! Space is extremely limited, so please call Debra at 408-262-5513 ext. 102 for reservations.

Coastal Cleanup in Fremont

Visitor Center, Fremont

8:30 a.m. – 12:00 p.m.

Protect habitats near the coast on the Don Edwards San Francisco Bay National Wildlife Refuge. For Coastal Cleanup Day, pull invasive plants that threaten to take over endangered species and other wildlife habitat. Bring a pair of gardening gloves, or borrow a pair of ours. Space is limited! Reservations are a must. Call 510-792-0222 ext. 363.

***Return of Shorebirds to Restored Salt Pond in South San Francisco Bay**

Ravenswood Unit (SF2), Menlo Park

11:00 a.m.

Come greet the shorebirds as they return by the thousands to San Francisco Bay every autumn. Docent Jane Moss will lead you on a 1.5 mile round-trip hike along Don Ed-

ward's newest interpretive trail and introduce you to the South Bay Salt Pond Restoration Project. Trail is easy and level. All ages and abilities welcome. For information, call 510-792-0222 ext. 139.

San Francisco Bay: From the Gold Rush to Today

Visitor Center, Fremont

2:00 p.m. – 3:00 p.m.

Since the Gold Rush, human development has caused dramatic changes to the San Francisco Bay. Join docent Art Garibaldi as he shares the incredible history of the death and rebirth of the Bay. Learn how local citizens struggled to save the Bay and its wetlands. Their success has led us to promising new future. Program is indoors. All are welcome.

Sunday, September 18

Nature Drawing for Kids

Visitor Center, Fremont

10:30 a.m. – 12:30 p.m.

Does your child have an interest in the arts? Introduce your child to outdoor sketching in this workshop by Travis Turner and increase their observations skills. We will learn how to draw what we see by incorporating common shapes, and learn about shading value. We will then head out onto the trail and practice the various techniques. Paper and pencils will be provided. This program takes place outside. Rain cancels. Kids age 7-12 only! Call for reservations at 510-792-0222 ext. 363. Bring binoculars if you have them.

Saturday, September 24

Alviso Slough Trail – 9 miles

Meet at the Alviso Marina, Alviso

8:30 a.m.

Let's Go Outside!

Meet new people while getting fit and healthy! This is the 7th walk featured in the Refuge Rambler club. This trail in Alviso is a 9-mile loop, flat, and level. The walk is self-paced and you

may turn back at anytime. Hats, water, and sunscreen are strongly recommended. There is no shade. You do not need to be a Refuge Rambler to join this walk. No reservations are needed. A refuge representative will be there to greet you at 8:30 a.m. Directions: From Hwy 237, exit at Lafayette/Gold St. Head north onto the Gold St. Connector and left onto Gold St. Turn left onto Elizabeth St. and right onto Hope St., which leads you to the Alviso Marina. Meet in the picnic table area adjacent to the restrooms.

Bird Photography Safari

Alviso Ponds, Mountain View

9:00 a.m. – 12:00 p.m.

Photograph shorebirds and waterfowl on the former Alviso salt ponds with docent Alex Baranda. Program provides a "backstage pass" to birding spots not usually accessible to the public. Program will require travel both by van and by foot. Please be prepared to hike up to three miles in muddy conditions. Reservations required. Call Debra at 408-262-5513 ext. 102.

***Why Tides Matter**

Environmental Education Center, Alviso

11:00 a.m. – 12:00 p.m.

Docent Laurel Stell will talk and walk you through all things tides. What are they? How do they affect wildlife? How have humans reshaped the Bay's tidal lands? Program starts indoors but will move outside for an easy 0.5-mile walk. All are welcome.

***Trails are generally level. Surface and trail conditions vary. Please call for accessibility information.**

Visitor Center, 2 Marshlands Road, Fremont – (510) 792-0222 ext. 363 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

Sunday, September 25

Intro to Nature Drawing for Adults

Visitor Center, Fremont

10:30 a.m. – 12:30 p.m.

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use light to add dimension. We will discuss how the changing horizon lines can offer depth. There will be opportunities to practice these techniques on the trail. Paper and pencils will be provided. Bring binoculars if you have them. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

Chompers & Stompers

Environmental Education Center, Alviso

1:00 p.m. – 2:30 p.m.

Ever wondered why birds come in so many shapes, sizes, and colors? Find out why some birds exhibit such wacky behaviors. We will examine different bird specimens we have collected over the years to see how birds have adapted some extraordinary features. Come admire the wonder of the bird kingdom and then take a guided walk around the refuge to see these marvelous creatures in action! RESERVATIONS REQUIRED – All Ages are welcome. Call Eric at 408-262-5513 ext. 104.

OCTOBER

Saturday, October 1

Monster Bacteria & Other Suspicious Critters

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Let's explore the salt marsh's hidden habitats! See monster bacteria, some of which love rotten eggs, and some of which make the air we breathe. Join microbial ecologist Dr. Wayne Lanier for a short hike where we will use field microscopes to dive down into a tiny world – an ecology hidden from view. For ages 8 to 80 and beyond! Please call Debra at 408-262-5513 ext. 102 for reservations.

A Trip Back in Time

Visitor Center, Fremont

10:30 a.m. – 12:00 p.m.

Revive the vanishing knowledge of the history of the Don Edwards San Francisco Bay National Wildlife Refuge grounds by strolling the trails with docent Ray Studer. Ray spent most of 2004 researching the on-site salt production, railroads, and homes that were located on the refuge grounds until the 1950s. Using a collection of old photographs, the last vestiges of a way of life can be traced back to the 1850s that led to the construction of the town of Newark in 1876.

Discover Ohlone Uses of Plants

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Are you learning about the Ohlone Indians at school, or are you just curious? If so, then this is the program for you! Explore the plants that were traditionally used by the original inhabitants of this area, the Ohlone Indians. Then enjoy a guided walk around our native plant garden. Fun for the whole family! Led by Pat Hartinger. Call Debra at 408-262-5513 ext. 102 for reservations.

Saturday, October 2

Nature Yoga

Visitor Center, Fremont

10:00 a.m. – 11:30 a.m.

Enjoy the benefits of Yoga outdoors with great views of the salt marsh. Through story and postures, learn what attracted people and wildlife to the Bay. There will be a short hike to the site from the Visitor Center. Bring a yoga mat and/or beach towel. A limited number of mats are available to borrow. Wear comfortable clothing. Consult with your doctor before participating. All ages and abilities welcome. Reservations are required. Call 510-792-0222 ext. 363. Led by Carmen Minch.

Saturday, October 8

SHARK DAY!

Environmental Education Center, Alviso

12:00 p.m. – 3:00 p.m.

Join us for an afternoon of exploration and celebration of sharks! We'll have guided walks, games, crafts, face painting, story time, and various other hands-on activities. Get up close and personal with a live shark, and then explore their local habitats! Don't miss this special event! Great fun for the whole family and everything is absolutely FREE! No reservations necessary. For more information or directions, please visit our website, or contact Debra at 408-262-5513 ext. 102 or Eric at ext. 104.



Sunset Photography Hike

Eden Landing Ecological Reserve, Hayward

5:30 p.m.

Hidden among the salt ponds is one of the East Bay's most intriguing historical sites. The refuge and the South Bay Salt Pond Restoration Project are sponsoring this photography hike to the old Oliver Salt Works within the Eden Landing Ecological Reserve. We'll be walking into an area of the Reserve not yet open to the public so please be prepared to walk several miles on unimproved levees with your equipment. Reservations required. Please call 510-792-0222 ext. 139.

Sunday, October 9

Bay Bike Ride

Meet at the Visitor Center, Fremont

10:30 a.m.

Go on an 11-mile bike ride with docent Gregg Aronson on Marshlands Road and the Shoreline Trail to observe birds and other wildlife including the occasional leopard shark! Pass through several habitat types along the way. The paved and dirt trails are mostly flat. Mountain, trail, or hybrid bicycles highly recommended. Helmets are required. Recommended for more experienced bicyclists. Rain cancels. Call 510-792-0222 ext. 363 for reservations.

Autumn Activity Schedule

Saturday, October 15

Nature Drawing for Families and Adults

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Increase your confidence in drawing while exploring natural objects from the refuge and beyond. We will carefully observe all manner of cool objects and learn skills to translate these observations into realistic drawings. Appropriate for ages 8 to adult. Children, please bring an adult with you who would like to participate. Adults without children are welcome as well. Bring a sketch pad and pencil or use ours. All skill levels welcome. Led by Kathy Kleinsteinber. For reservations, please call Debra at 408-262-5513 ext. 102.

Native Plant Sale

Visitor Center, Fremont

10:00 a.m. – 4:00 p.m.

This is your chance to purchase that perfect native plant to add to your garden! Whether you're looking to re-landscape your yard with drought-resistant plants, or you want to create habitat for neighborhood birds and butterflies, this is the place to be. Sale will take place at the Visitor Center in Fremont.

Tidelands Trail/LaRiviere Marsh Walk – 1.5 miles

Visitor Center, Fremont

1:00 p.m.

Let's Go Outside!

This is the eighth and final walk featured in the Refuge Rambler club. If you've completed seven out of eight walks in the series, congratulations! Be sure to bring your passport to the Visitor Center for your free All-Star T-shirt! This trail is 1.5 miles. The walk is self-paced and you may turn back at any time. You do not need to be a Refuge Rambler to join this walk. No reservations are needed. A refuge representative will be there to greet you at 1:00 p.m.

continued next page

*Trails are generally level. Surface and trail conditions vary. Please call for accessibility information.

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Autumn Activity Schedule

Saturday, October 15

REI Outdoor School Presents: Introduction to GPS Workshop

Learning Center, Fremont

Follow signs from the Visitor Center

1:00 p.m. – 1:45 p.m.

The San Francisco Bay National Wildlife Refuge Complex and REI Outdoor School has teamed up once again to bring an Introduction to Global Positioning System (GPS) demonstration to the refuge for National Wildlife Refuge Week. Learn how to use a hand-held GPS unit. REI Outdoor School will have a limited number of units to practice. No reservations necessary.

Amazing Refuge Race

Visitor Center, Fremont

2:00 p.m. – about 4:00 p.m.

Sign up to participate in the Amazing Refuge Race! Using a GPS unit, teams of five will "race" to the coordinates given and perform specific tasks. Once the tasks are completed, teams will be given another set of coordinates. First team to the finish line wins! Prizes will be awarded. Teams may use their own GPS unit, or borrow one from REI Outdoor School at the refuge. Form your own teams or one can be assigned to you. For more information, log on to <http://www.fws.gov/desfbay>, or call Carmen at 510-792-0222 ext. 476. REGISTRATION IS REQUIRED. Call 510-792-0222 ext. 363 to register.

Living Wetlands

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Our refuge consists of salt marsh, salt ponds and tidal and non-tidal sloughs that are teeming with life. Why are our wetlands important to us and how do they affect ocean fisheries? Learn about the life and death struggles of our wetland inhabitants. The answers can be found by enjoying a slide show depicting the life and death struggles of our marsh inhabitants. Open to all ages but best suited for ages 9 and up. Led by Ed Kantack. Please call Debra at 408-262-5513 ext. 102 for reservations.

Twilight Marsh Walk

Visitor Center, Fremont

5:30 p.m. – 7:00 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the refuge as night descends. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222 ext 363. Led by Mary and Gene Bobik.

Sunday, October 16

Nature Drawing for Kids

Visitor Center, Fremont

10:30 a.m. – 12:30 p.m.

Does your child have an interest in the arts? Introduce your child to outdoor sketching in this workshop by Travis Turner and increase their observations skills. We will learn how to draw what we see by incorporating common shapes, and learn about shading value. We will then head out onto the trail and practice the various techniques. Paper and pencils will be provided. This program takes place outside. Rain cancels. Kids age 7-12 only! Call for reservations at 510-792-0222 ext. 363. Bring binoculars if you have them.

Water Wizards

Environmental Education Center, Alviso

1:00 p.m. – 2:30 p.m.

Life on the 'Blue Planet' would not be possible without our most precious resource, water. Join us at the EEC to learn more about the unique properties of water through hands-on activities, a presentation, and a guided wetlands walk. We will investigate what makes water such an important resource to people and wildlife, and probably get a little wet too! RESERVATIONS RECOMMENDED – All ages are welcome. Call Eric at 408-262-5513 ext. 104.

Saturday, October 22

*Marshlands of Dreams

Visitor Center, Fremont

10:30 a.m. – 11:30 a.m.

Join Paul Mueller on a 1-mile walk of the LaRiviere Marsh Trail to find traces of the past. Prior to marsh restoration, learn how Californians utilized the area for farming, quarrying, salt production, and transportation. There are opportunities for bird watching as well.

Shorebirds Return to SF2 - One Year Anniversary Walk

Ravenswood Unit (SF2), Menlo Park

11:00 a.m.

One year ago we opened the flood gates to restore a former salt pond to tidal action. Learn what happened over this past year as we welcome the return of the shorebirds. Docent Jane Moss will lead you on a 1.5 mile round-trip walk along Don Edward's newest interpretive trail and introduce you to the South Bay Salt Pond Restoration Project. Trail is easy and level. All ages and abilities welcome. For information, please call 510-792-0222 ext. 139.

Sunday, October 23

Nature Yoga for Kids

Visitor Center, Fremont

10:30 a.m. – 11:30 a.m.

Find similarities between yoga poses and wildlife in this program designed for kids age 7-11 and their parents. There will be a short hike to the site from the Visitor Center. Bring a yoga mat and/or beach towel. A limited number of mats are available to borrow. Wear comfortable clothing. Space is limited. Reservations are required. Call 510-792-0222 ext. 363. Led by Carmen Minch.

Astonishing Owls

Environmental Education Center, Alviso

1:00 p.m. – 2:30 p.m.

A small variety of owls frequent the habitats of the EEC – learn all about them during this program. We will explore the unique adaptations of these birds of prey that make them

one of the most feared hunters of the sky. Participants will hear a short presentation, go on a guided walk, and dissect owl pellets to learn how owls feed and digest prey animals. RESERVATIONS RECOMMENDED – All ages are welcome. Call Eric at 408-262-5513 ext. 104.

Saturday, October 29

*Family Bird Walk

2:30 p.m. – 4:30 p.m.

Visitor Center, Fremont

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. A limited number of binoculars are available to borrow. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 363.

Gardening at the EEC - Community Service

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Come help in our native plant garden by removing non-native plants, pruning, mulching, or various other jobs that help protect wildlife and clean up our gardens. We'll be starting preparations for planting native species. Bring your own gloves or borrow a pair of ours – tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. Please call Debra for reservations at 408-262-5513 ext. 102.

All About Owls

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Learn all that you've ever wanted to learn about owls here at the refuge! Where do owls eat? How do we not hear them when they flap their wings? Are owls the brainiacs of the bird world? Through an interactive presentation and owl pellet dissection, we'll find the answers to all these questions! Paul Bridges will lead the way. Please call Debra at 408-262-5513 ext. 102 for reservations.

Sunday, October 30

Intro to Nature Drawing for Adults

Visitor Center, Fremont

10:30 a.m. – 12:30 p.m.

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use light to add dimension. We will discuss how the changing horizon lines can offer depth. There will be opportunities to practice these techniques on the trail. Paper and pencils will be provided. Dress for the weather. Bring binoculars if you have them. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

November

Sunday, November 5

*Marshlands of Dreams

Visitor Center, Fremont

10:30 a.m. – 11:30 a.m.

Join Paul Mueller on a 1-mile walk of the LaRiviere Marsh Trail to find traces of the past. Prior to marsh restoration, learn how Californians utilized the area for farming, quarry-

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Visitor Center, 2 Marshlands Road, Fremont – (510) 792-0222 ext. 363 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

ing, salt production, and transportation. There are opportunities for bird watching as well.

Sunday, November 6

Bay Bike Ride

Meet at the Visitor Center, Fremont

10:30 a.m.

Go on an 11-mile bike ride with docent Gregg Aronson on Marshlands Road and the Shoreline Trail to observe birds and other wildlife, including the occasional leopard shark! Pass through several habitat types along the way. The paved and dirt trails are mostly flat. Mountain, trail, or hybrid bicycles highly recommended. Helmets are required. Recommended for more experienced bicyclists. Rain cancels. Call 510-792-0222 ext. 363 for reservations.

Nature Drawing for Kids

Visitor Center, Fremont

10:30 a.m. – 12:30 p.m.

Does your child have an interest in the arts? Introduce your child to outdoor sketching in this workshop by Travis Turner and increase their observations skills. We will learn how to draw what we see by incorporating common shapes, and learn about shading value. We will then head out onto the trail and practice the various techniques. Paper and pencils will be provided. This program takes place outside so dress warmly. Rain cancels. Kids age 7-12 only! Call for reservations at 510-792-0222 ext. 363. Bring binoculars if you have them.

Mysteries of Wastewater Treatment

Environmental Education Center, Alviso

2:00 p.m. – 3:30 p.m.

The San Jose-Santa Clara Water Pollution Control Plant treats hundreds of millions of gallons of wastewater from millions of people every day using some of the most advanced treatment technologies available. Come and learn about what it takes to make this interesting process happen through a slideshow and hands-on activities at the refuge. RESERVATIONS RECOMMENDED – All Ages are welcome. Call Eric at 408-262-5513 ext. 104. (There will not be a tour of the Water Pollution Control Plant as a part of this program.)

Saturday, November 12

Explore the Weep

Environmental Education Center, Alviso

10:00 a.m. – 1:00 p.m.

Join microbial biologist, Dr. Wayne Lanier, who will take you on a short van ride to study microbial communities. The Weep is a shallow persistent pond fed by seepage. Throughout the year, it undergoes very wide swings in salinity, and the result is a uniquely rich microbial community of Cyanobacteria, Archeobacteria, Diatoms, Dinoflagellates, and protozoa. Boots are recommended! Ages 10 and up. RESERVATIONS REQUIRED – please call Debra at 408-262-5513 ext. 102.

San Francisco Bay: From the Gold Rush to Today

Visitor Center, Fremont

2:00 p.m. – 3:00 p.m.

Since the Gold Rush, human development has caused dramatic changes to the San Francisco Bay. Join docent Art Garibaldi as he shares the incredible history of the death and rebirth of the Bay. Learn how local citizens struggled to save the Bay and its wetlands. Their success has led us to promising new future. Program is indoors. All are welcome.

Twilight Marsh Walk

Visitor Center, Fremont

4:00 p.m. – 5:30 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the refuge as night descends. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222 ext 363. Led by Mary and Gene Bobik.

Night Sky Party

Environmental Education Center, Alviso

6:00 p.m. – 8:00 p.m.

Meet the stars of Autumn! Join our amateur astronomers as we learn about constellations. Make a star chart and then venture outside to view the night sky through a telescope. Afterwards, warm up with some hot chocolate. Bring your own binoculars or spotting scopes if you have them. Dress warmly. Fun for the whole family! RESERVATIONS REQUIRED - please call Debra at 408-262-5513 ext. 102.

Sunday, November 13

Life at the Bottom of the Food Chain

Visitor Center, Fremont

10:00 a.m. – 12:00 p.m.

Wetlands microbes are often called "the lungs of the earth." Explore the dynamics of microbial communities in LaRiviere Marsh ponds. Join microbiologist Wayne Lanier, PhD for a brief presentation; then a microscope hike to LaRiviere Marsh where we will sample and view the most ancient creatures on earth. See how they produce the oxygen we breathe and take up the carbon dioxide we produce. Discover how tides shape these vital communities. Easy short hiking level. Ages 9-90 years. Call 510-792-0222 ext. 363 for reservations.

Beginning Bird Drawing

Environmental Education Center, Alviso

11:00 a.m. – 12:30 p.m.

You don't have to be Picasso to enjoy drawing! Join us for this introductory program to help you get started on a fun nature observation hobby. Bring a sketchbook or some paper and a pencil (or we can loan you ours), and we will cover some basic concepts of drawing in pencil while learning about bird anatomy in the process! RESERVATIONS REQUIRED. Ages 10 and up. Call Eric 408-262-5513 at ext. 104.

Saturday, November 19

Community Service

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Come help in our native plant garden by removing non-native plants, pruning, mulching, or various other jobs that help protect wildlife and clean up our gardens. We'll be starting preparations for planting native species. Bring your own gloves or borrow a pair of ours – tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. Please call Debra for reservations at 408-262-5513 ext. 102.

*Family Bird Walk

2:30 p.m. – 4:30 p.m.

Visitor Center, Fremont

Let family walks become a shared time of nature learning.

Autumn Activity Schedule

We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. A limited number of binoculars are available to borrow. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 363.

Water, Water, Everywhere

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

How much water is there and where does it come from? Where does it go? How much of the Earth's water supply can we use? Learn about the water cycle and watersheds. Build a model of a watershed and see if you can predict where the water will go. Open to all ages but best suited to 3rd grade and up. Led by Ed Kantack. Please call Debra at 408-262-5513 ext. 102 for reservations.

Why Tides Matter

Environmental Education Center, Alviso

3:00 p.m. – 4:00 p.m.

Docent Laurel Stell will talk and walk you through all things tides. What are they? How do they affect wildlife? How have humans reshaped the Bay's tidal lands? Program starts indoors but will move outside for an easy 0.5-mile walk. Suitable for ages 8 and up, and all are welcome.

Sunday, November 20

Intro to Nature Drawing for Adults

Visitor Center, Fremont

10:30 a.m. – 12:30 p.m.

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use light to add dimension. We will discuss how the changing horizon lines can offer depth. There will be opportunities to practice these techniques on the trail. Paper and pencils will be provided. Program begins in the pavilion. Bring binoculars if you have them. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

Sunday, November 27

Nature Yoga

Visitor Center, Fremont

10:00 a.m. – 11:30 a.m.

Enjoy the benefits of Yoga outdoors with great views of the salt marsh. Through story and postures, learn what attracted people and wildlife to the Bay. There will be a short hike to the site from the Visitor Center. Bring a yoga mat and/or beach towel. A limited number of mats are available to borrow. Wear comfortable clothing. Consult with your doctor before participating. All ages and abilities welcome. Reservations are required. Call 510-792-0222 ext. 363. Led by Carmen Minch.

*Trails are generally level. Surface and trail conditions vary. Please call for accessibility information.

Visitor Center, 2 Marshlands Road, Fremont – (510) 792-0222 ext. 363 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

Field Trips to the Refuge

General Education Program Information

We offer FREE field trip programs at two sites at the Don Edwards San Francisco Bay National Wildlife Refuge. Wetland Round-Up field trip programs are offered at our Headquarters in Fremont, and Wetland Round-Up and Slow the Flow are offered at the Environmental Education Center in Alviso. These programs actively involve teachers, adult volunteers, and students in investigating the diverse habitats and wildlife at the Refuge. The hands-on, small-group activities are designed to teach basic ecological concepts and to introduce endangered species, migratory birds, and wetland habitats to the students. All programs have been correlated to the appropriate State of California Education Standards.

Educators and adult leaders conduct their own field trips after attending a Field Trip Training or Workshop. The Trainings and Workshops allows you to design and conduct your own field trip. In addition, adult volunteers must be recruited to lead the activities at the different learning stations and to chaperone the rotation groups of students. We provide easy to follow “scripts” for each station, but both “leaders” and “chaperones” are strongly encouraged to attend a Field Trip Workshop. New teachers must attend the New Teacher Training. In addition, it is our policy that lead educators must attend a workshop every third year. Location of activities and trail conditions may vary. Please call for accessibility information.

Field Trips at the Learning Center in Fremont

CHANGES TO THE WETLAND ROUND-UP FIELD TRIP PROGRAM

The Wetland Round-up field trip program in Fremont is undergoing revisions. New scripts and some new activities will be developed to further enhance learning at this site. Therefore, we will NOT BE OFFERING THE REGULAR WETLAND ROUND-UP PROGRAM IN THE FALL 2011. Updates about the revision will be posted on our website, and we hope to unveil our new offerings in Spring 2012. Details about scheduling a Spring 2012 field trip will be posted on our website and in the Winter issue of Tideline. Thank you for your understanding and support during this transition.

Contact the Environmental Education Staff at Fremont:

Office: (510) 792-0222 ext. 475

Cell: (510) 377-7269

E-mail: ee.refuge@yahoo.com

Scout and Youth Group programs listed on page 6

Field Trips at the Environmental Education Center in Alviso

Wetland Round-Up

Investigate the butterflies in the butterfly garden, taste pickleweed in the salt marsh, or discover the creatures that live in the slough water on a Wetland Round-Up Field Trip. This field trip program is designed for up to 65 students in grades K-6.

Wetland Round-Up is offered Monday – Thursday from October to December, 2011. **Field Trips start Wednesday, October 12 and end Thursday, December 15, 2011.**

We will begin taking reservations for Fall 2011 field trips on Thursday, September 8 from 4:00 p.m. -5:00 p.m. Call 408-262-5513. We will be answering the phones in person.

We will begin taking reservations for Spring 2012 field trips on Tuesday, December 13, 2011 from 4:00 p.m. – 5:00 p.m.

Field Trip Training and Orientation Workshop Dates at the Environmental Education Center in Alviso

Announcing our NEW Field Trip Training and Orientation Program! Please note the following changes. *Thank you to all the teachers and parents who have provided us feedback so we could restructure our training program to better serve you!*

New Teacher Field Trip Training

Teachers that have not yet attended a field trip orientation **must** attend one of the following **New Teacher Field Trip Trainings** listed below.

Thursday, September 29 4:00 p.m. – 6:00 p.m.

Sunday, November 6 10:00 a.m. – 12:00 p.m.

Returning Teacher and Parent Workshop

Returning Teachers and Parents will be offered a separate Returning Teacher and Parent Workshop. **It is a requirement that returning teachers must attend one of these workshops once every three years.** We highly recommend that Parent Activity Leaders attend one of the following workshops. In addition, we **strongly encourage** returning teachers to attend the workshop with their parent volunteers.

Thursday, October 6 4:00 p.m. – 6:00 p.m.

Sunday, November 6 1:30 p.m. – 3:30 p.m.

Thursday, November 17 4:00 p.m. -6:00 p.m.

For more information call the EE Staff at Alviso:

Office: 408-262-5513 ext. 100

Email: genie_moore@fws.gov

Slow the Flow Program

Slow the Flow provides an experiential learning environment for students and educators to explore the topics of water use, wastewater treatment, and habitat preservation. Activities and presentations focus on the relationship between personal habits and their effects on local habitats. Slow the Flow is an environmental education program offered **at no cost** through the cooperative efforts of the City of San Jose, U.S. Fish and Wildlife Service, and the San Francisco Bay Wildlife Society.

Slow the Flow Program Offerings:

Integrated Field Trip Program (5th – 12th grades): This program incorporates multiple activities. Participating classes will receive two full-length classroom presentations from Slow The Flow educators, including hands-on activities and demonstrations, and will also participate in a field trip to the Don Edwards Refuge. Upon special request, the field trip may be combined with a tour of the San Jose-Santa Clara Water Pollution Control Plant (when available). For the Integrated Program, participating classes must be from the following cities: San Jose, Alviso, Milpitas, Santa Clara, Saratoga,

Monte Sereno, Los Gatos, Campbell, and Cupertino. There is a limit of 60 students per field trip, and a 1:10 chaperone to student ratio is required.

Classroom Presentations (5th – 12th grades): Currently there are three classroom presentation activities available, *Watersheds and Wetlands*, *Mysteries of Wastewater Treatment*, and *Marsh Lab Study*. Each of these presentations takes approximately one hour. Please contact us for specific classroom presentation needs.

Field Trip and Guided Tours for other Schools, Colleges, Universities, and related organizations: General presentations and guided tours are available, and are 1.5 hours in length.

Educators are encouraged to contact us to discuss options for customizing field trips and classroom presentation. Reservations for the Slow the Flow program are on a first-come basis. For more information, or to make a reservation, call Eric McKee, the Slow the Flow Program Coordinator, at 408-262-5513 ext. 104 or email at sfbay.slowtheflow@gmail.com.



PLEASE NOTE CONSTRUCTION AT THE ENVIRONMENTAL EDUCATION CENTER:

The salt ponds (A16 and A17) adjacent to the Environmental Education Center will be undergoing construction for the South Bay Salt Pond Restoration Project. Restoring A16 and A17 will create 130 acres of tidal marsh habitat and 240 acres of shallow water foraging habitat for migratory birds, including nesting islands. *We will provide more information on possible modifications to field trip activities and offerings in September. Thank you for your patience during this exciting restoration project!*

TIDELINE

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San Francisco Bay National Wildlife Refuge Complex

Administered by the U.S. Fish and Wildlife Service, San Francisco Bay National Wildlife Refuge Complex exists to preserve wildlife habitat, protect threatened and endangered species, protect migratory birds, and provide opportunities for nature study. Seven refuges are managed from the headquarters in Fremont: Antioch Dunes NWR, Don Edwards San Francisco Bay NWR, Ellicott Slough NWR, Farallon NWR, Marin Islands NWR, Salinas River NWR, and San Pablo Bay NWR.

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Deputy Project Leader:.....John Bradley

Wildlife Refuge Specialist: Val Urban
Don Edwards Refuge Manager:Eric Mruz
Don Edwards Wildlife Specialist: Melisa Helton
Don Edwards Warm Springs Unit Manager: Ivette Loreda
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San Francisco Bay Wildlife Society

A nonprofit 501(c)(3) cooperating association established in 1987 to promote public awareness and appreciation of San Francisco Bay and fund education and outreach programs at San Francisco Bay National Wildlife Refuge Complex.

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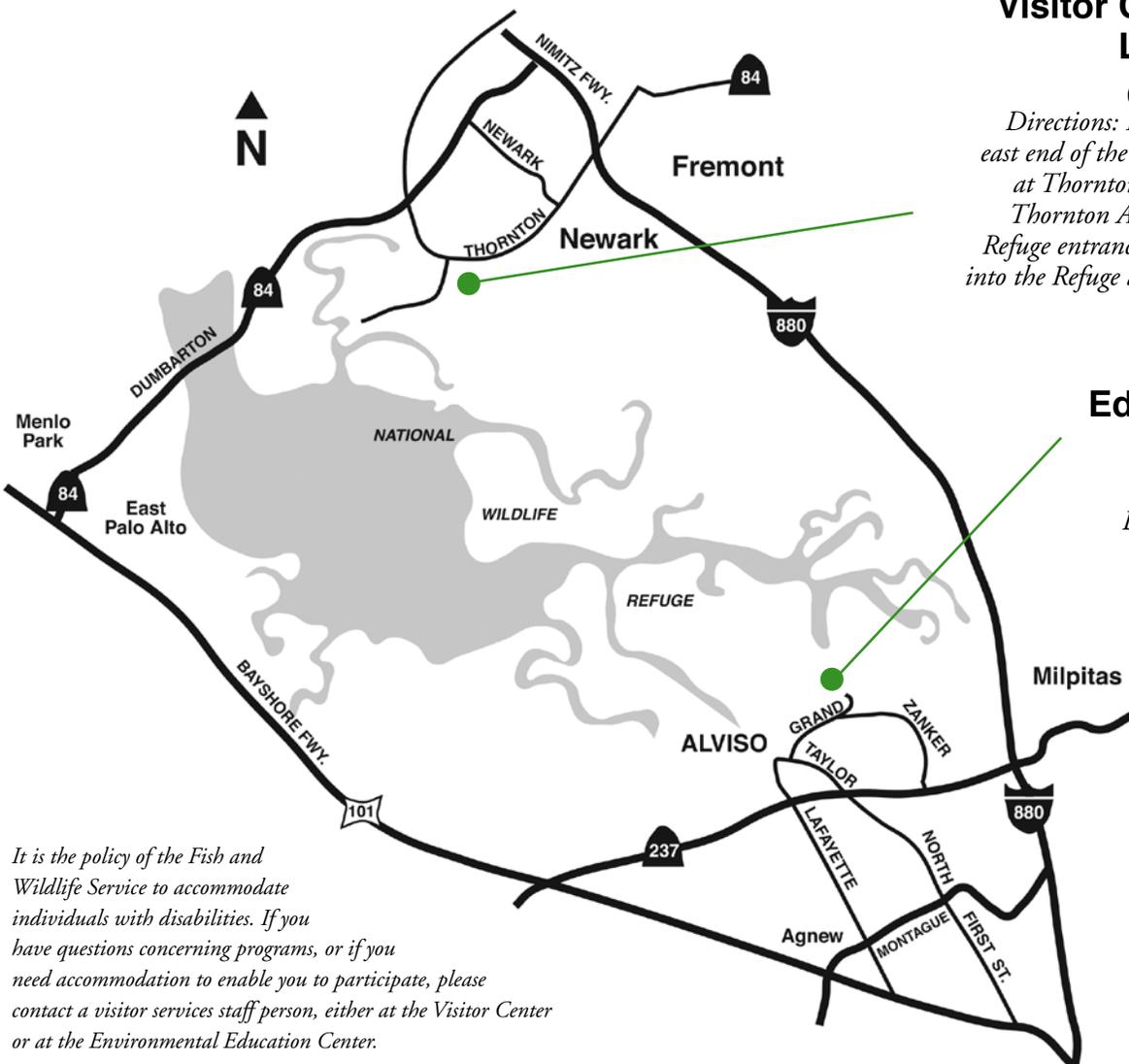
Tideline



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Don Edwards / Antioch Dunes / Ellicott Slough / Farallon Island / Marin Islands / Salinas River / San Pablo Bay



Visitor Center, Fremont Learning Center

(510) 792-0222 ext. 363
 Directions: From Highway 84 (at the east end of the Dumbarton Bridge), exit at Thornton Avenue. Travel south on Thornton Avenue for 0.8 miles to the Refuge entrance on the right. Turn right into the Refuge and follow the signs to the Visitor Center.

Environmental Education Center, Alviso

(408) 262-5513
 Directions: From I-880 or Highway 101, exit on Highway 237 toward Mountain View/Alviso. Turn north onto Zanker Road. Continue on Zanker Road to the Environmental Education Center entrance road (a sharp right turn at Grand Blvd.) The distance from 237 to the entrance road is 2.1 miles.

It is the policy of the Fish and Wildlife Service to accommodate individuals with disabilities. If you have questions concerning programs, or if you need accommodation to enable you to participate, please contact a visitor services staff person, either at the Visitor Center or at the Environmental Education Center.