



# Tide Rising

Winter 2022 Volume IV, Issue 2



Publisher & Editor: [San Francisco Bay Wildlife Society](#) (SFBWS).

SFBWS is a not-for-profit Friends Group for the San Francisco Bay National Wildlife Refuge (NWR) Complex, working along with many Refuge volunteers to keep our public lands sustainable for you and wildlife.

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## Restoration & Reflection

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### Restorations

- Learn about the Sears Point Tidal Restoration Project.

### Reflections

- Stories from the past about the Southeast Farallon Island, part of the *Farallon Islands National Wildlife Refuge*
- 50th Anniversary Highlight

### Earth Day 2023: Looking ahead

## San Francisco Bay Wildlife Society

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Masthead: Earth Day Graphic (Olivia Poulos)



Great Egret (Ambarish Goswami)

### SFBWS Reflections ...

Have you perused the *San Francisco Bay Wildlife Society* [timeline](#)?

Developed for the 30th anniversary of SFBWS by **Nohup**, this timeline highlights the impacts and results from donations, grants, partners, and supporters over those three decades to further the Mission of the SFBWS.

Check it out and think what could be done in the next decades for the Refuges.

**MISSION:** The San Francisco Bay Wildlife Society seeks to nurture in the public a sense of understanding, appreciation, and stewardship of the San Francisco Bay National Wildlife Refuges, their natural and cultural history, and to conserve, preserve, and restore bay lands as essential wildlife habitat.

**VISION:** Working with partners, we envision wildlife and natural resources thriving in a healthier SF Bay region/area and a reinvigorated society supporting stewardship.

## A Nature-based Approach to Levee Erosion Control and Remediation

by Meg Marriott, Wildlife Biologist, San Pablo Bay and Marin Islands National Wildlife Refuges, USFWS

In the Fall of 2015, Sonoma Land Trust breached the levee between the Sears Point Ranch, Sonoma County and the San Pablo Bay, returning tidal influence to approximately 1,000 acres of historic tidelands that had been diked, drained and converted to farm land in the nineteenth century. As part of this Sears Point Tidal Restoration Project, an approximately 2.5 mile long, and 12 ft tall, flood reduction levee was built along the north boundary of the Project to protect the SMART rail line as well as Highway 37 from tidal waters. The bayside slope of this north levee was designed as a gently sloping “habitat levee” with diverse topography to facilitate rapidly forming fringing high marsh and marsh/upland transition zone. This would provide a diversity of vegetation and habitats for plants and wildlife and would serve as critical high tide refugia for marsh dwelling wildlife during high tides and storm events - which are expected to increase with Sea Level Rise and Climate Change.

Since 2015, Sonoma Land Trust has remained the Project Manager for the Sears Point Tidal

Restoration Project but has transferred the land to the USFWS, and the Project Area is now the Dickson Unit of the San Pablo Bay National Wildlife Refuge. The Project has performed beautifully, and between 2 to 4 feet of sediment has already settled out, raising the substrate elevation in the subsided unit. Several more feet of sediment will need to accrete before marsh vegetation will begin to colonize the interior of the unit. In the meantime, a diverse array of fish and waterbirds use the open water and mudflats, and high marsh vegetation has colonized around the edges of the unit.

However, after the breach in 2015, wind-wave action took a toll on the gently sloping north habitat levee, and portions of the western boundary levee. Between 1 to 3 meters of the north levee eroded each year, and a vertical drop resulted between the remaining terrestrial portion of the levee and the area that had eroded (see photos below). This undermined the purpose of the habitat levee, and threatened to potentially weaken its capacity for flood protection.



Gently sloping north habitat levee:  
one year post-breach (left),

and six years post-breach (right)  
(Stuart Siegel)



The Friends of SPBNWR  
have the [Osprey Cam](#)  
on Mare Island up and running again.  
Fun!

## A Nature-based Approach to Levee Erosion Control and Remediation (*continued*)

In 2021, Sonoma Land Trust led an adaptive control project designed by Siegel Environmental LLC and consultants Peter Baye, Rodger Leventhal and Dan Gillenwater to stop levee erosion progression and to remediate damage to the north and west levees. Instead of armoring the levees with rip-rap which would have created a hard, unmoving edge with minimal value to tidal marsh plants and wildlife, Sonoma Land Trust and the San Pablo Bay National Wildlife Refuge decided to use Siegel et al.'s plan to create a "living shoreline" along the eroded levees. This nature-based approach would use the very wind-wave action that had caused the detrimental levee erosion to repair and restore the intended gently sloping levee sides!

The Levee Erosion Control Project incorporated a combination of mechanical grading, placement of natural materials and natural processes to reshape the eroded levee sides. Vertical scarp/edges of the levees were graded to an approximately 45° angle, and the resulting soil was placed downslope. Hundreds of logs, brush "fences", mud and gravel were placed towards the toe of the original levee and "sacrificial mounds" of dredged sediment were placed on the bayside of the logs at strategic points along the northern levee.

As wind-wave action again affected the shoreline after material placement, the waves acted to push the sacrificial soil up to the toe of the levee and over the logs which held the material in place (see below photo). Waves moved the additional mud and gravel to settle out or to move up in elevation, creating "swash bars" which are small berms that form in nature from wave action. Combined, these actions have created a gentle, undulating rise in elevation from the toe of the original levee up to the non-eroded terrestrial portion.

As part of the erosion control effort, Sonoma Land Trust planted native *Spartina foliosa* (cordgrass) at low marsh elevation along the length of the northern levee. Cordgrass is a densely rooted perennial grass that attenuates wave action as it approaches the shoreline. Multiple years of planting have produced a swath of cordgrass below the toe of the original levee which is colonizing and growing, further slowing wave action. Additional cordgrass and other marsh vegetation, such as pickleweed and saltgrass have colonized the mud, gravel and soil in front of and in back of the logs. The adaptive habitat levee is quickly progressing towards the high marsh/transition zone habitat as originally intended!



Partially buried and anchored logs trap placed bay mud  
(Stuart Siegel)

For a much more in-depth description of this project contact the Refuge Biologist for a [copy of Sears Point Levee Adaptive Management Project, As-Built Report](#) prepared by Stuart Siegel, PhD, PWS, Siegel Environmental LLC.

## Farallon Islands National Wildlife Refuge ([More info](#))

*Established in 1909 by President Theodore Roosevelt as a preserve for breeding birds and part of the Golden Gate Biosphere Reserve.*

### The California Islands –Saving their history, telling their stories

*by Marla Daily, Historian, Santa Cruz Island Foundation (SCIF)*

*Author: Farallon Islands: The Devil's Teeth*



Aerial view of the South Farallon Islands  
(Jack Swenson)

### Return to Southeast Farallon Island

The Farallon Islands lie almost 30 miles outside the entrance to San Francisco Bay and are comprised of over 20 islands, islets, sea stacks, and rocks, which span a seven-mile stretch of the Pacific Ocean. Nineteenth-century sailors called them “the Devil’s Teeth,” in reference to their extreme hazard to navigation, and hundreds of shipwrecks, disasters, drownings, and deaths have occurred here. They were the scene of 19th century egg wars of the San Francisco gold rush, years before chicken farms were established in the Bay Area.

In 1855, as part of the Twelfth Lighthouse District, a lighthouse was constructed on Southeast Farallon Island’s highest hill, 358 feet in elevation, large enough to accommodate a first-order Fresnel lens. It was the sixth lighthouse on the West Coast. The island served as home to keepers from the Bureau of Lighthouses (1853-1939), the U.S. Coast Guard (1939-1972), and between WWI and WWII, the U.S. Navy.

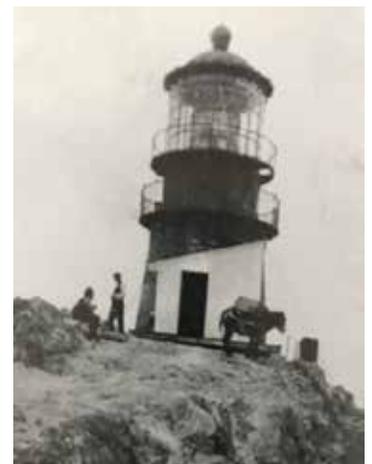
Nerva Wines (1825-1901) served as the first lighthouse keeper. Continuing over the next century, many lighthouse keepers and their families did service on Southeast Farallon Island. Many witnessed shipwreck tragedies: 197-ft. Noontday (1863); 328-ft Bremen (1882); Henry Bergh (1944).



Southeast Farallon Island  
(U.S. Coast Survey, 1856).

Farallon Island  
Lighthouse,  
c. 1873.

*(Eadweard  
Muybridge,  
US Lighthouse  
Survey)*



**The California Islands –Saving their history, telling their stories** (continued)

Two large Victorian lightkeepers’ houses were built in 1878-1880, with each dwelling serving as a duplex to accommodate two families. In 1939, the U.S. Lighthouse Service merged with the U.S. Coast Guard, who took over the lighthouse management. The Coast Guard maintained their presence on Southeast Farallon until 1972. By that time, the lantern room and the Fresnel lens had been removed, and an automated aero beacon was placed on the tower. (The original lens is on display in the San Francisco Maritime National Historic Park visitor center on Hyde Street, while the lantern room itself was scrapped after removal.)

Several California Channel Islands have embedded into their cultural history stories of young children being raised and home-schooled on an undeveloped California offshore island in the 20th century: the Smith and Sierra children on Santa Rosa Island; the Lester girls on San Miguel Island; the Agee and Lamberth children on San Nicolas Island; and the Hyder children on Santa Barbara Island. However, one story seldom told is that of children living on Southeast Farallon Island, 30 miles offshore from San Francisco.



Bruce Mills Buchanan (1916-2014). Shown with Gettie Bartley (SCIF File photos)



Home on Farallon Island (San Francisco Public Library)

The Buchanan family lived on Southeast Farallon Island from 1947-1949, along with two other families, one with two daughters, the other with one son. The five children played together, under strict instructions to stay near the houses.

After two years, Bruce Buchanan was reassigned to mainland duties when it came time for Penny to attend school. After 30 years of service, he retired from the Coast Guard as a Chief Warrant Officer. After an absence of 73 years, Penny returned to visit Southeast Farallon Island.



Transportation provided by Specialized Aviation, Watsonville, CA (SCIF)

Penny Buchanan (b. 1944), Southeast Farallon Island, October 17, 2022 (SCIF)

In a trip facilitated by Gerry McChesney, Farallon Islands National Wildlife Refuge Manager, Penny Buchanan returned to Southeast Farallon Island in October 2022 after an absence of more than seven decades. Her visit happened to coincide with the 81st anniversary of her father’s enlistment in the Coast Guard. As Penny stepped out of the helicopter and walked to the home of her childhood, she commented on the sheer numbers of birds now seen everywhere. Memories flowed

forth as she revisited her childhood playground. She pointed out where her mother maintained a vegetable garden in a small, fenced yard, and she recalled the particular importance of Saturday nights, when a Quonset hut near the East Landing doubled as a theatre. With luck, reels of one of the latest 1940s films would arrive with their supplies. Supplies always included baking ingredients for her mother, who spent hours baking breads and preparing meals for the family.

**The California Islands –Saving their history, telling their stories** (continued)

Videographer, Brent Sumner, was on hand to record Penny’s memories, an event not lost on several wayward Greater White-fronted Geese, whose curiosity lured them to visit the filming set, and a house mouse that climbed Brent’s pant leg for a better view.



Greater White-fronted Geese, Southeast Farallon Island (SCIF)



House mice are plentiful on Southeast Farallon Island (SCIF)



Sunset view from the lighthouse, Southeast Farallon Island (SCIF)

In 1909 President Theodore Roosevelt created the Farallon Reservation, later renamed the Farallon Islands National Wildlife Refuge, as a “preserve and breeding ground for native birds.” In 1969, with automation of the navigational light and departure of the lightkeepers, the Refuge was expanded to include Southeast Farallon and surrounding islets. Today, the islands are home to the largest seabird breeding colony in the lower 48 United States, significant populations of seals and sea lions, and salamanders and cave crickets found nowhere else. Because of their biological importance, the islands are not open to the public.

Visitors can explore the islands by boat, at speeds of five miles per hour and from a distance the length of a football field for excellent viewing of this unique and other-worldly place.

*About the author:* Marla Daily, President of the Santa Cruz Island Foundation ([SCIF](#)), has written hundreds of articles and books about California Islands history. The Foundation’s online Islapedia database contains a wealth of historical information on the California Islands, including the Farallones. Marla’s *Images of America* book, *Farallon Islands: The Devil’s Teeth* (Arcadia Publishing, 2019), is a fascinating photographic history of the islands.

# NEWS

## USFWS Staff Changes



Rachel Tertes is now the Don Edwards SFBNWR Senior GS-11 Wildlife Biologist. She will focus on the South Bay Salt Pond Restoration Project as well as other tidal marsh and pond management.

Rachel has been serving admirably and skillfully as the sole biologist for Don Edwards SFBNWR for the past three years, since this senior biologist position has been vacant.

Congratulations to Rachel in her new role!

ABOVE: Rachel with a nest (*Rachel Tertes*)

# For this Earth Day, make your impact local.



The San Francisco Bay Wildlife Society has provided environmental education and interpretation activities to local communities and fostered a culture of stewardship for the San Francisco Bay NWR Complex for 35 years.

Through our programs, we are helping to build a more equitable and sustainable future for the benefit of both wildlife and people. Now more than ever, we need your help to continue our work for the benefit of the Bay Area for generations to come.

Visit <https://sfbayws.org/donate> to learn more about how you can make a difference in your community.

## 50th Anniversary Celebration Remembered

*by Larry Rosenblum, USFWS Volunteer*

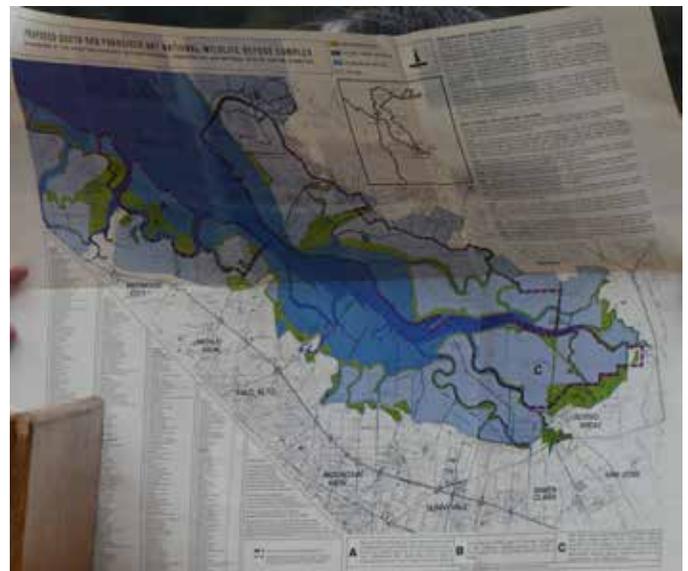
The Anniversary celebration went well in October, 2022. The highlight for me was definitely the appearance of Florence LaRiviere. In this photo, she is holding a shopping bag that was used for promotion. Matt Brown is holding a mug produced for fundraising in those early days.

The map shows the proposed refuge. It's interesting to see the differences in what they proposed and what has actually happened. If you enlarge it, you can read the text which is quite interesting.

View photos from the event [here](#).

Matt Brown, SFB NWR Complex Project Leader  
& Florence LaRiviere  
(*Larry Rosenblum*)

Map of proposed Refuge (*Larry Rosenblum*)





**From the Trail: Larry Rosenblum**

A snowy egret showing off its newly caught lunch. It strolled around for a good 30 seconds before gobbling it down. This was at SF2 on the west side of Bay.

Brown Pelicans Feeding: [Video Link](#)

Next, it's all about terns ....



<<Snowy Egret Feeding  
(Larry Rosenblum)



Terns in September 2022 at SF2 (Ravenswood)  
(Larry Rosenblum)



**Images from two regular contributing photographers to Tide Rising**



**King Tide Images**  
*by Ambarish Goswami*  
Taken Saturday, January 21, 2023, the top one at the max and the lower one near the peak of the subsequent ebb. The effect is dramatic, all happening within the span of a few hours.  
During the Sunday morning King Tide, the area again looked like the high tide image -- cycles of nature.  
**@ambarish.naturephotos**  
(Ambarish Goswami)

**Please share your photos of our Refuges and other Refuges (or National Parks) you visit! Celebrate the Outdoors!**

## SAN FRANCISCO BAY WILDLIFE SOCIETY: DONOR RECOGNITION

We gratefully acknowledge the following donors who have made gifts to the San Francisco Bay Wildlife Society from October 1 through December 31, 2022.

### Senior/Student (\$20)

Charmon Ashby  
 Laura Avery  
 Mary Deschene  
 Michael Dunn  
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 Albert Roffey  
 David Stronck

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### Supporter (\$75)

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### Family (\$50)

John & Rebecca Bradley  
 Joelle Buffa & Clyde Morris  
 Patricia Ellis  
 Paul Hammes

### Participant (\$100)

Anonymous  
 Joyce Bartlett  
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 Margaret Elliot  
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 Shelia Krishnaswamy  
 Liwen Mah & Yvette Leung  
 Anne Morkill  
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## Help Us Protect Your San Francisco Bay Wetlands!

**Mail your donation to: San Francisco Bay Wildlife Society,  
 P.O. Box 234, Newark, CA 94560.**

**You may also become a supporter at <https://sfbayws.org/>**

**For a gift membership, call 510-792-0222 ext. 72004.**

[LINK here](#)

San Francisco Bay Wildlife Society is a not-for-profit 501(c)(3) organization, a Friends group for the San Francisco Bay National Wildlife Refuge Complex.

My support will help the *San Francisco Bay National Wildlife Refuge Complex*  
 and its south Bay and Outer Bay Refuges

(Don Edwards, Salinas River, Ellicott Slough, and the Farallon Islands)

Enclosed is my contribution of:

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**For more than 30 years, the San Francisco Bay Wildlife Society has:**

- Introduced the refuge to tens of thousands of students of all ages
- Helped fund the Bair Island restoration and Management Plan, restoration work at Antioch Dunes NWR, and uplands restoration at the Environmental Education Center (EEC)
- Provided weekend EEC staff through long-term partnership with the Santa Clara Valley Urban Runoff Pollution Prevention Program
- Provided funding for a new boardwalk at the New Chicago Marsh Trail at the EEC.
- Funded a new greenhouse
- Provided funds for a native plant nursery
- And much more...

**Help continue this tradition by becoming a Supporter of the Society.**

Benefits include:

- Tax Deduction to the extent allowed by law
- Free book - *Exploring Our Baylands*
- 15% Discount on purchases in SFBWS Nature Stores
- The joy of helping protect this important environment.
- Free subscription to *Tide Rising* newsletter

<https://sfbayws.org/>



**Thank you for your support!**