

Fitzgerald Special Edition



PROTECTING THE MARINE RESERVE TOGETHER

SUMMER 2013

LEARN MORE ONLINE:

- See maps of the Reserve, the ASBS, and the pilot projects
- View photos of the Reserve and the incredible sea life there, plus before-during-and-after shots of swale construction
- Read about the Reserve's history
- Find links to more great resources online, local groups, and upcoming events

For all this and more, visit

www.smchealth.org/asbs

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What's in the Water?

During the 2012-2013 rainy season, rainwater runoff from properties and streets in Montara and Moss Beach was sampled to determine the quality of stormwater draining to the Fitzgerald Marine Reserve (Reserve) and to assess the effectiveness of Best Management Practices (BMPs) designed to remove pollutants from the stormwater runoff.

This effort is part of a larger project called the *James V. Fitzgerald Area of Special Biological Significance Pollution Reduction Program* (Fitzgerald Project) that is led by the County of San Mateo, in collaboration with the San Mateo County Resource Conservation District (RCD) and the San Francisco Estuary Institute (SFEI).

A total of 82 samples were collected from six pilot BMP locations in Montara and Moss Beach where roadside ditches have been converted to vegetated swales, and where storm drain

filtration devices have been installed. Based on water quality testing results prior to treatment, pollutants of concern include metals (copper, lead, nickel, zinc), polycyclic aromatic hydrocarbons (PAHs), permethrin pesticides, sediment, and fecal indicator bacteria (FIB).

Where do these pollutants come from?

Many of these pollutants are related to vehicles and combustion. For example, copper from brake pads and zinc from tire wear can end up in stormwater. PAHs from fuel burning (i.e., engine combustion, wood), diesel particulates, fluid leaks from cars, and the breakdown of the roadway surfaces can also end up in the storm drain system.

Elevated levels of FIB, such as *E. coli*, a bacteria found in feces from humans, pets, and



wildlife, can leak from septic lines or wash off from yards.

Other pollutants such as sediment can result from erosion due to bare soil that is exposed to rainfall during the winter (i.e., from improper grading & construction practices, trails, rural roads). Contaminants can also come from building materials (i.e., roofs and gutters) and household products used in the yard.

Read more in this issue to find out how you can help and what the County is doing to reduce stormwater pollution.

Antsy? Get Better Pest Control

Water quality monitoring results revealed elevated levels of permethrin in stormwater at several of the sampled BMP locations. Permethrin is a type of pyrethroid pesticide that is found in many of the leading bug sprays sold at nursery or hardware stores for control of common pests such as ants,

cockroaches, grubs, termites, and wasps. These products can be highly toxic to aquatic organisms, cats, and beneficial insects that naturally keep pest populations under control.

Fortunately, there are effective alternatives to these chemicals and products. For ant control, learn more at:



Common pest control products

www.GotAntsGetSerious.org

For other pests, visit:

www.flowstobay.org/pestcontrol

Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Fitzgerald 100+ Years Ago: Historical Ecology

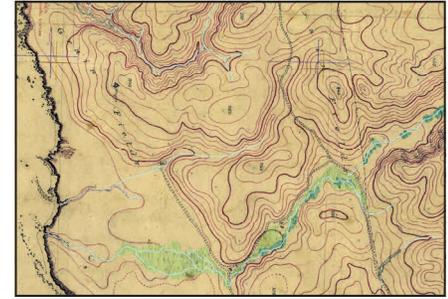
What if we could see the Fitzgerald Marine Reserve (Reserve) as it existed a decade ago? A century ago?

Understanding the historical landscape and how it has changed over time can help address many of the challenges associated with managing and planning for the future of local watersheds. The study of how the system functioned often reveals ways to restore native habitats within our developed landscape to create a healthy

ecosystem with both wildlife and recreational benefits.

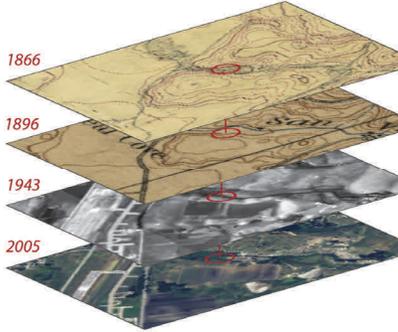
Because local scientists have been visiting the Reserve for over 100 years, we have good documentation of changes since 1911. And other sources let us look back even further, to times when only native inhabitants used the Reserve area resources.

Visit the San Francisco Estuary Institute's project online at



San Vicente creek in 1866. Freshwater marsh (light green) merges into willow riparian forest (dark green) along the creek.

www.sfei.org/node/1368 and learn how their research can be used to set priorities for the Reserve area's preservation and restoration.



Photos courtesy of [San Francisco Estuary Institute](http://SanFranciscoEstuaryInstitute.org)

www.smchealth.org/asbs

Updates: Pollution Reduction Program

Since the pilot phase of the Fitzgerald Project began in June 2011, the County has installed four vegetated swales and three storm drain filtration devices to filter out pollutants in roadside drainages before they reach the Reserve.

Two vegetated swale designs were implemented. One design involved the use of a native grass sod for biofiltration. The other design involved an under-drain system coupled with permeable pavers, rock weirs, and a mixed palette of native plants including grasses and wetland species.

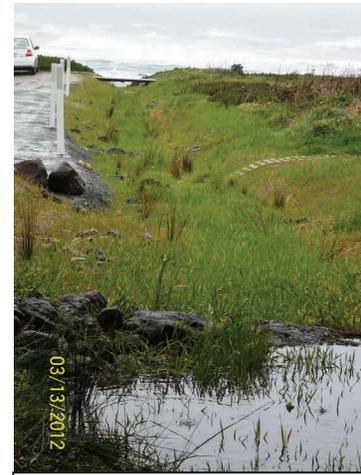
The filtration devices included two designs, a box unit filled with granular filter material and a catch basin replacement vault with filtering cartridges. For more photos of these BMPs, visit www.smchealth.org/asbs

Water quality monitoring by SFEI showed that the vegetated swales reduced pollutant levels

by 30% to 100%, depending on the type of pollutant and site characteristics. The filtration devices were also effective at removing pollutants but were generally more costly due to the need for increased maintenance such as sediment removal and filter replacement.

In August 2012, the County hosted a residential low impact development (LID) workshop. Topics included bioswales, rain gardens, pervious pavements and permeable pavers, irrigation and pesticide use, and rainwater harvesting.

The County is now preparing for Phase 2 of the Fitzgerald Project where additional roadside ditches in Montara and Moss Beach will be converted to vegetated swales designed to help remove pollutants from stormwater runoff. County planning efforts are continuing to retrofit the Reserve parking lot in order to treat runoff before it



Vegetated swale, Moss Beach

enters San Vicente Creek and the Reserve.

Phase 2 of the project will also involve work by the RCD on private and open space properties throughout the ASBS watershed (Read more on Page 3).

Visit www.smchealth.org/asbs for a list of Phase 2 sites and to view presentations from the LID workshop.



Flume filter box, 14th Street, Montara

What's the Source of that Bacteria?

Have you ever noticed a sign at the Fitzgerald Marine Reserve near San Vicente Creek warning visitors that creek water and beaches are contaminated and may not be suitable for swimming or other contact recreation?

Did you know that San Vicente Creek and the Reserve are listed by the Regional Water Quality Control Board as impaired due to coliform bacteria?

With the help of scientists from UC Davis and SFEI, the County is looking into the sources of the bacteria. Genetic analysis was performed to determine the prevalence of a universal *Bacteroidales* genetic marker and host-specific genetic markers from human-, bovine-, dog-, and horse-associated *Bacteroidales*.

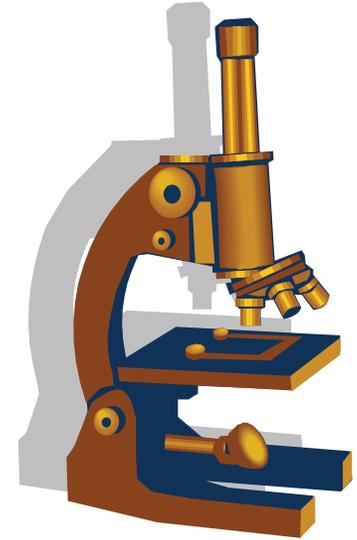
This evolving watershed management tool, called Microbial Source Tracking (MST), is used to help determine potential sources of fecal contamination in our waterways. MST based on genetic analysis of *Bacteroidales* (a specific type of fecal bacteria) is considered a state-of-the-art methodology, and UC Davis is at the fore-

front in the development and use of it.

For this study, UC Davis scientists collected a total of 58 samples (water, sediment, and biofilm on plants) from Martini, Kanoff, Montara, Dean/Sunshine Valley, and San Vicente Creeks just upstream of the confluence with the Pacific Ocean. SFEI researchers collected additional samples at multiple sites within the same five watersheds and tested them for the standard fecal indicator bacteria (FIB) – coliform bacteria, *E. coli*, and *Enterococcus*.

The MST results showed that FIB levels were highest during the rainy season. Results also confirmed the presence of fecal contamination in the tested creeks from human, dog, bovine, and horse sources.

Of the four markers that were tested, dog appears to be the most prevalent source during the rainy season. There may be other more significant sources of fecal pollution present that were not characterized as part of this study, such as wildlife or other domestic animals, but more research is needed. For the full report, visit www.smchealth.org/asbs.



What You Can Do to Help

- Pick up after your pets. Pet feces left in the backyard during rain can lead to increased fecal bacteria counts in our creeks and ocean.
- Make sure your sewer laterals and septic systems are working properly and do not have cracks or leaks.

Free Technical Assistance to Homeowners

The San Mateo County Resource Conservation District (RCD) works with landowners to achieve conservation through voluntary actions. The RCD provides free and confidential technical assistance to private and public landowners and currently has a grant to help fund improvements that benefit the Fitzgerald ASBS watershed.

RCD CAN:

- Help residents interested in landscaping with native plants or harvesting rainwater
- Help residents with manure management
- Raise awareness about the importance of cleaning up dog waste and help organize clean-ups
- Help residents improve drainage to minimize runoff of water contaminated by common household pollutants (e.g. pet waste, pesticides, metals)
- Help landowners improve rural roads or trails so there is less sediment or pollutant runoff entering the Fitzgerald ASBS

If you live in the Fitzgerald ASBS watershed (nearly all of Moss Beach and Montara) and are interested in talking with the RCD about potential projects on your property, please contact Irina Kogan by email: irina@sanmateorcd.org or phone 650-712-7765 x107.



How Does Your Garden Score?

- ◆ Building healthy soil
- ◆ Reducing waste in the garden
- ◆ Conserving water
- ◆ Creating wildlife habitat (for birds and pollinators)
- ◆ Protecting local watersheds and the ocean
- ◆ Contributing to a healthy community
- ◆ Saving energy

The RCD will provide FREE backyard habitat/garden assessments to homeowners. Some funds will also be available to help implement improvements!

Contact Chelsea Moller by email: Chelsea@sanmateorcd.org or phone 650-712-7765 x105.

Kids' Corner

Spotlight on Tide Pool Critters

Connect the Critter



Draw a line from the name of the tidepool creature to its picture.

Starfish



Sea lemon



Sunburst anemone



Kelp scallop



Ostrich-feather hydroid

Hermit crab



Red barnacles



Harbor seal pup



Find these critters and more online at www.fitzgeraldreserve.org
(and thank [Friends of Fitzgerald Reserve](#) for the photos)

Quick Quiz

You can protect these tidepools critters by:

- A. Washing your car at the carwash
- B. Always putting litter in the trash can
- C. Cleaning up after your dog
- D. Controlling bugs without pesticides

For the right answer, check the bottom of this page

2013 Coastside Events

Coastal Cleanup Day Sept 21

Pitch in to pick up litter at Mirada Surf or another Coastside beach.

Visit flowstobay.org for full details

Volunteering at the Reserve

Friends of Fitzgerald trains volunteers to help out at the tidepools. For details,

visit www.fitzgeraldreserve.org

or

Partner with a park ranger to help educate visitors. Visit the County Parks volunteer page for more details.

www.smcgov.org/parks

Coastside Cleanup Days and Educational Events

Organized by Coastside Land Trust

Visit www.coastsidelandtrust.org for details.



First Flush

Late September/ early October

Volunteers sample local storm drains during the first big rain of the winter season.

Contact the RCD for more information and to sign up. (650-712-7765)

Check online for additional events in your area
www.smchealth.org/asbs

Quiz Answer: All of these are good choices for water quality protection.