

TESTING POLLUTION HOTSPOTS IN PILLAR POINT HARBOR





HMB Yacht Club Foundation



This photo, taken more than 20 years ago, indicates the ongoing pollution issues within Pillar Point Harbor



San Mateo County Chapter

The Surfrider Foundation is dedicated to the protection and enjoyment of the world's ocean, waves and beaches through a powerful activist network. The SMC Chapter founded in 1998.

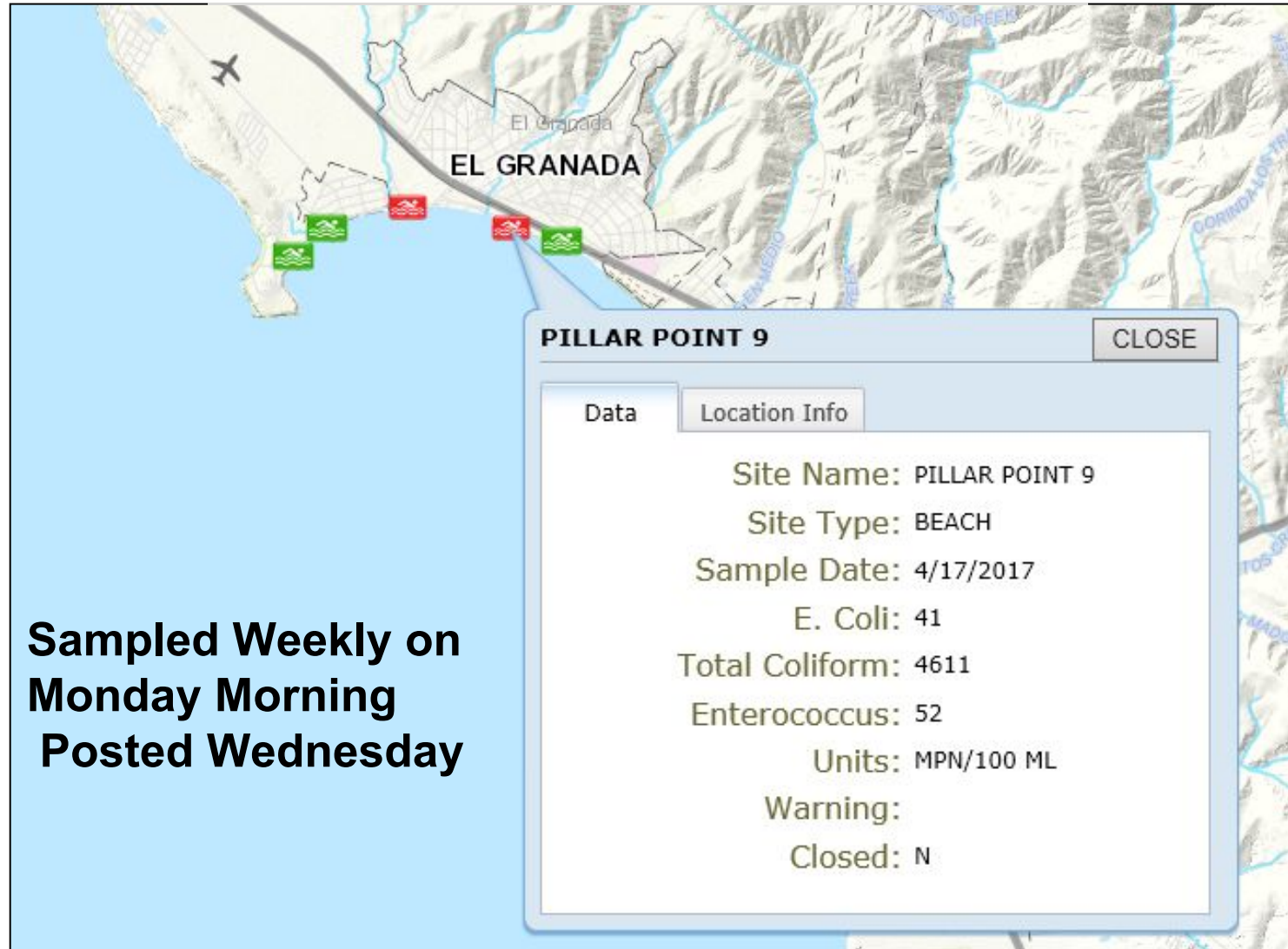
- Advocacy
 - Martins Beach
 - Tunitas Creek
 - Vallemar Bluffs
- Pollution prevention
 - Blue Water Task Force
 - Beach Cleanups
 - Rise Above Plastics
 - Ocean Friendly Gardens and Business
- Education
 - Coastal Classroom

Ocean Beaches **AB 411** (1997)

- Beaches that receive 50K visitors per year must be test for fecal indicator bacteria (FIB)
- Beaches are posted when single samples exceeds **104 mpn for enterococci**
- 476 California coastal and San Francisco Bay saltwater beaches.



COUNTY OF SAN MATEO HEALTH SYSTEM



Surfrider Blue Water Task Force

Established in 1998

- Lab Space from Sewer Authority Midcoast (2002)
- Water quality testing
- Surfrider Coastal Classroom
- Resource Conservation District
- Post results on
<http://www.Surfrider.org/blue-water-task-force>

Surfrider Lab 2002



Surfrider Lab today





SAN MATEO COUNTY

RESOURCE CONSERVATION DISTRICT

The RCD provides comprehensive, integrated services for all aspects of natural resource management, tackling priorities in San Mateo County.

Water quality testing and projects are performed across the county in keeping with their goal to 'ensure clean and reliable water in San Mateo County'

(<http://www.sanmateorcd.org/projects/water/>)

RCD Harbor Water Quality Projects include:

- » Water quality monitoring
- » Storm water mapping
- » Snapshot Day & First Flush

Project and data co-ordination, education/outreach, data analysis, implementation of solutions

Focusing on the harbor makes sense!



Fishing and
Clamming

Kayaking,
Swimming and
Beach Use

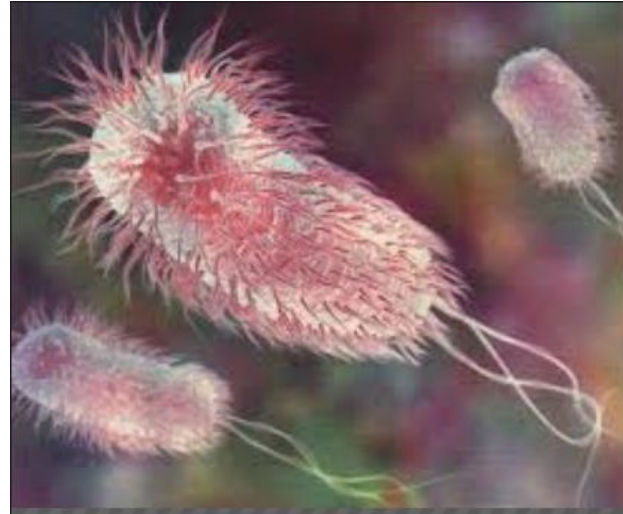


Children
Playing in
Outfalls



What is Tested ?

E. Coli

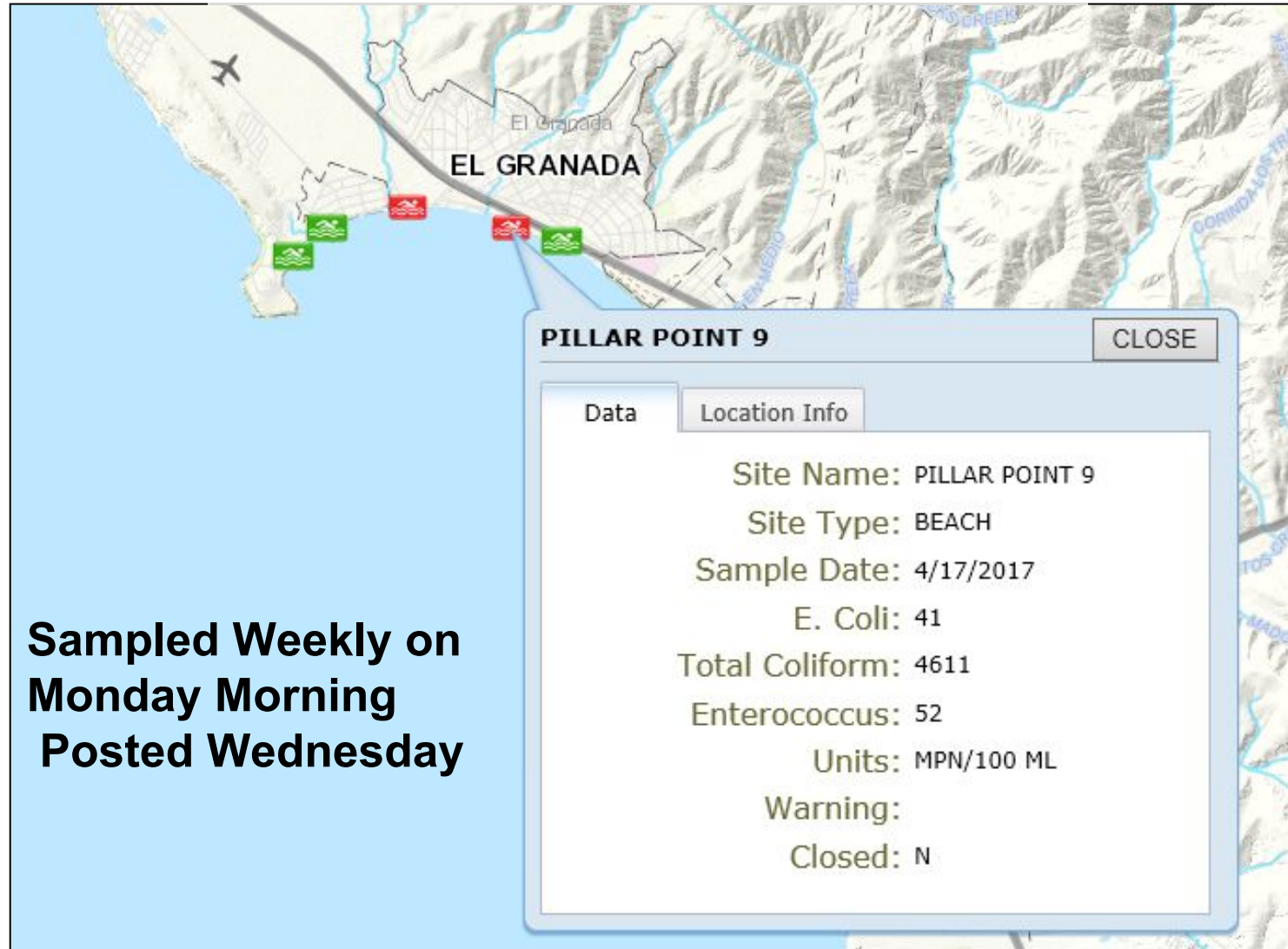


Enterococcus





COUNTY OF SAN MATEO HEALTH SYSTEM



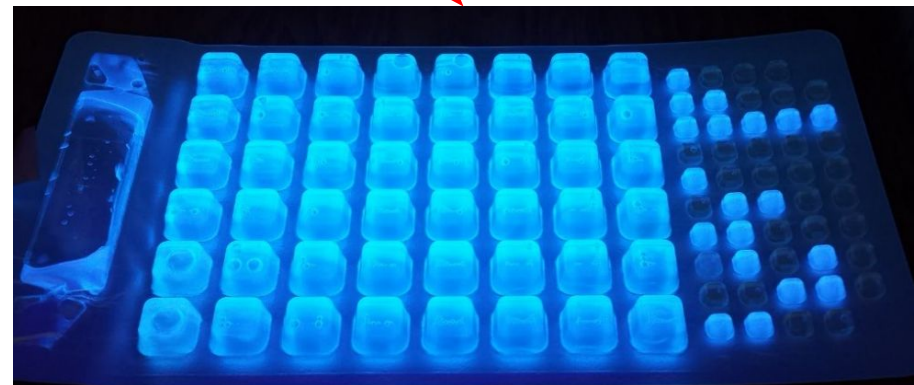
How is Testing Done ?



Water samples are collected and measured to 10 ml.

Then mixed with 90 ml. nutrient solution and sealed in “quanti trays”.

Then incubated for 24 hours. Fluorescing cells are counted and bacterial counts are “read” from a table.



Water Quality in the Harbor Fluctuates Rapidly.

Tides

Bring in clean water and dilute contaminants 2X /day.

VS

Runoff

Streams and storm drains contribute heavy contaminant loads, especially after heavy rains.



Animals

Wildlife and domestic animals are significant bacterial sources.

Human Activity

Storm water and sewer infrastructure and area "cleanup" activities can cause contamination.



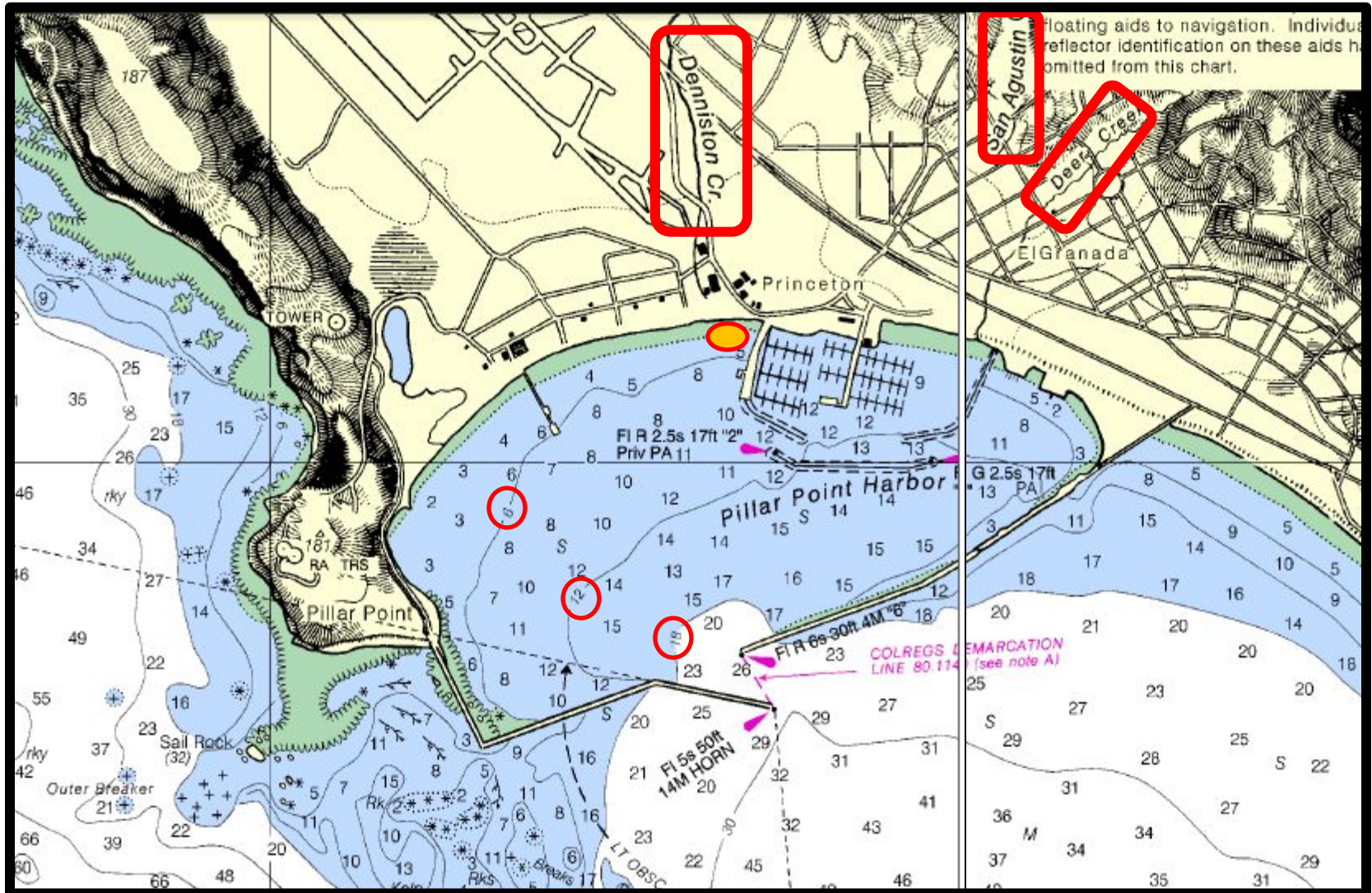
Normal Ocean Current Flow



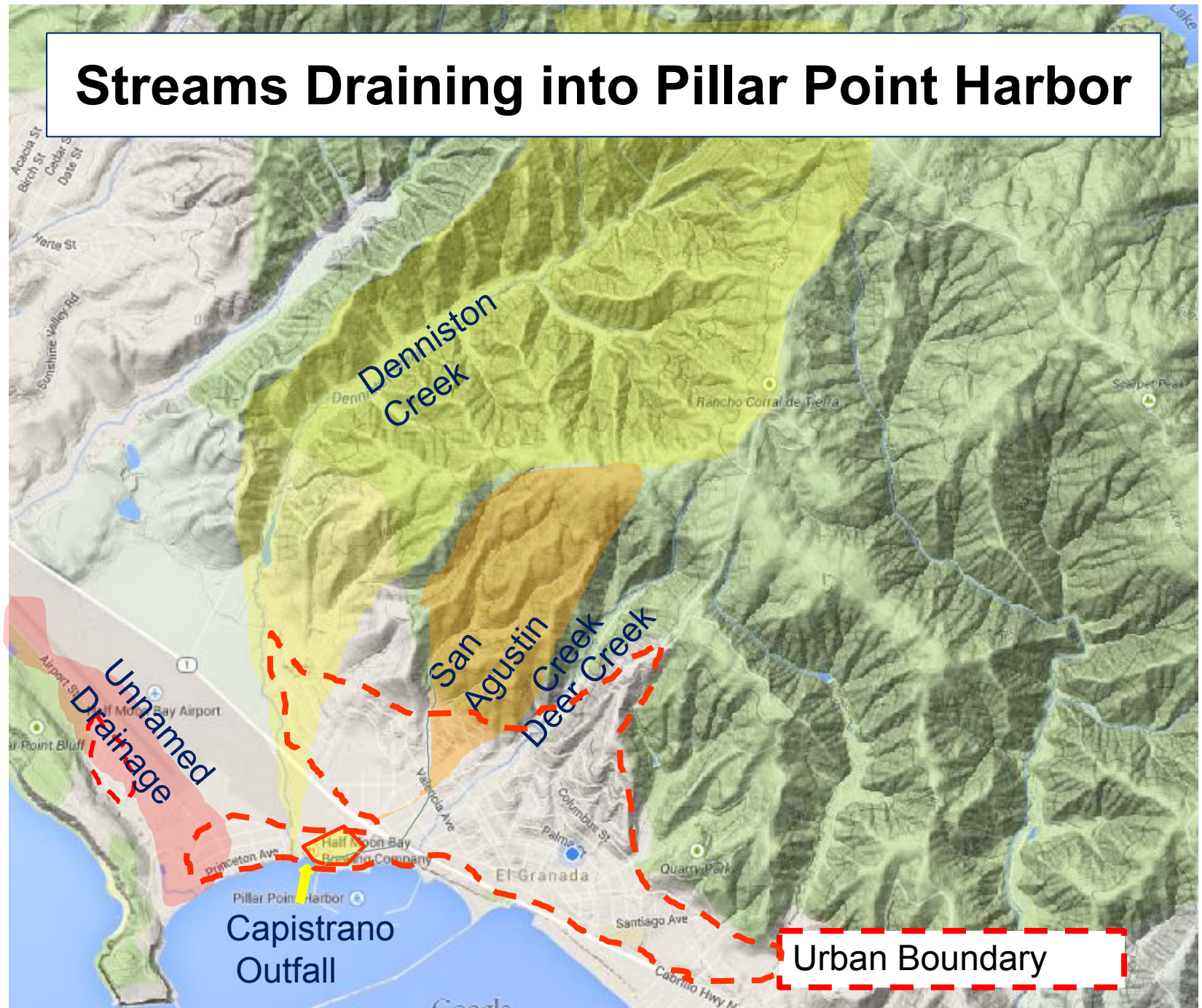
Primary Harbor Water Sources



Pillar Point Harbor Tides

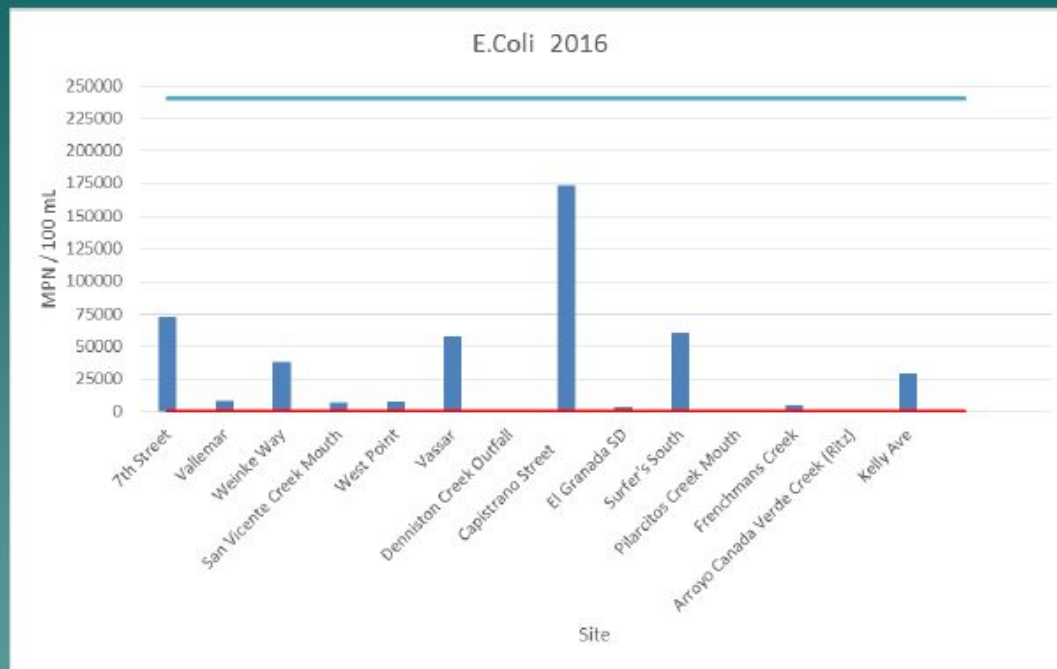


Streams Draining into Pillar Point Harbor



First Flush 2016

E. coli 2016 (1:100 Dilution)



Detection
Limit: 241,960

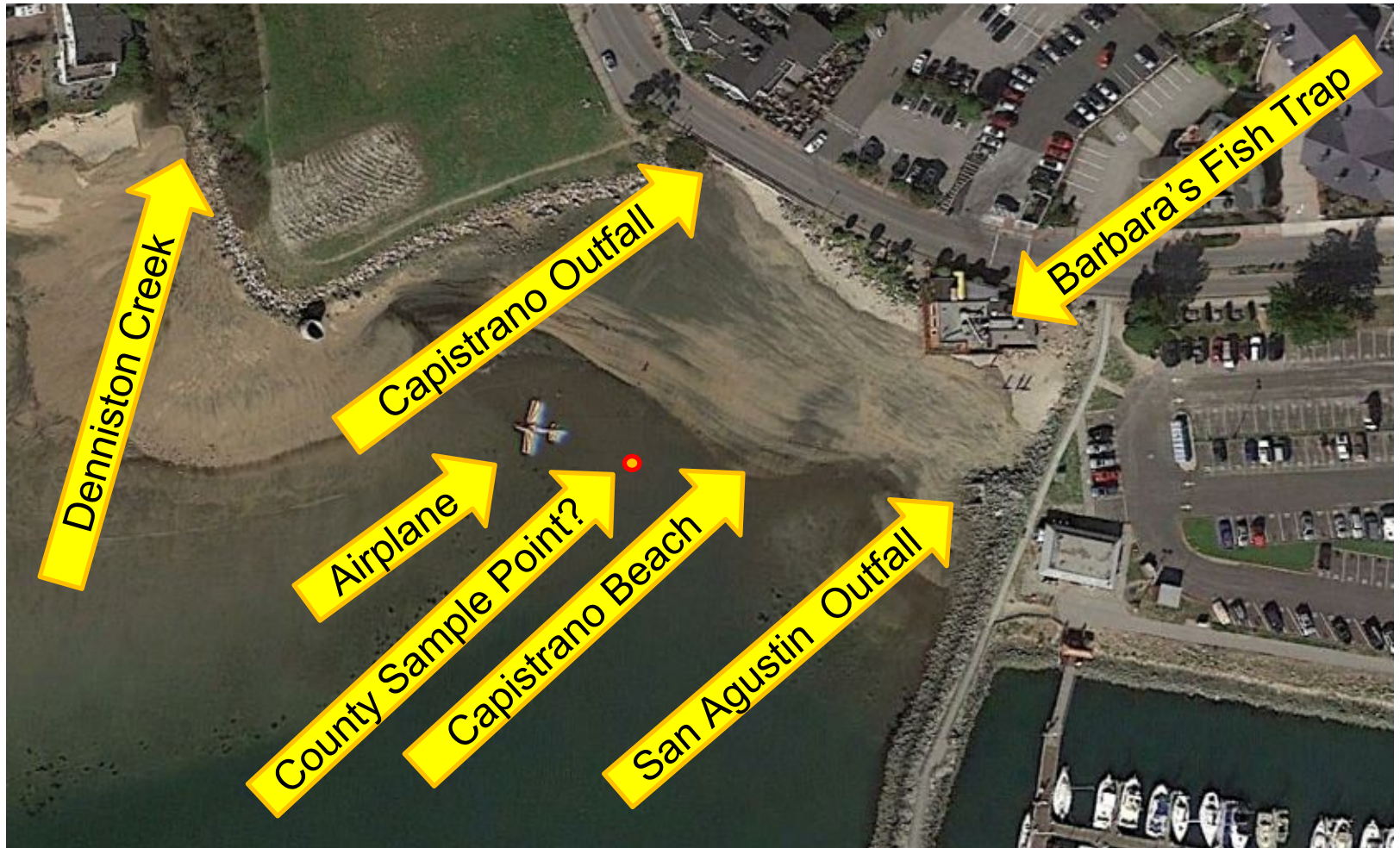
WQO < 235

Capistrano St. highest of all sites in all counties (32 sites)



San Mateo County Resource Conservation District

Capistrano Beach at Low Tide



Denniston Creek



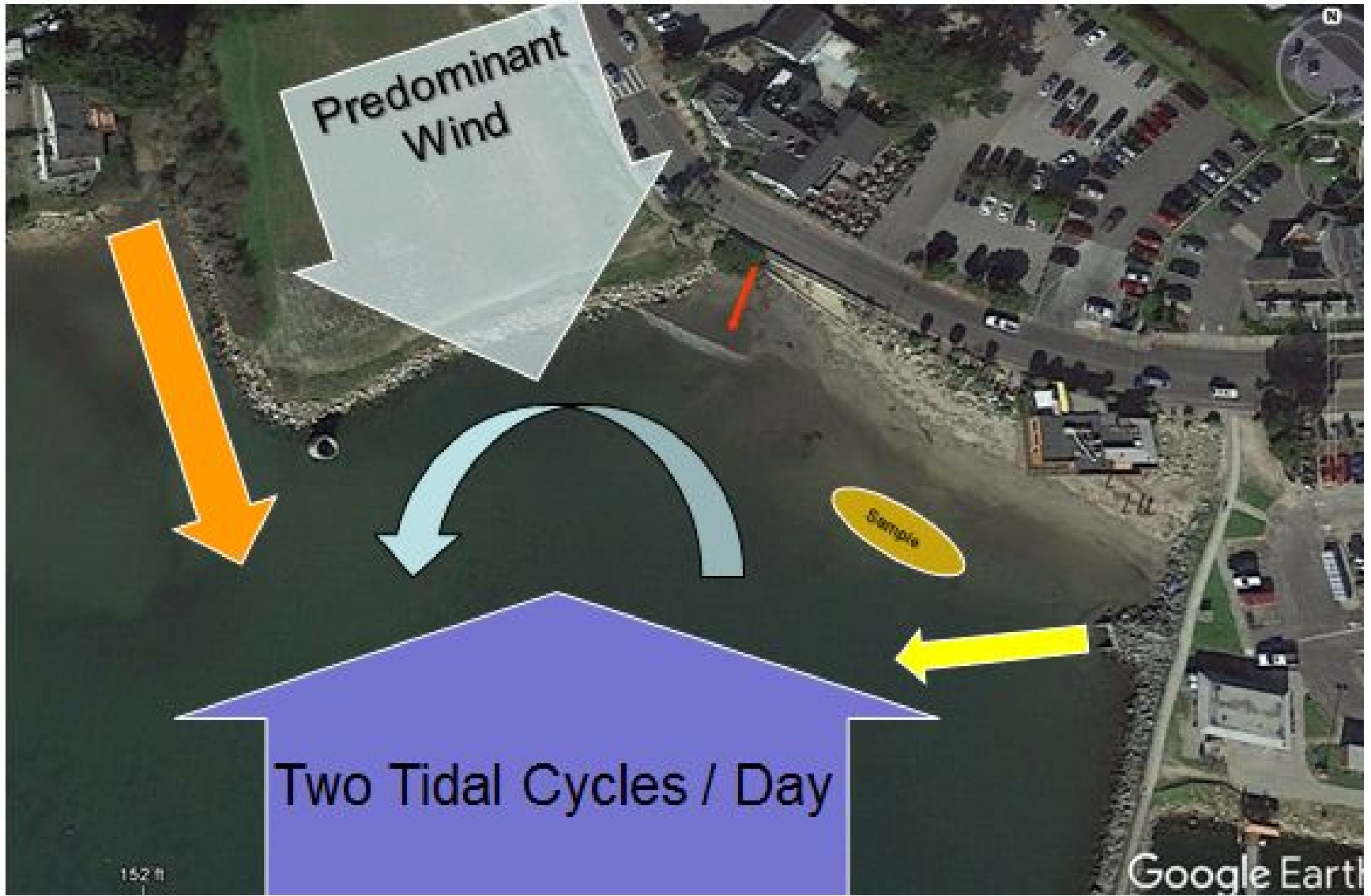
San Agustin “Creek”



Capistrano Outfall



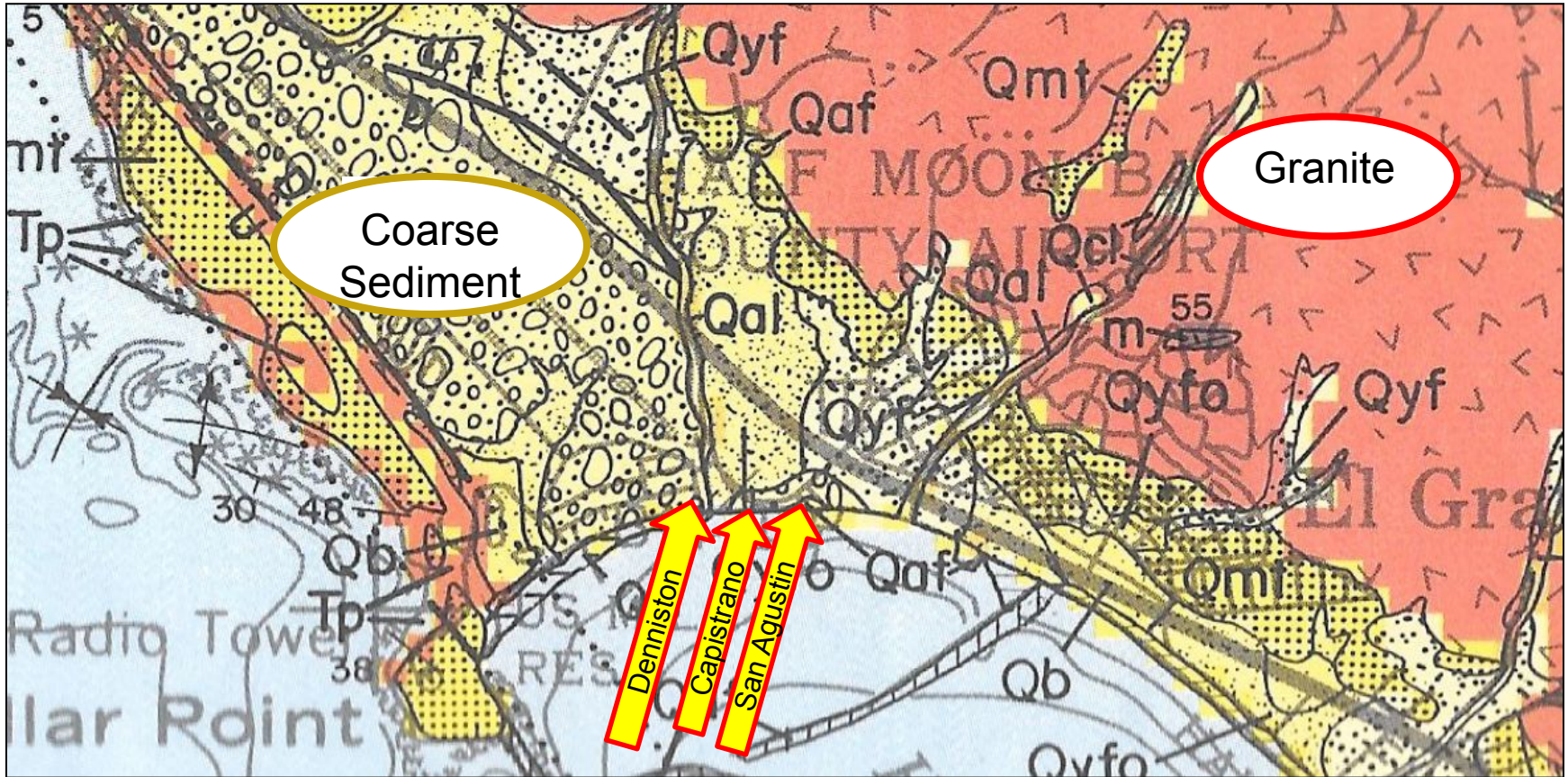
Pollution Influences



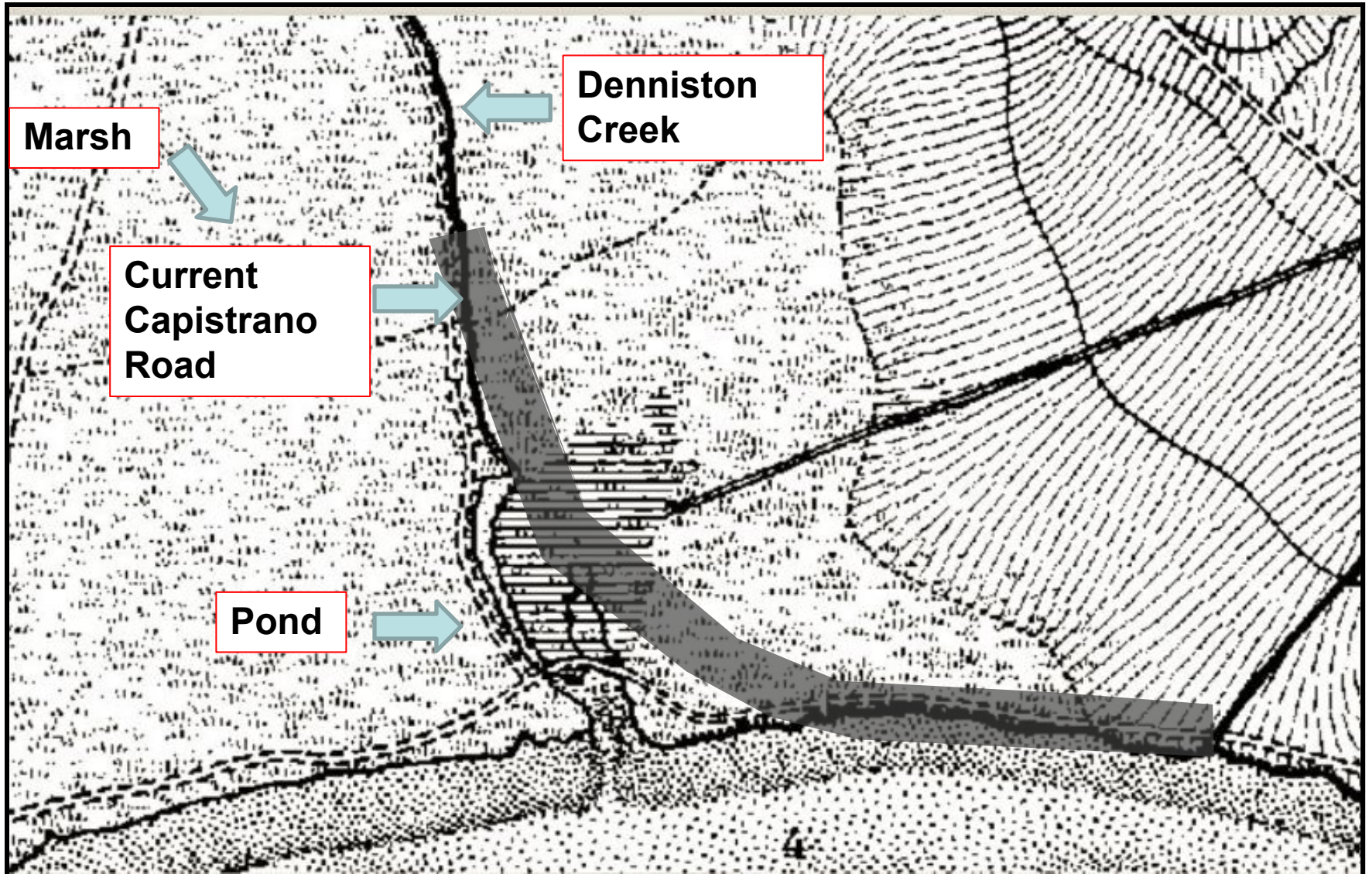
Why is Determining Pollution Sources Difficult?

- Geology – granite, sediment, aquifer/groundwater
- History – storm drains, streets, buildings, paving, tunnels
- Current Activities – Area washing, street sweeping
- Chemical Dampers – chlorine, ammonia cleaners, etc. can reduce the “viable” bacteria in samples.
- Unknown effects of sunlight, temperature and other environmental factors
- Lack of technology- tests using microbial indicators instead of actual human pathogens. Lack of knowledge about their transport and die off .

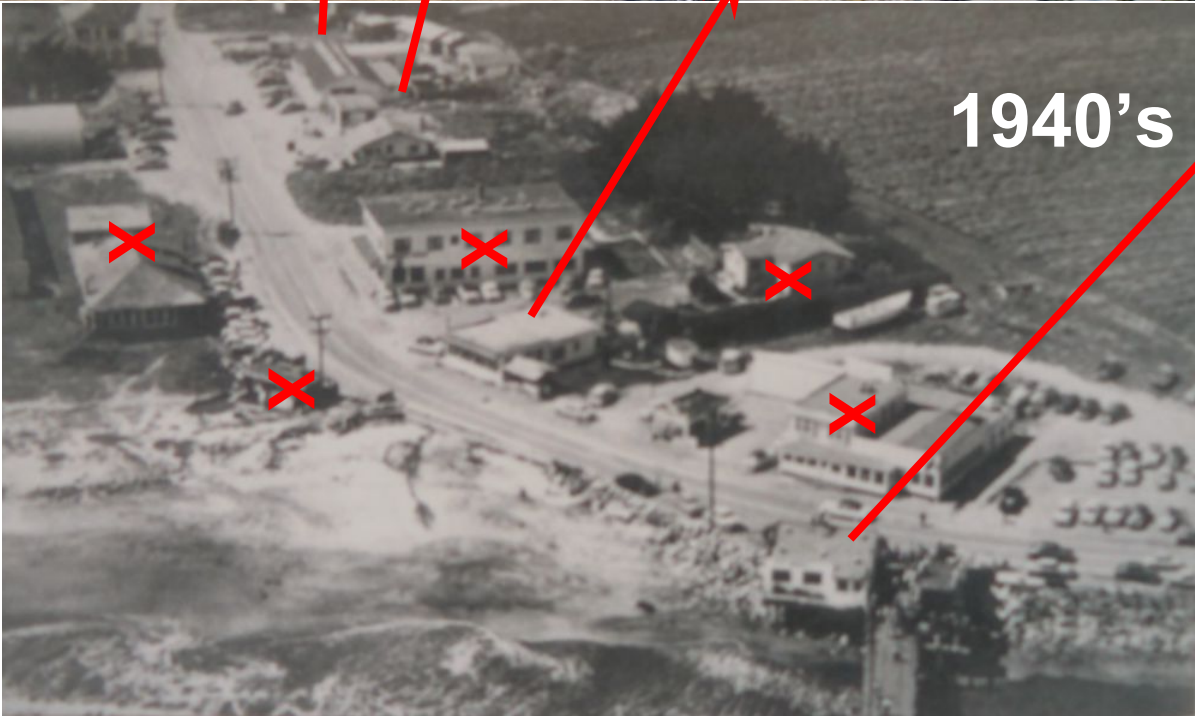
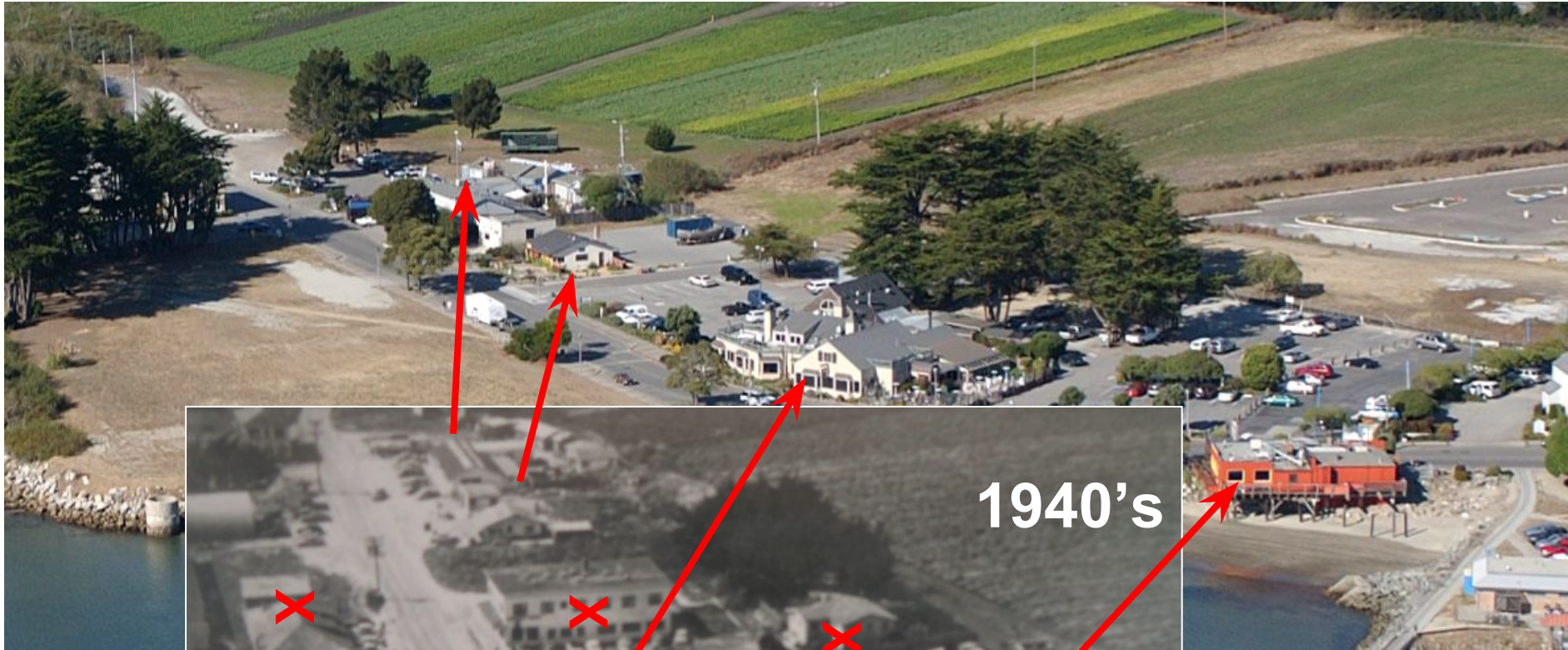
Geology



Detail of the Capistrano Site in the 1863 Coastal Survey



Capistrano Infrastructure



Potential Issues

Waste Disposal Area

Parking Lot Runoff

Storm Drains

Storm Drains

Storm Drains
(Street Sweeper)

Storm Drain Outlet

Waste Disposal Area

Restaurant Clean up Area

Beach

© 2013 Google

Imagery Date: 10/31/2011 37°30'11.99" N 122°29'11.24" W elev 3 ft eye alt 960 ft

216 ft

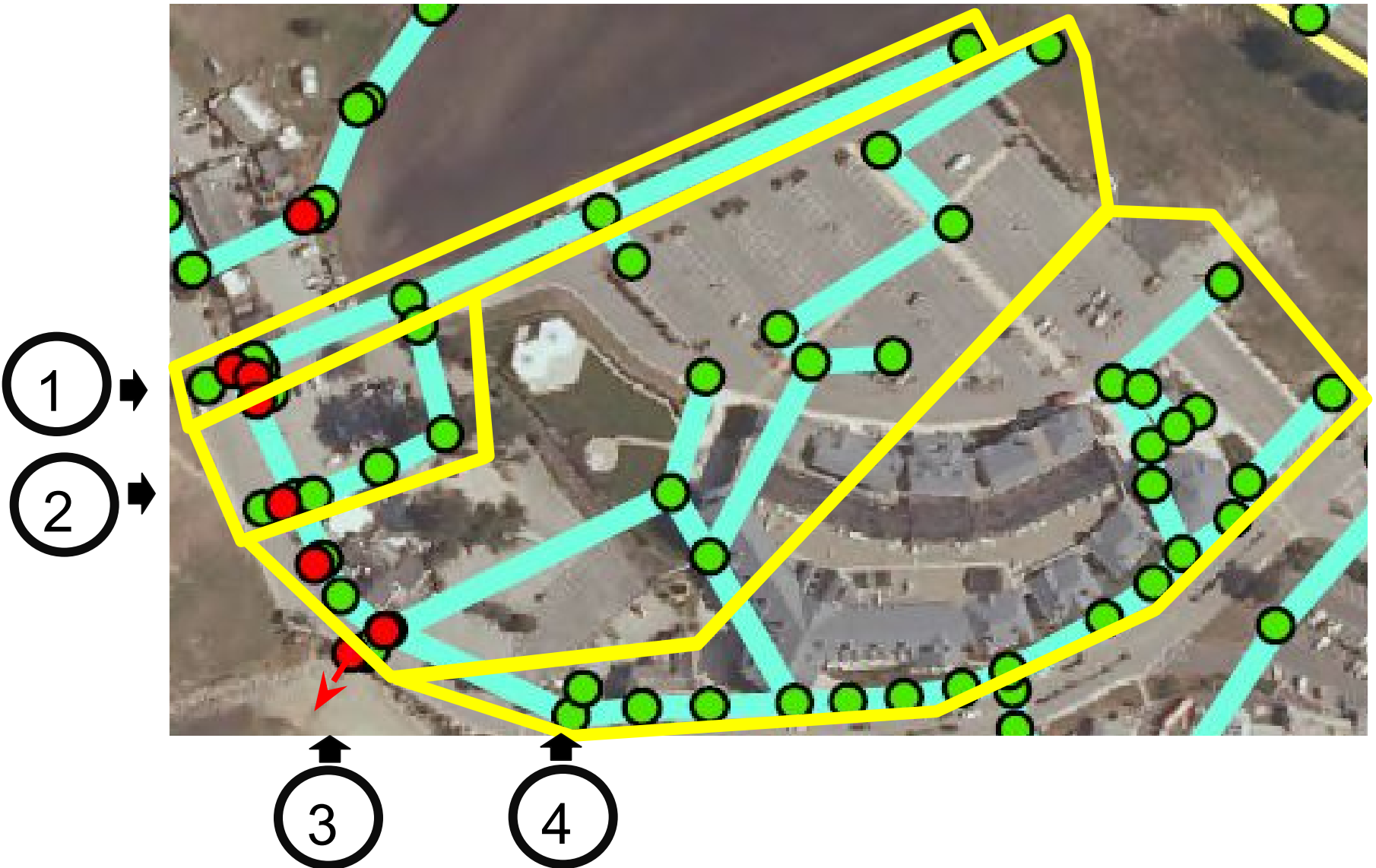
Capistrano Rd
Google earth



Storm Drains Feeding Capistrano Outfall (SMC Map)



Sampling Sites for Capistrano



Proposed Sampling

- Preliminary – AM/ PM samples - 2 week at the outfall – determine if there is a correlation to commercial activity. For example - high evening & weekend counts would point to a business source.
- Sample the 4 “branch” sampling sites, with multiple samples to determine if a branch or branches can be eliminated as possible sources. Ideally one branch will be the consistent hotspot.
- Sample upstream in any branch showing issues.
- Identify potential sources close to “hot” sampling sites

Donations

- If you would like to donate directly to the San Mateo Chapter of Surfrider, you may send checks to:
- San Mateo Chapter
Surfrider Foundation
P.O. Box 2006
El Granada, CA 94018-2006