

First Flush 2018 Water Quality Results



SAN MATEO
RESOURCE
CONSERVATION
DISTRICT

Presentation to:
Sewer Authority Mid-Coastside
Board of Directors
February 25, 2019

Resource Conservation District

Non-Regulatory Technical Assistance



Water



Climate



Wildlife



Agriculture



What is First Flush?

- First big rain of the season
- Freshwater runoff enters storm drains
- High pollution



Why Do We Care?

Long Term Datasets

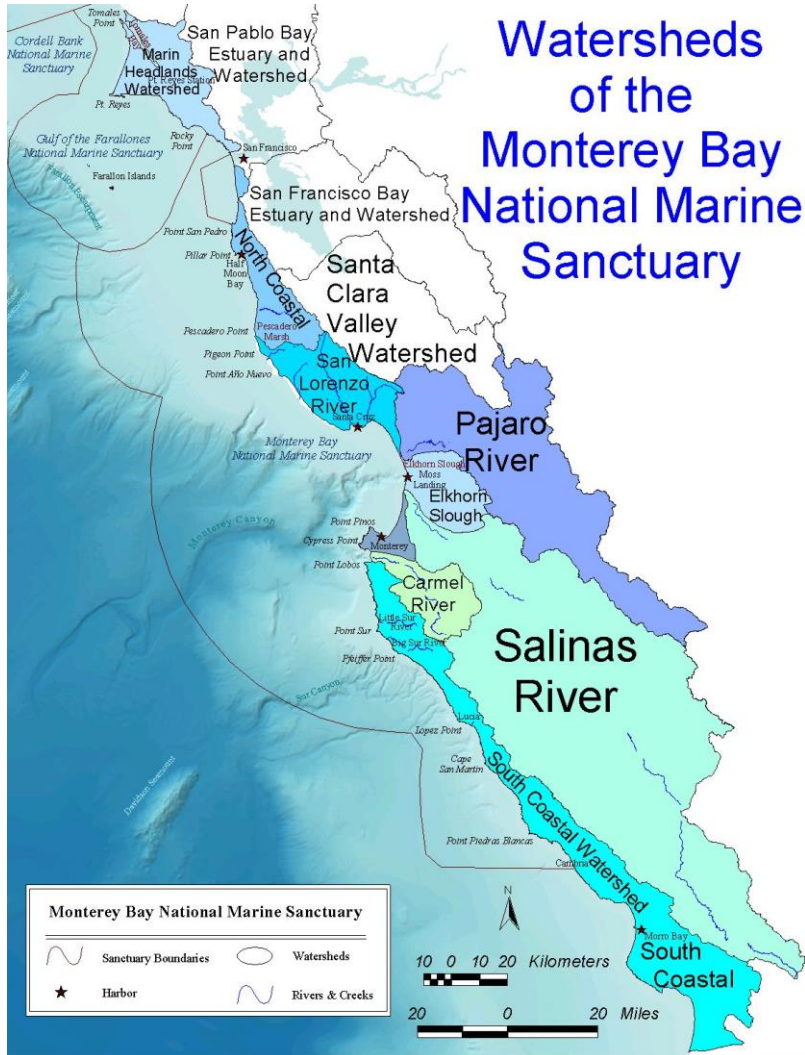
Snapshots along Central Coast

Identify Problems

Allow Informed Management



First Flush Partners



Sewer Authority Mid-Coastside
SAM



Surfrider Foundation.



COUNTY OF SAN MATEO
HEALTH SYSTEM

Volunteers!

Rely completely on volunteer involvement.
Thank you to all of our volunteers!

Citizen science

Conduct training to teach protocol



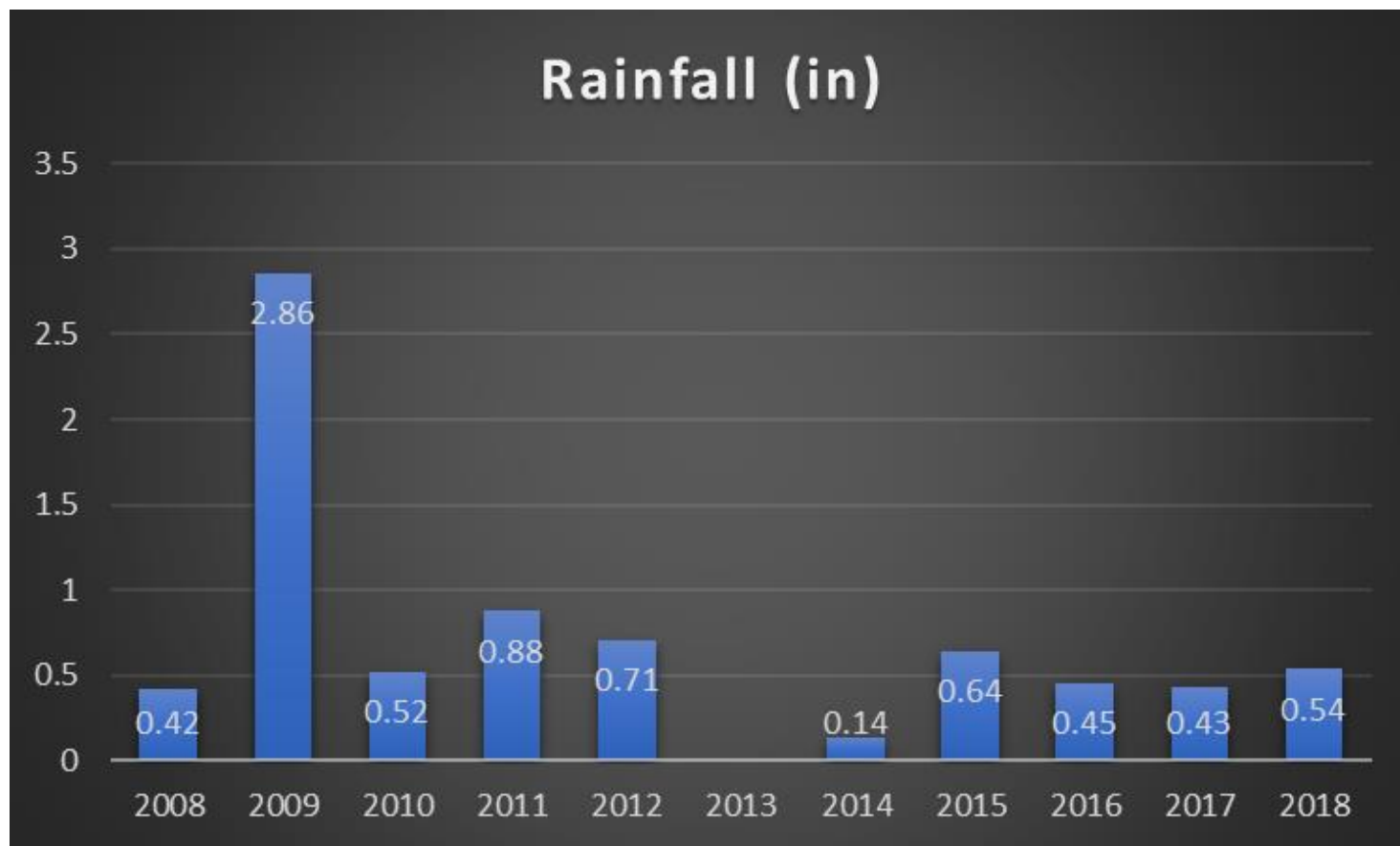
Sample Sites

First Flush 2018 → 13 sites

First Flush Historic (2008-2018) → 6 of the 13 sites



First Flush Precipitation History



Rain Decides!
This year was November 21st

What are we testing?

Pollutant	Potential Sources	Effects
Fecal Indicator Bacteria (<i>E.Coli</i> , <i>Enterococcus</i>)	Feces of warm blooded animals (Humans, dogs, horses, etc.)	Indicator for pathogens that can human health
Nutrients(Nitrate, Orthophosphate)	Fertilizers, pesticides, detergents	Ecosystem and recreation impacts
Metals (Copper, Zinc, Lead)	Gutters/roofs, brake pads, tires, industrial waste, paint, fires	Human health impacts, reduced reproduction and mortality of marine organisms
Total Suspended Solids	Construction, erosion, agricultural runoff, fires	Marine organism impacts (ex: respiratory effects in aquatic organisms)

Physical Tests

Helps inform data!



- **Transparency**
- **pH, Hardness, Chlorine**
- **Electrical conductivity, Water temperature**
- **Observations: trash, odor, bubbles, scum, oil**

2018 Physical Results Summary

- pH, Hardness, Chlorine, and Conductivity within expected ranges
- Orange Color
 - Montara Creek, San Vicente Creek Mouth, Harbor Upland, El Granada Ditch, Surfer's South
- Bubbles/Foam
 - West Point Ave, Roosevelt Drainage, Kelly Ave
- Trash
 - Kelly Ave



2018 Pollutant Results Summary

Pollutant	Water Quality Objective Exceedance Rate	Locations with Highest Concentration
Bacteria	100%	Capistrano Outfall
Orthophosphate	100%	Dunes Drainage
Copper	38%	Montara Creek
Nitrate	15%	Dunes Drainage
TSS	0%	San Vicente Creek Mouth
Zinc	0%	Montara Creek
Lead	0%	San Vicente Creek Mouth

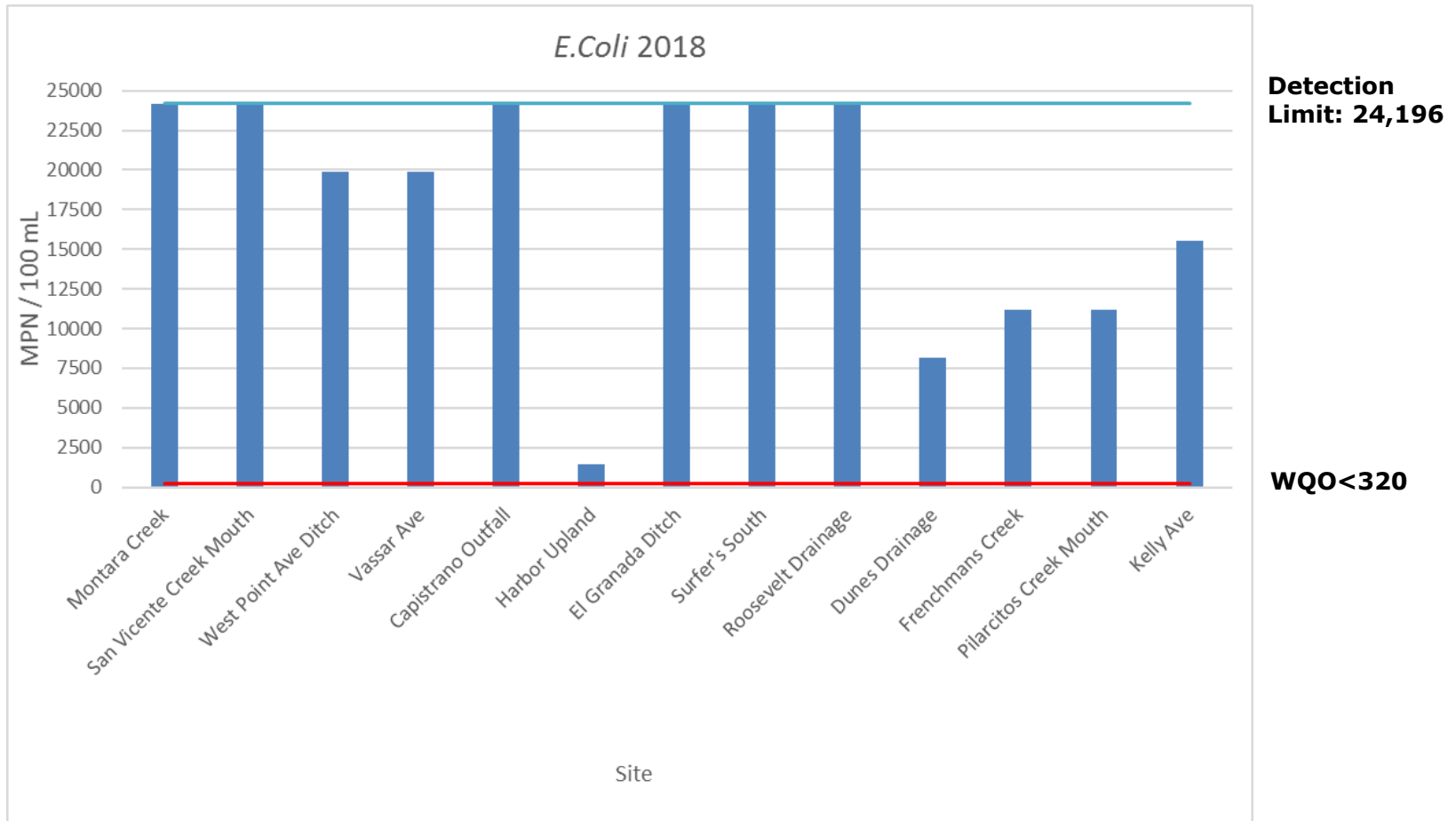
2018 New Sites Summary

- **Montara Creek:**
 - High bacteria, orange color
 - Some of the highest nitrate, orthophosphate and copper levels in all San Mateo First Flush samples
- **Roosevelt Drainage:**
 - High bacteria, bubbles/foam
- **Dunes Drainage:**
 - High bacteria, highest nitrate level in all San Mateo First Flush samples and one of the highest orthophosphate levels
- **Poplar, Magellan not flowing**

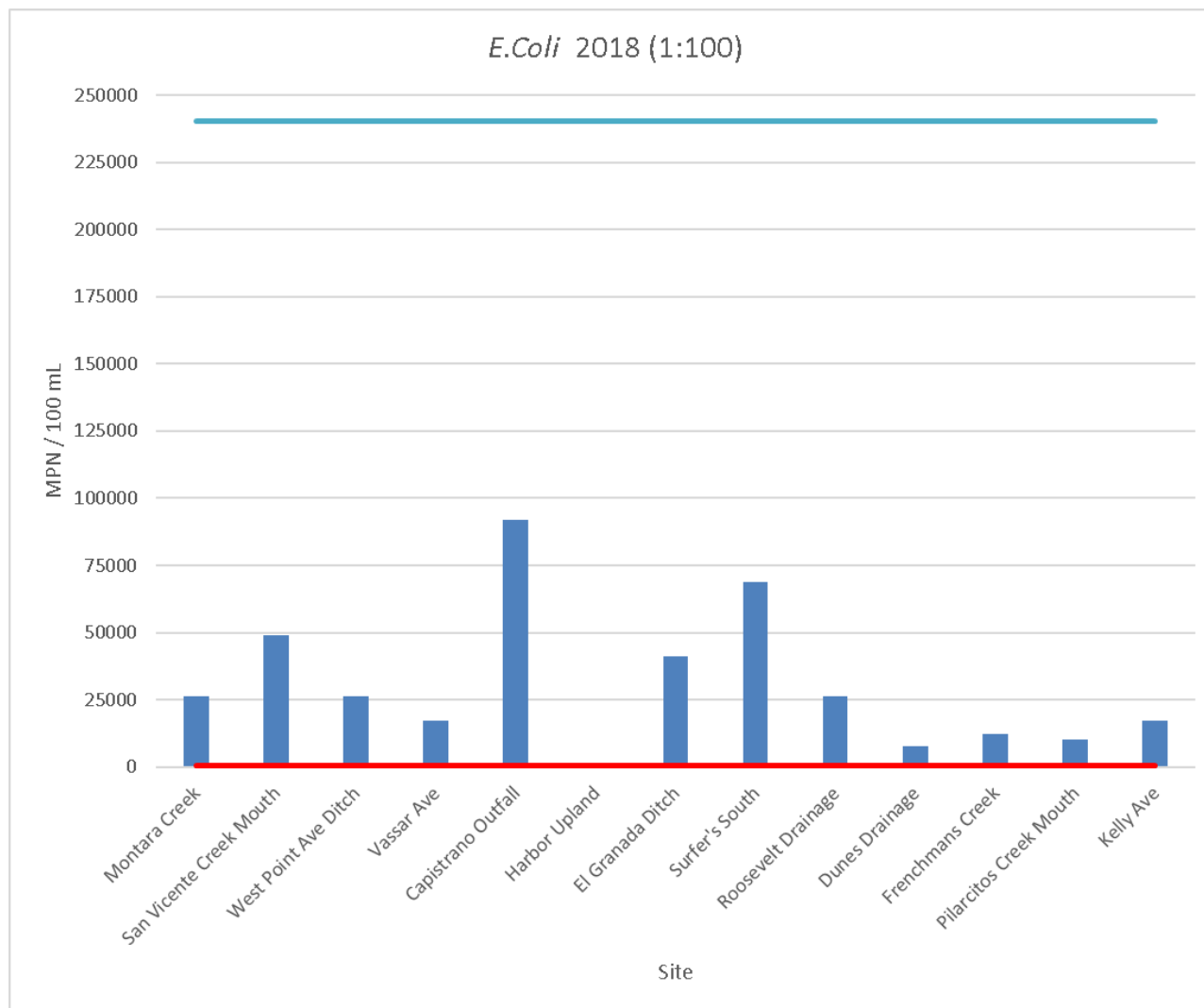
Historic Pollutant Results Summary

Pollutant	Water Quality Objective Exceedance Rate (2008-2018)	Locations with most exceedances and/or highest values
Bacteria	97%	Surfer's South, Capistrano Outfall
Orthophosphate	72%	El Granada Ditch
Copper	49%	Capistrano Outfall, West Point Ave Ditch
Zinc	25%	West Point Ave Ditch
TSS	2%	San Vicente Creek Mouth
Nitrate	0%	West Point Ave Ditch
Lead	0%	Vassar Ave

E. coli 2018



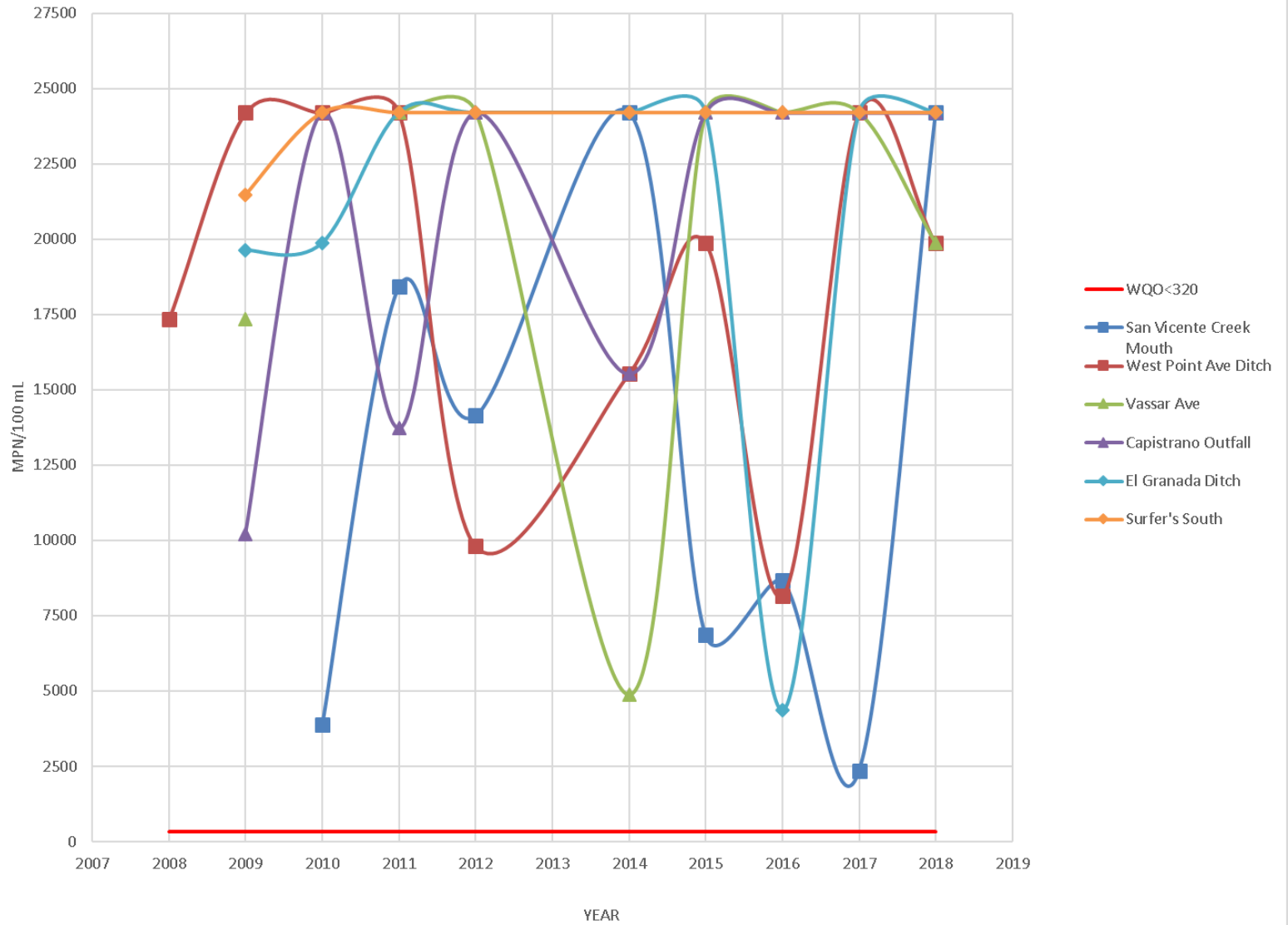
E. coli 2018 (1:100 Dilution)



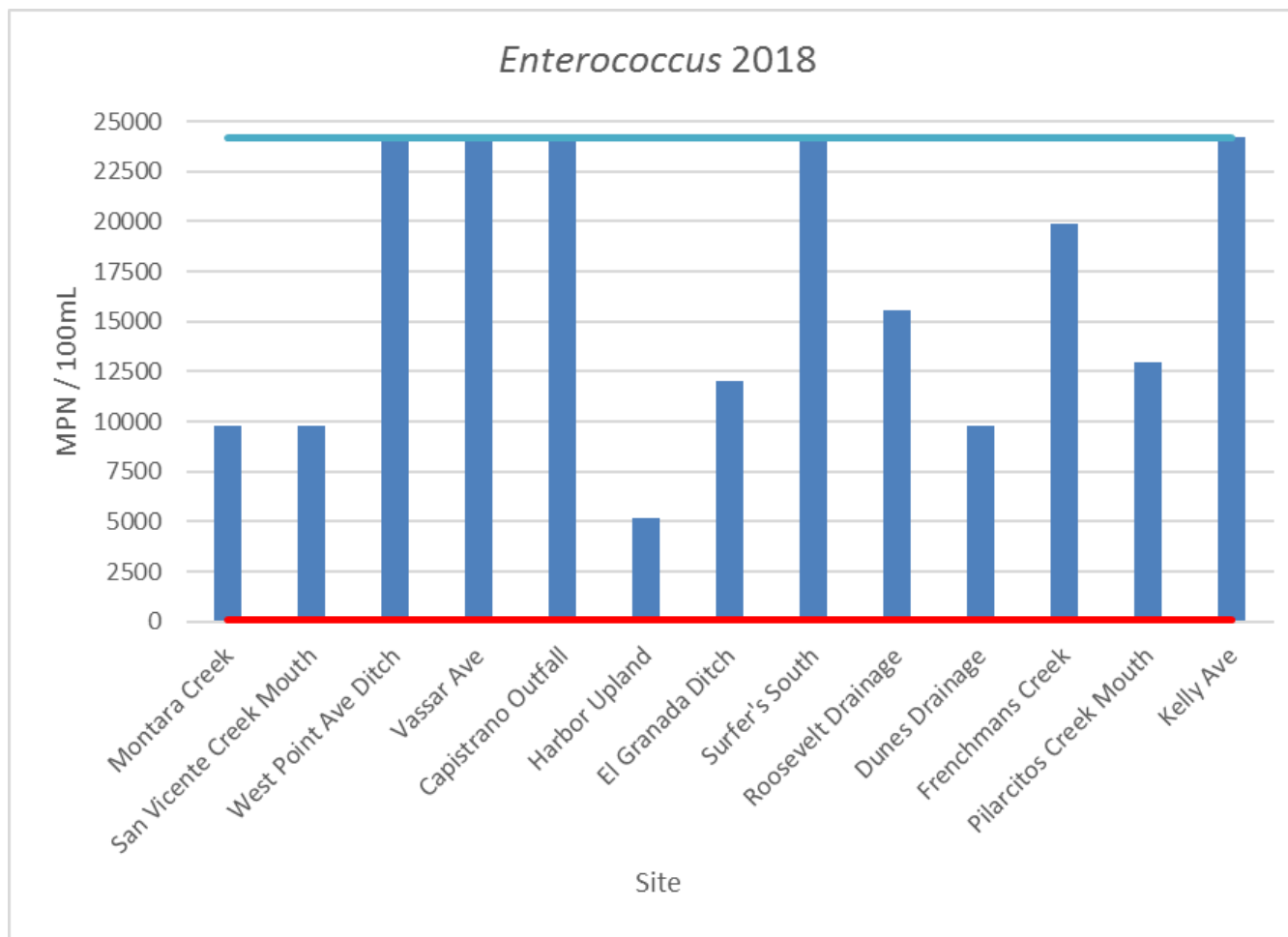
**Detection
Limit: 241,960**

WQO<320

E. COLI HISTORIC SITES



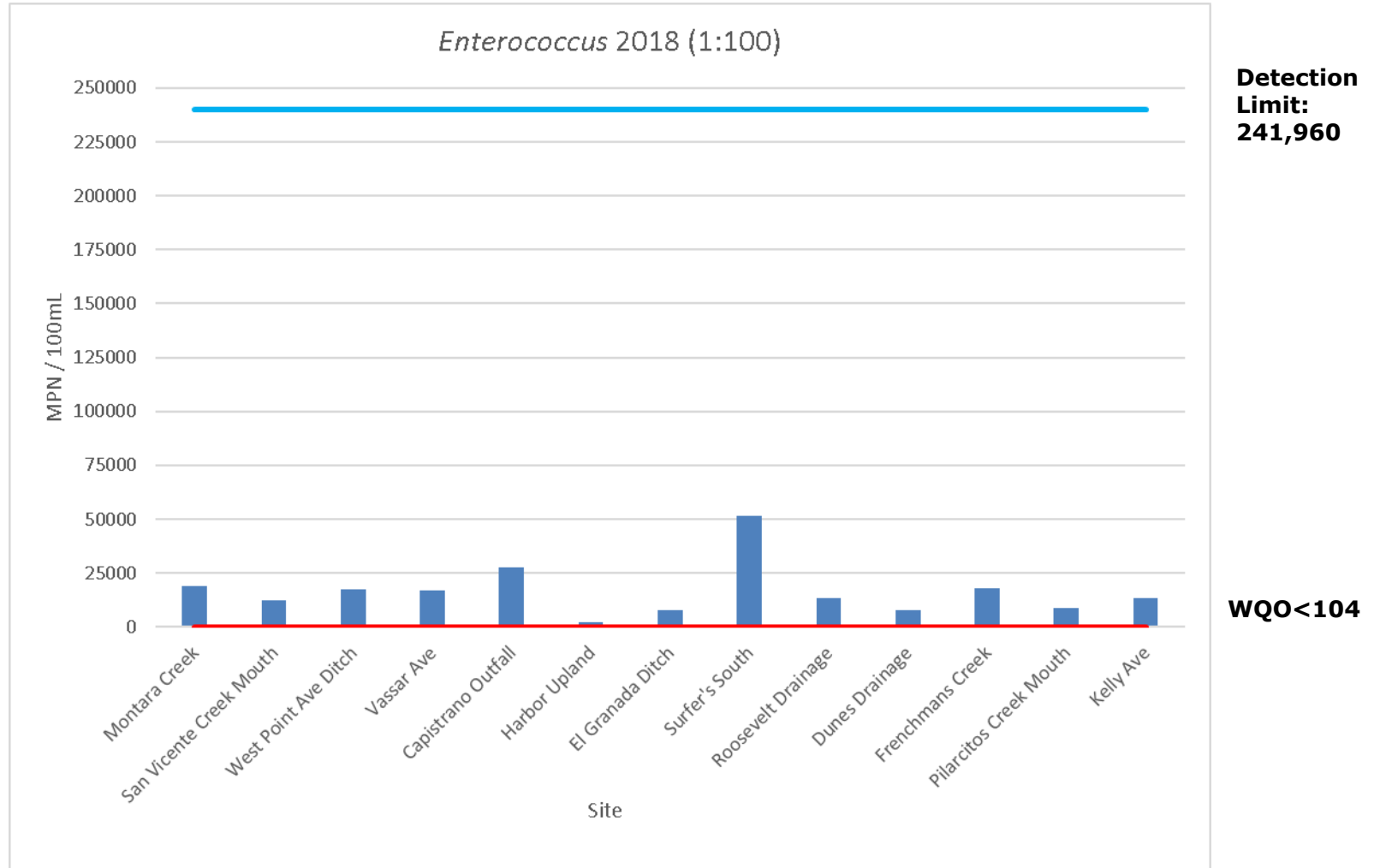
Enterococcus 2018



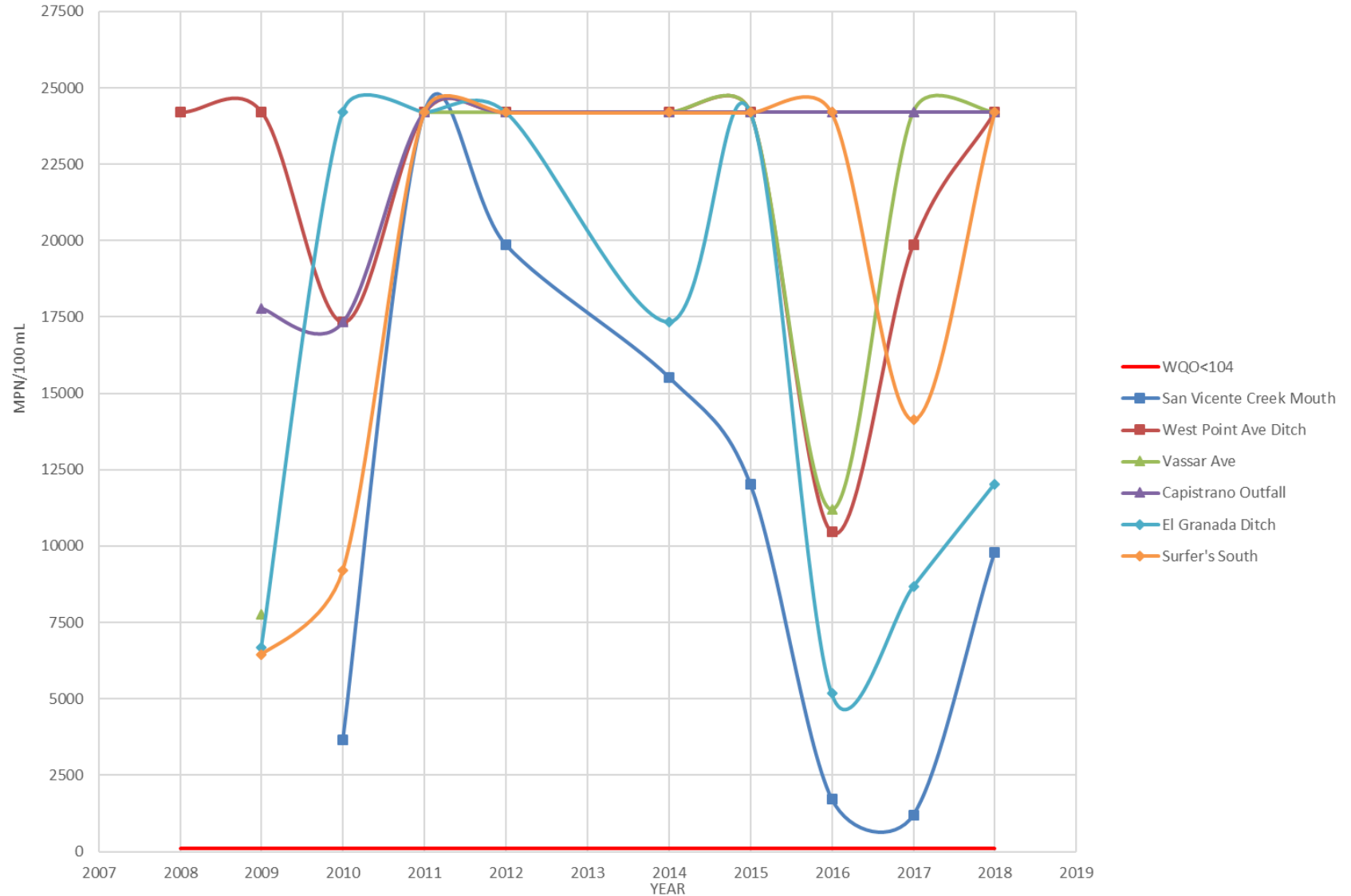
Detection
Limit: 24,196

WQO<104

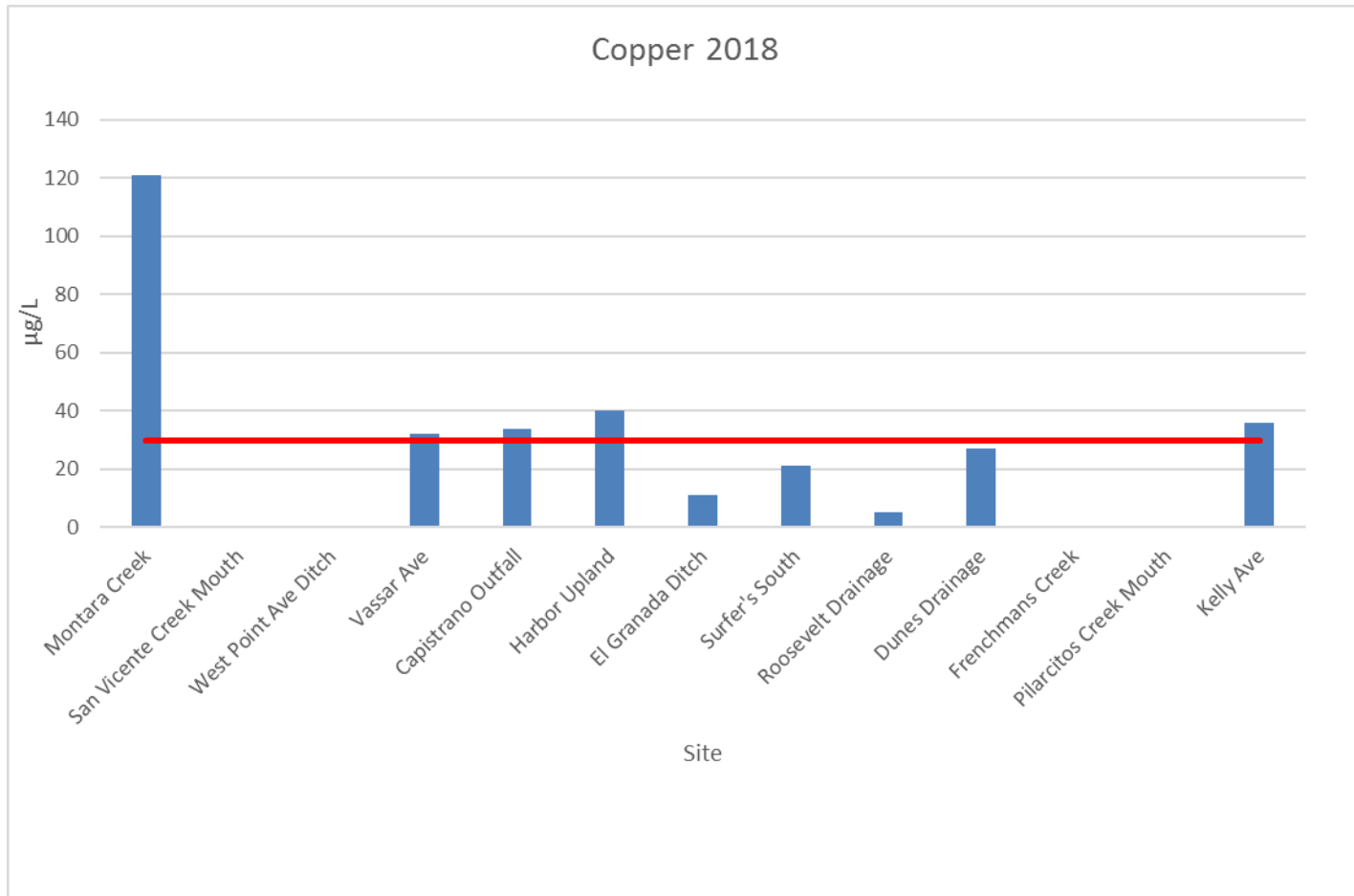
Enterococcus 2018 (1:100 Dilution)



ENTEROCOCCUS HISTORIC SITES

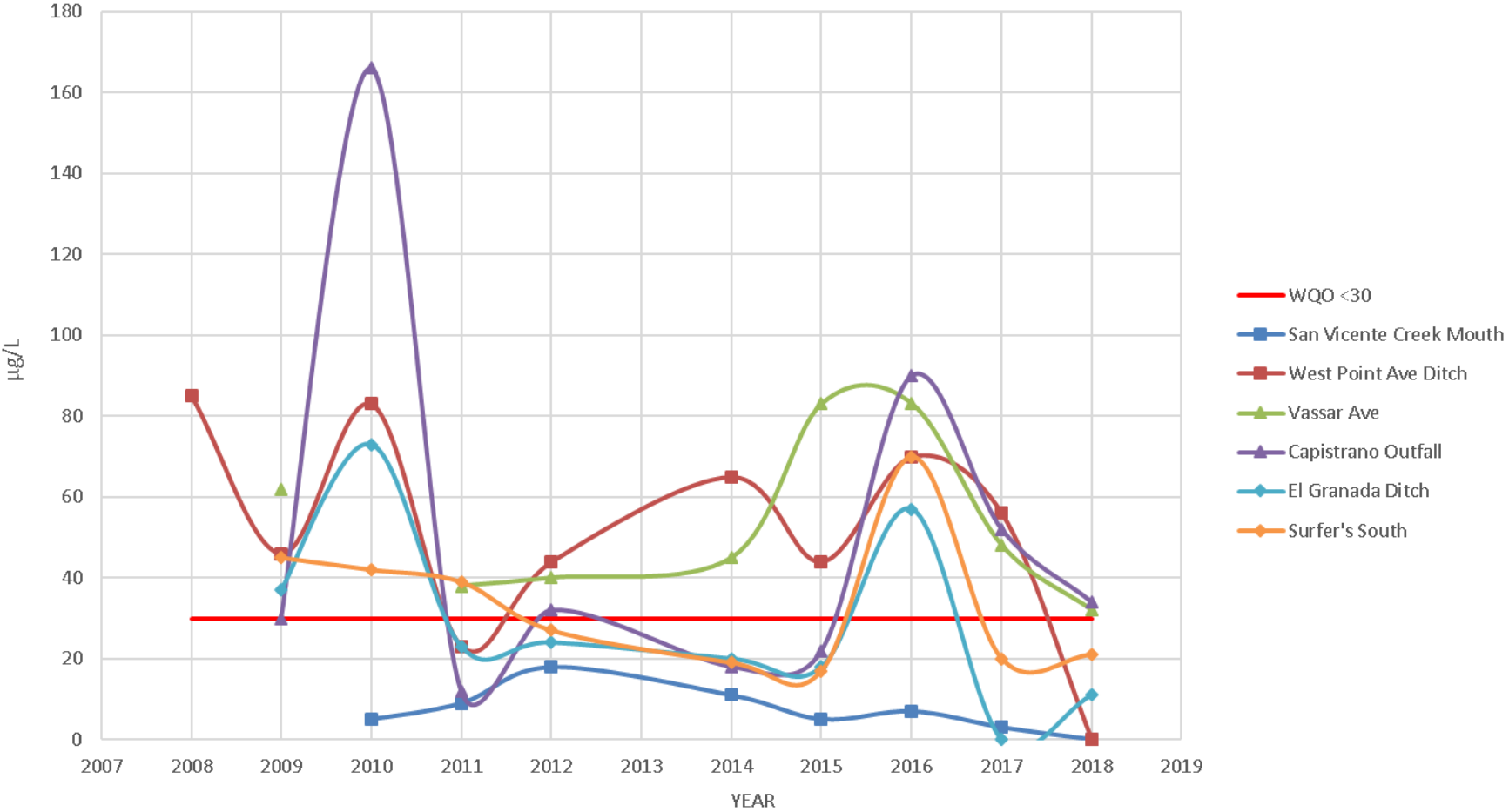


Copper 2018

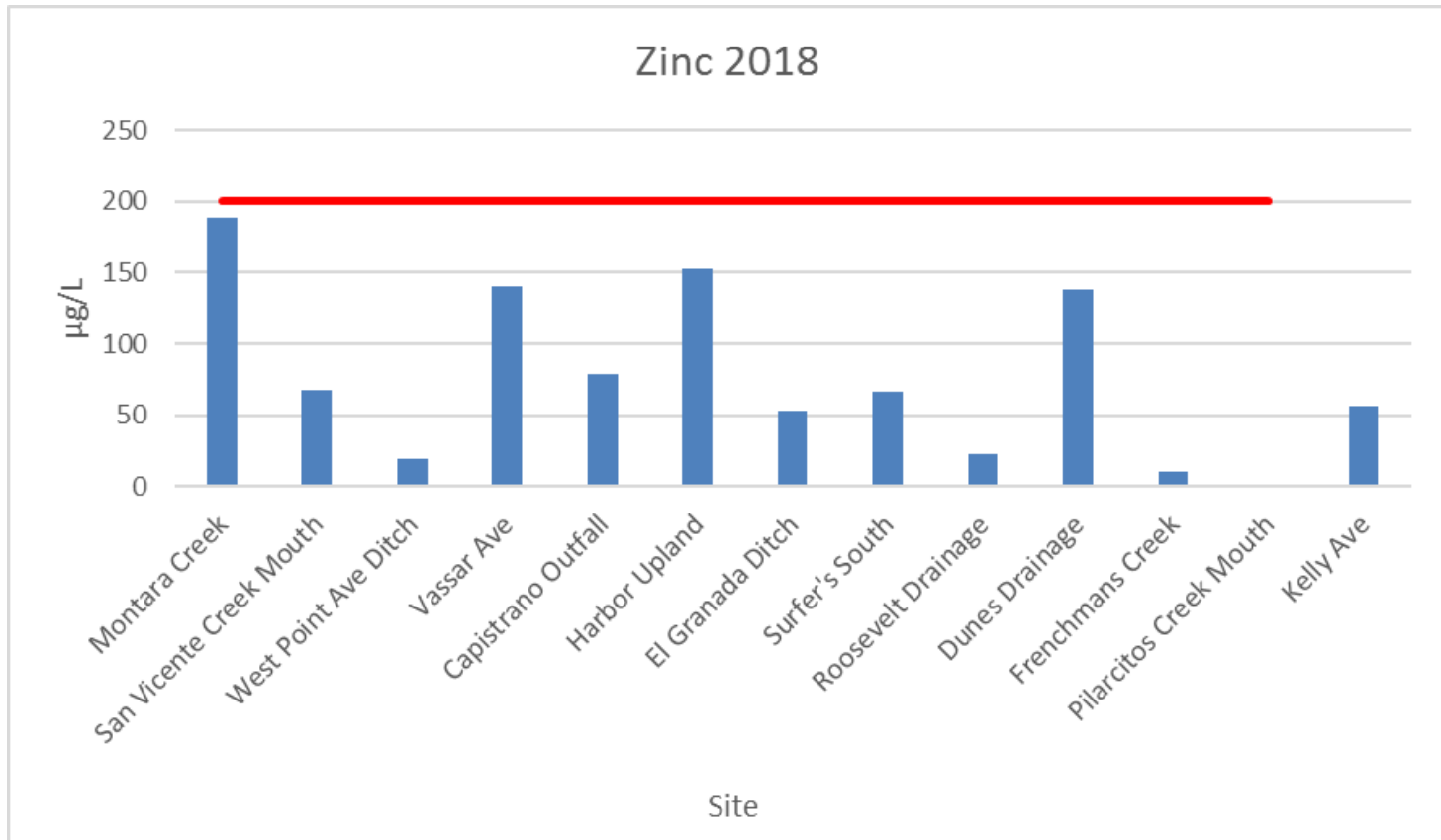


WQO <math>< 30</math>

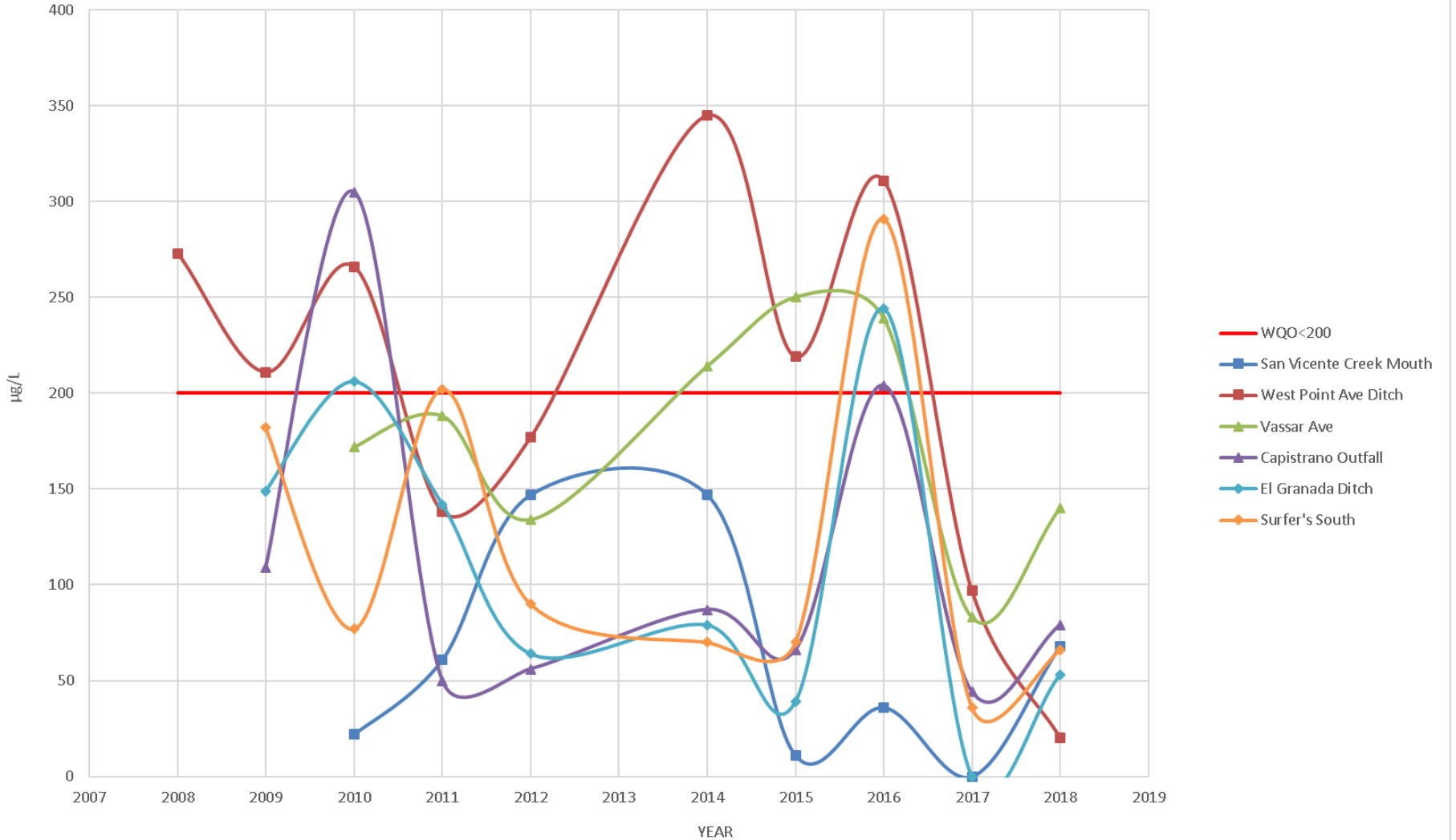
COPPER HISTORIC SITES



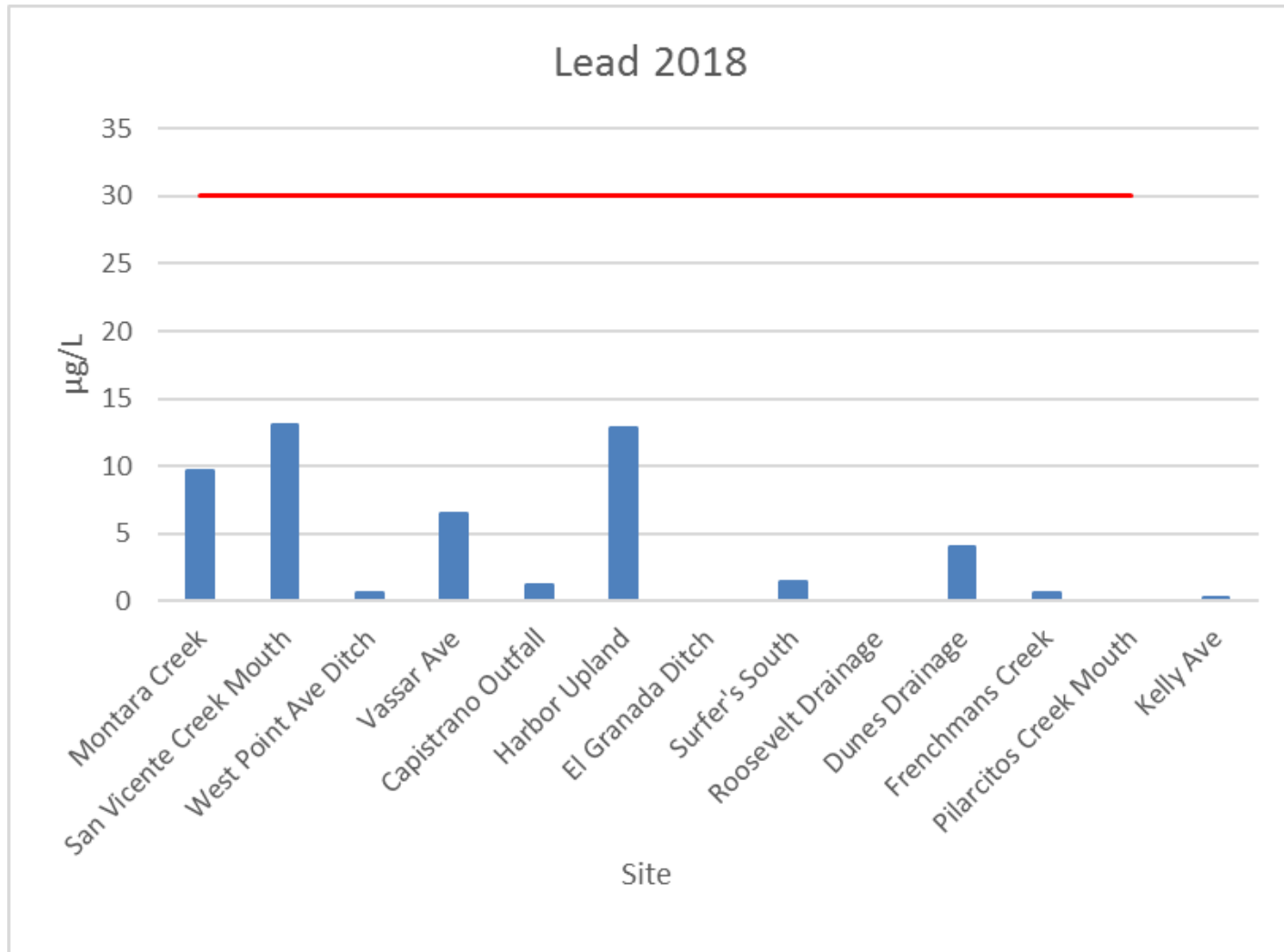
Zinc 2018



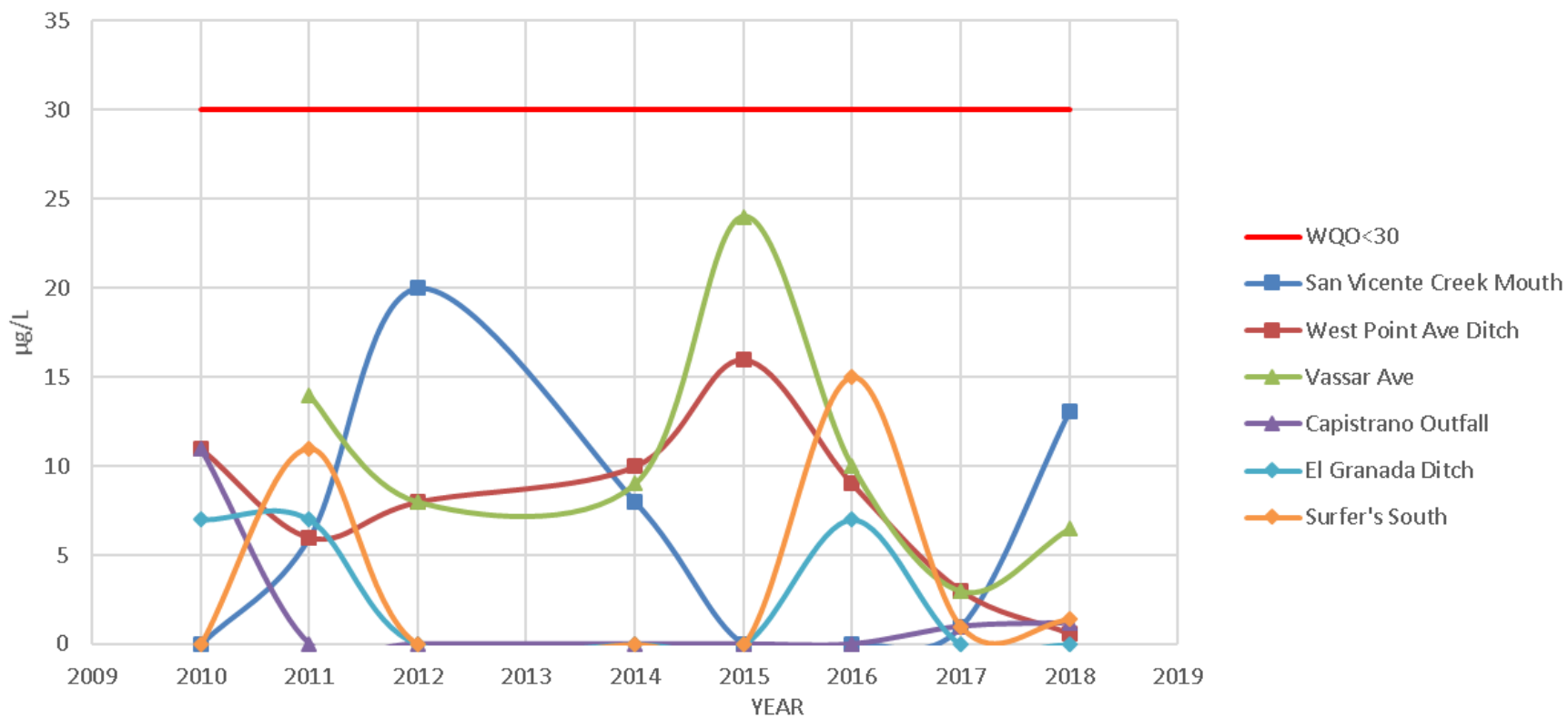
ZINC HISTORIC SITES



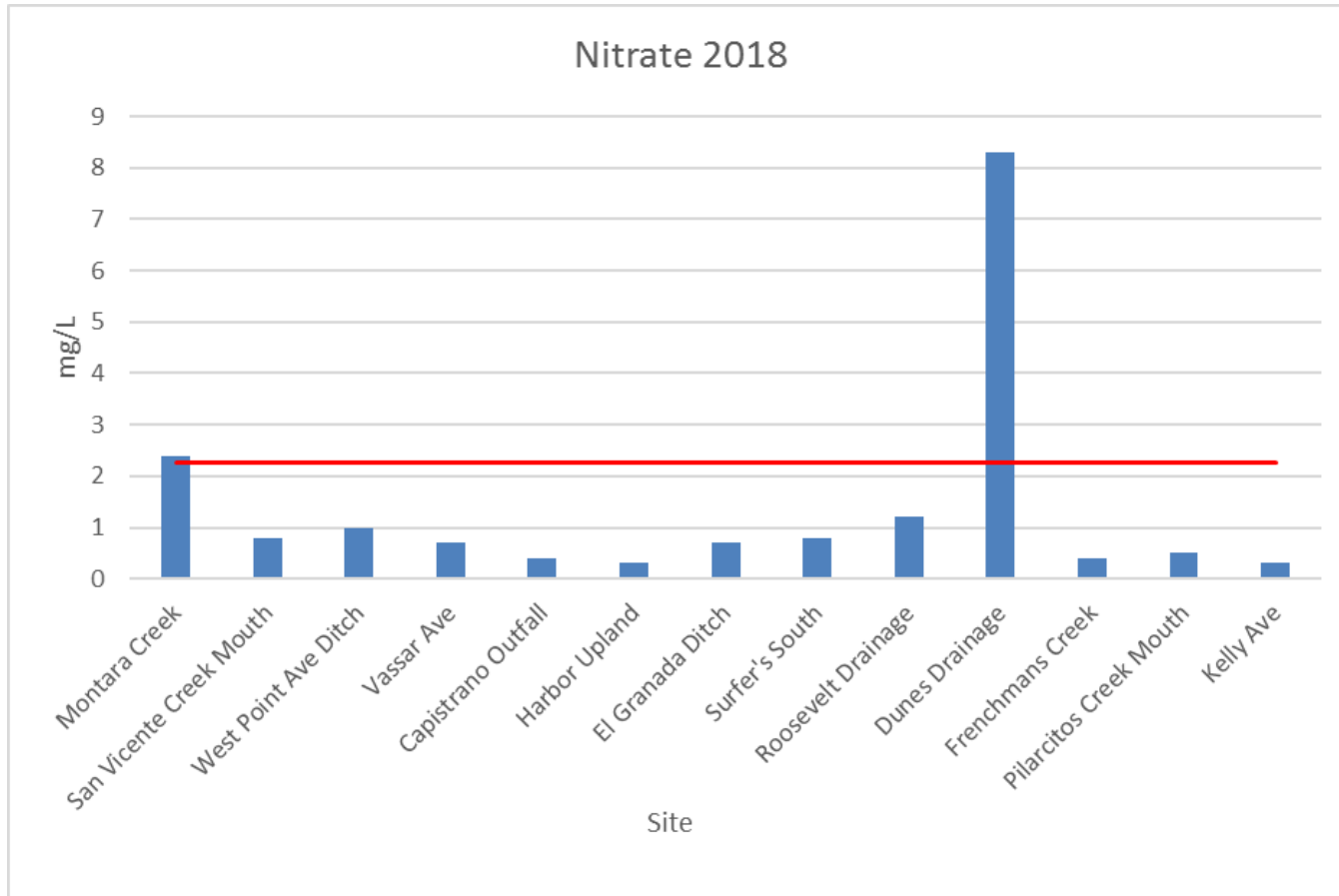
Lead 2018



LEAD HISTORIC SITES

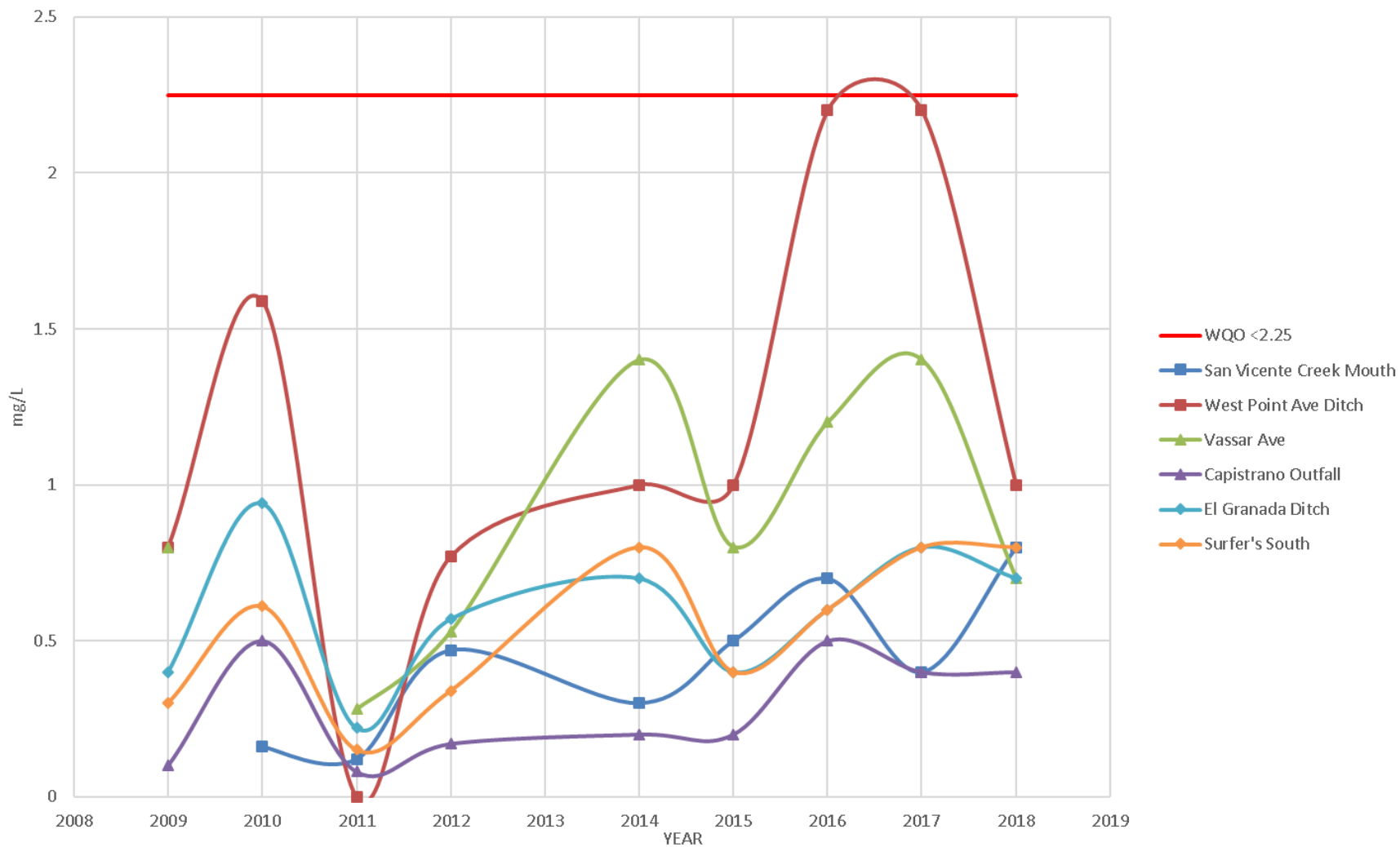


Nitrate 2018

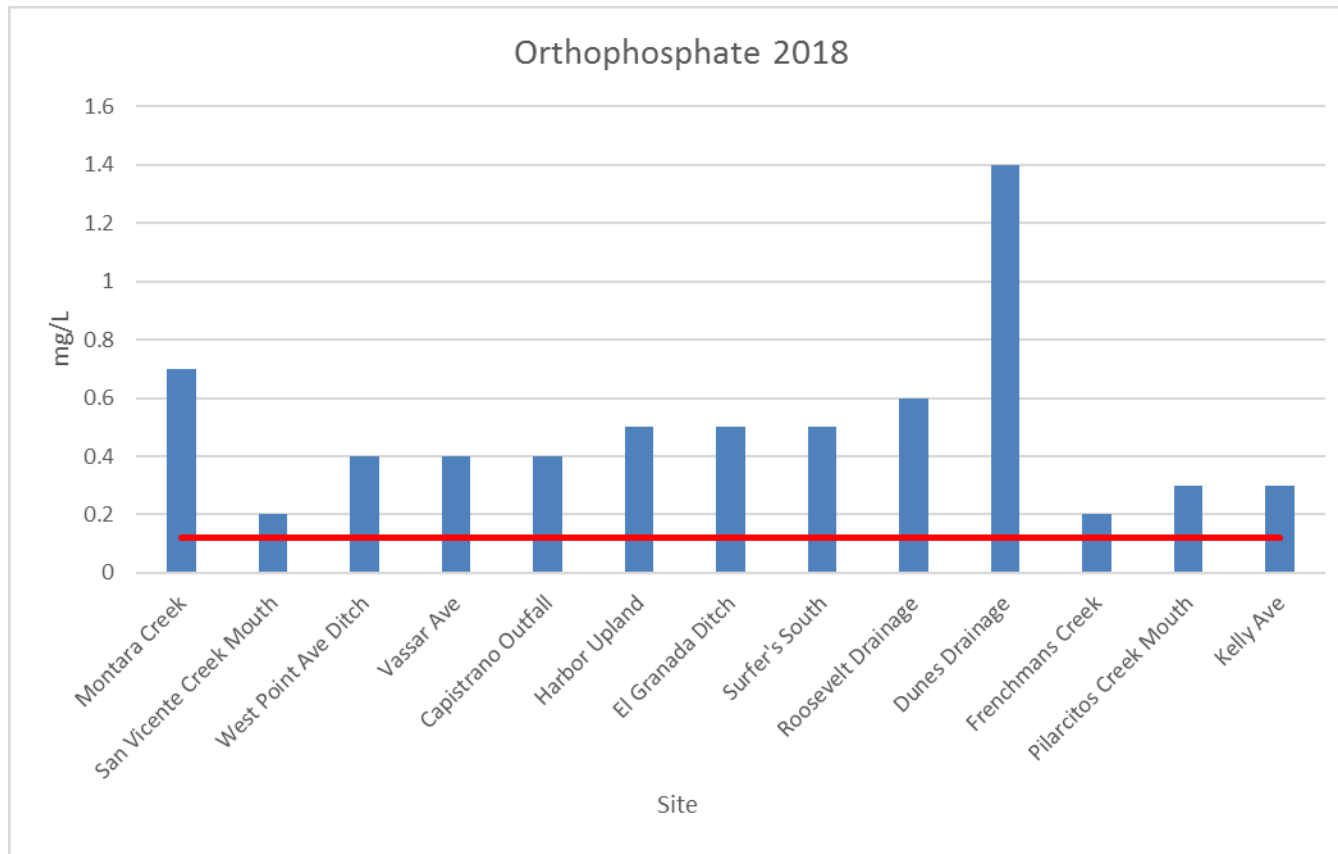


WQO < 2.25

NITRATE HISTORIC SITES

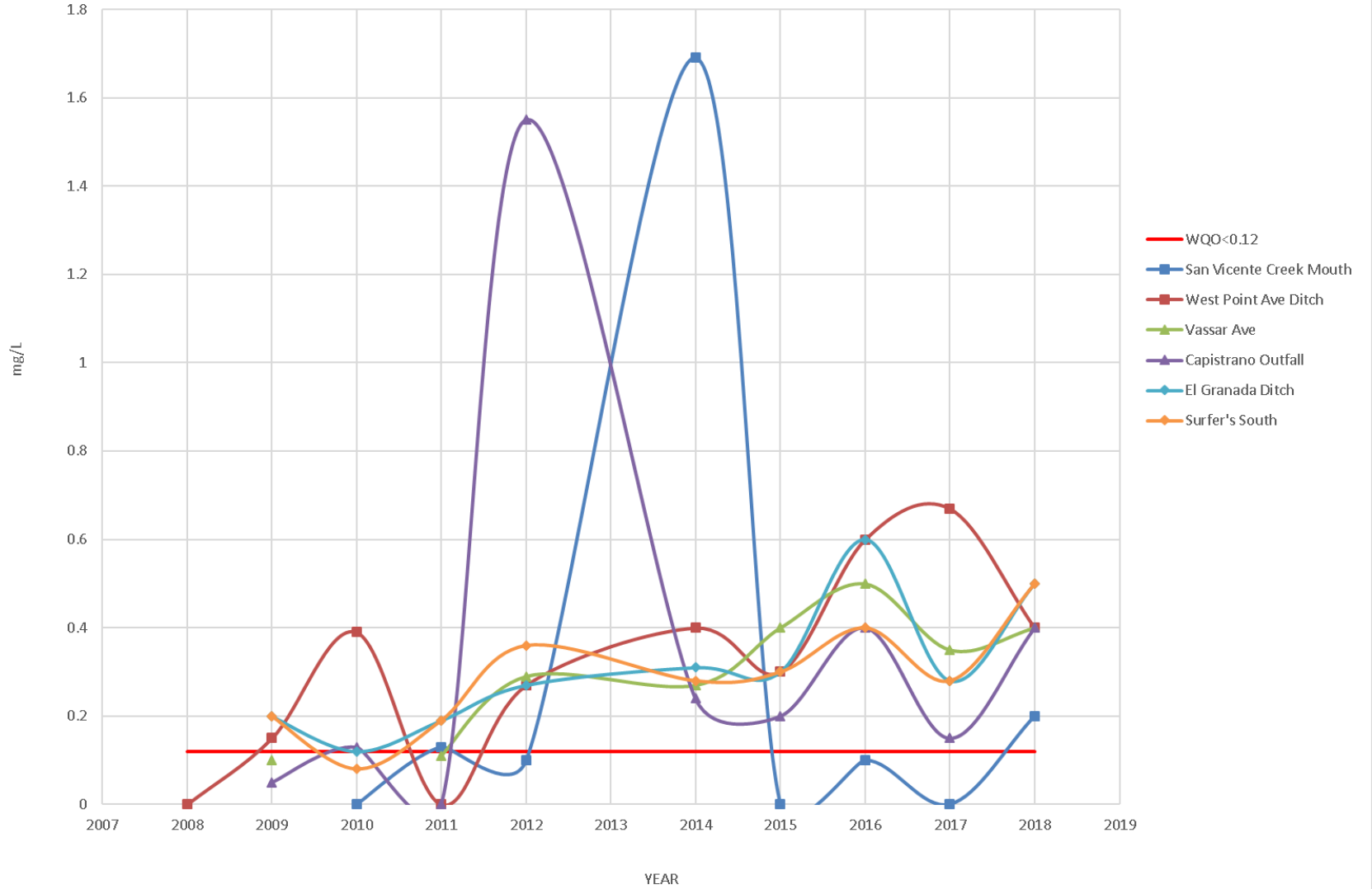


Orthophosphate 2018

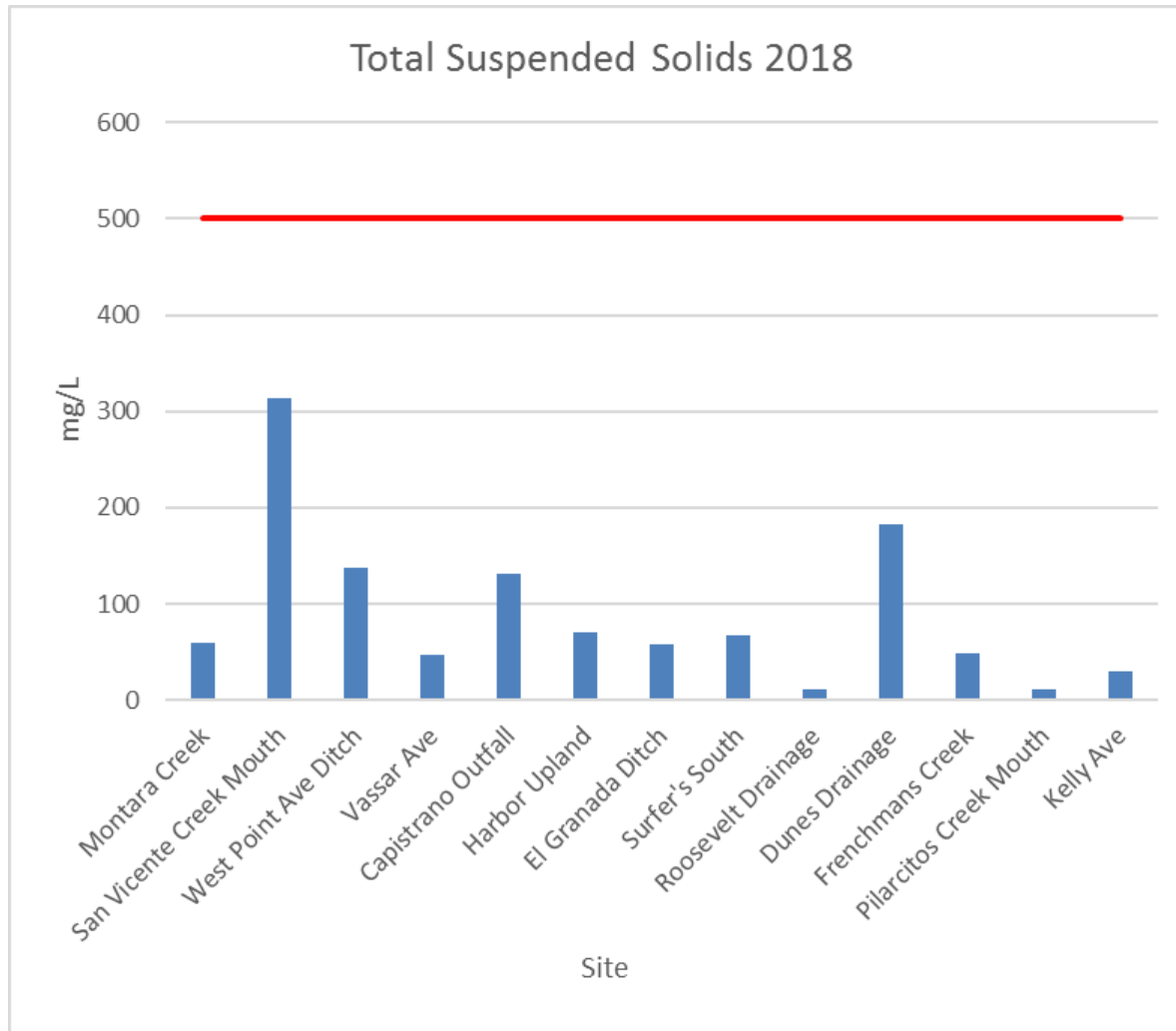


WQO < 0.12

ORTHOPHOSPHATE HISTORIC SITES

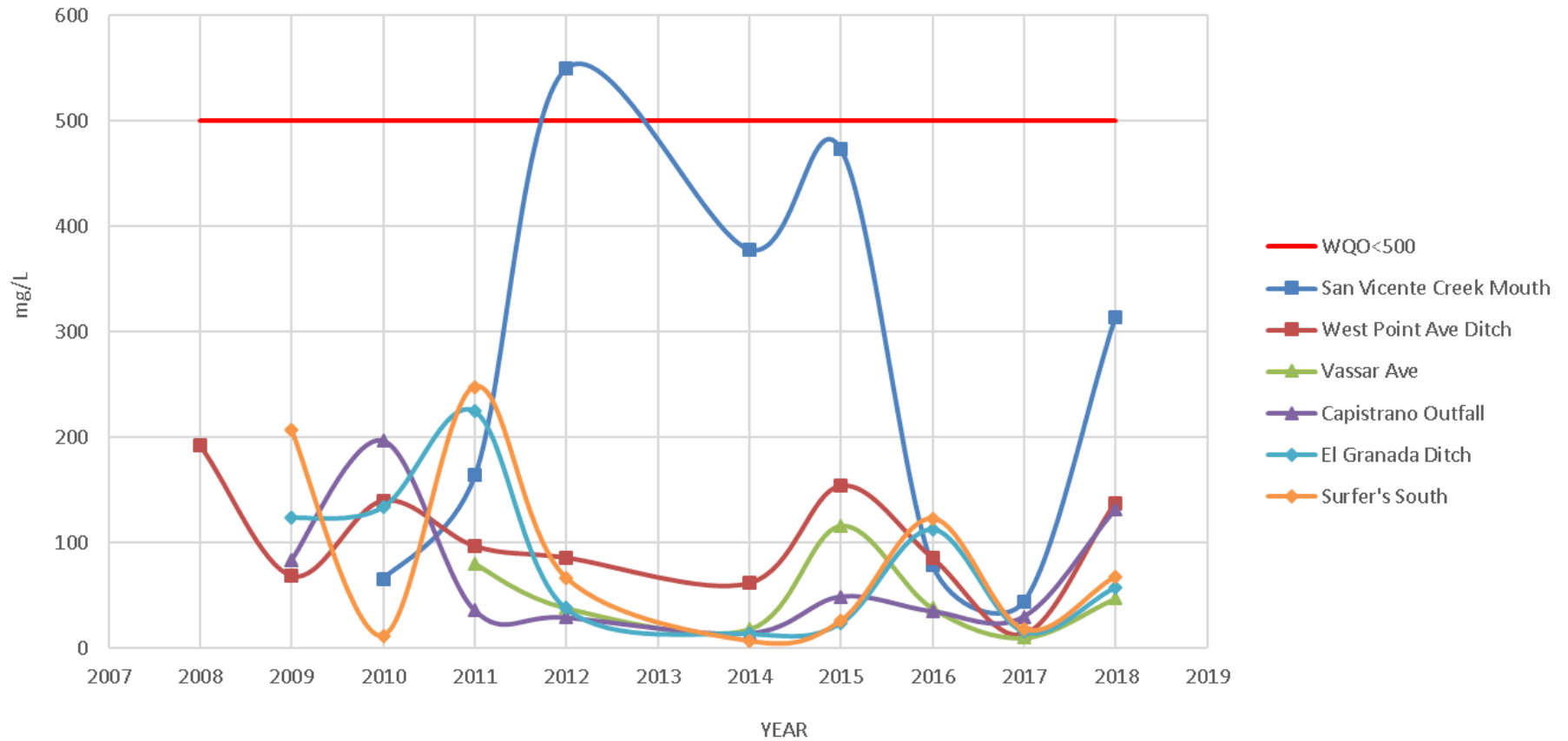


Total Suspended Solids 2018



WQO < 500

TOTAL SUSPENDED SOLIDS HISTORIC SITES



Next Steps



- Raise Awareness
- Distribute Data
- Inform management and target practices

Continue First Flush and other education/outreach initiatives (FY20-FY22) through Coastside One H2O

- SAM estimate=\$20,000 for 3 years= \$60,000 total
- SAM estimate assumes cost share and resources from other partners

Thank you!

Questions?

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