

# First Flush 2017 Water Quality Results



SAN MATEO  
RESOURCE  
CONSERVATION  
DISTRICT

Presentation to:  
Sewer Authority Mid-Coastside  
Board of Directors  
February 12, 2018

# Resource Conservation District

## Non-Regulatory Technical Assistance



Water



Climate



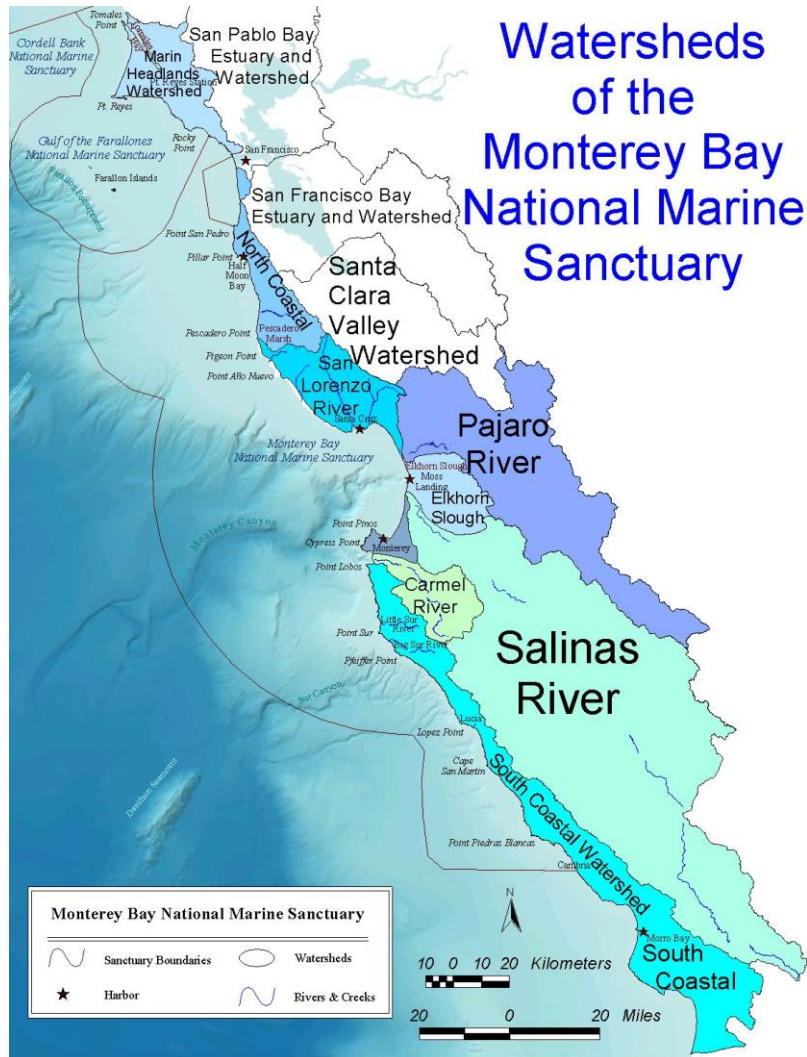
Wildlife



Agriculture



# First Flush Partners



**COUNTY OF SAN MATEO**  
**HEALTH SYSTEM**



**SAM**  
Sewer Authority Mid-Coastside



# Volunteers!

Citizen science

Rely completely on volunteer involvement

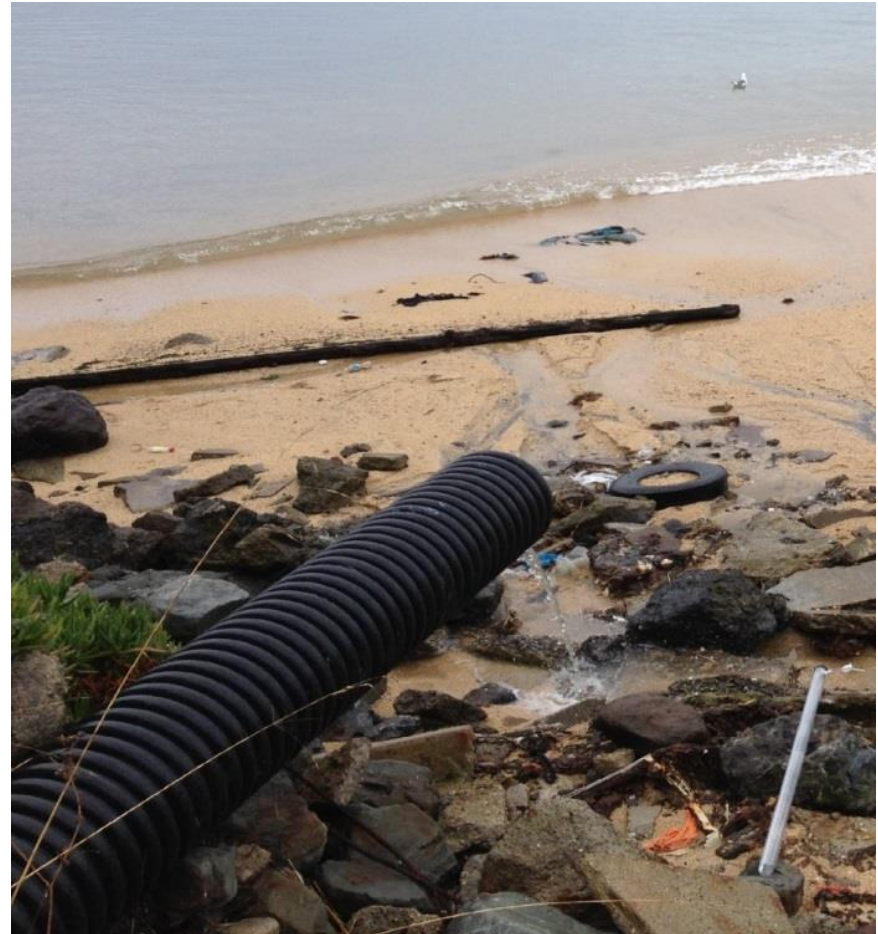
Conduct training to teach protocol





# 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



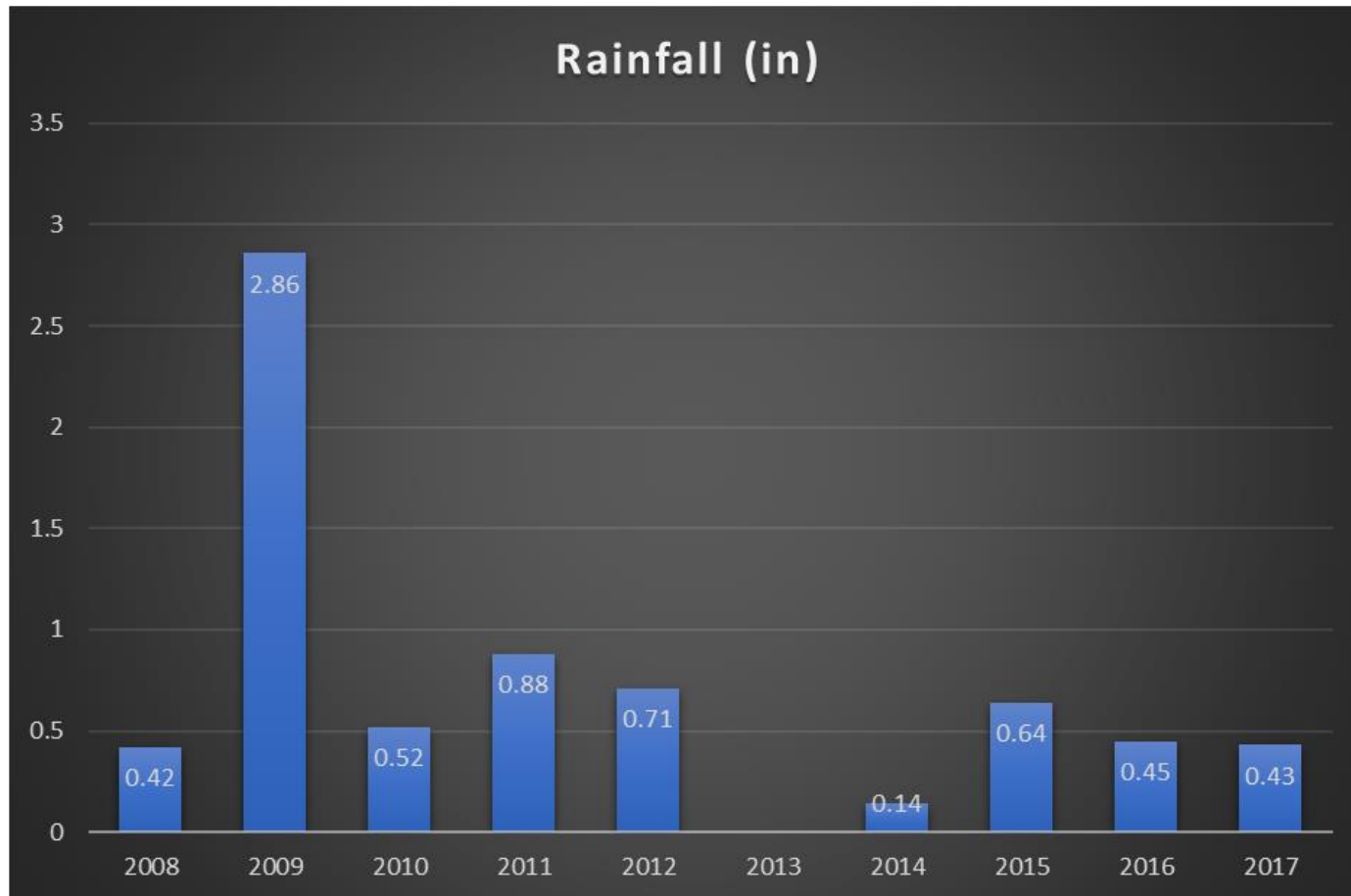
# Sample Sites

First Flush 2017 → 12 sites

First Flush Historic (2008-2017) → 6 of the 12 sites



# First Flush Precipitation History



Rain Decides!



# What are we testing?

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

# Physical Tests

Help inform data!



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

# Physical Results 2017

- Yellow Color
  - Magellan Ave, Kelly Ave
- Bubbles/Foam
  - 2<sup>nd</sup> Street, West Point, El Granada, Surfer's, Kelly
- Trash
  - West Point, El Granada
- Temperature
  - Capistrano
- Conductivity
  - Magellan and Sunshine/Dean



# 2017 Pollutant Results Summary

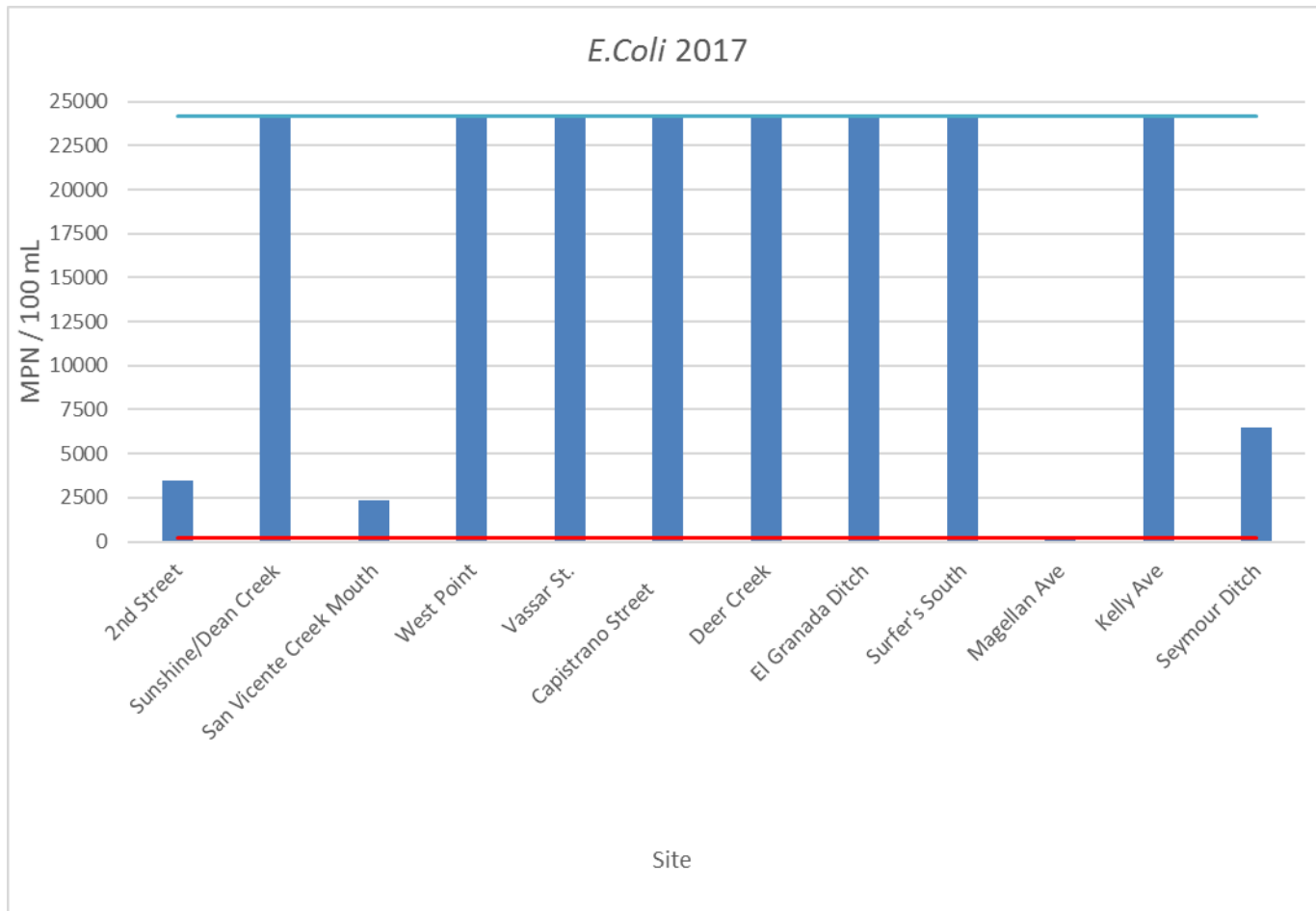
Pollutant	Exceedance Rate	Locations of highest values
Bacteria	100%	Capistrano Street
Orthophosphate	67%	West Point
Copper	33%	West Point
Nitrate	17%	2 <sup>nd</sup> Street
TSS	0%	Deer Creek
Zinc	0%	West Point
Lead	0%	Deer Creek



# Historic Pollutant Results Summary

<b>Pollutant</b>	<b>Exceedance Rate (2008-2017)</b>	<b>Locations of most exceedances and/or highest values</b>
Bacteria	98%	Surfer's South
Orthophosphate	72%	El Granada
Copper	55%	West Point
Zinc	30%	West Point
TSS	1%	San Vicente Creek
Nitrate	0%	West Point
Lead	0%	Vassar

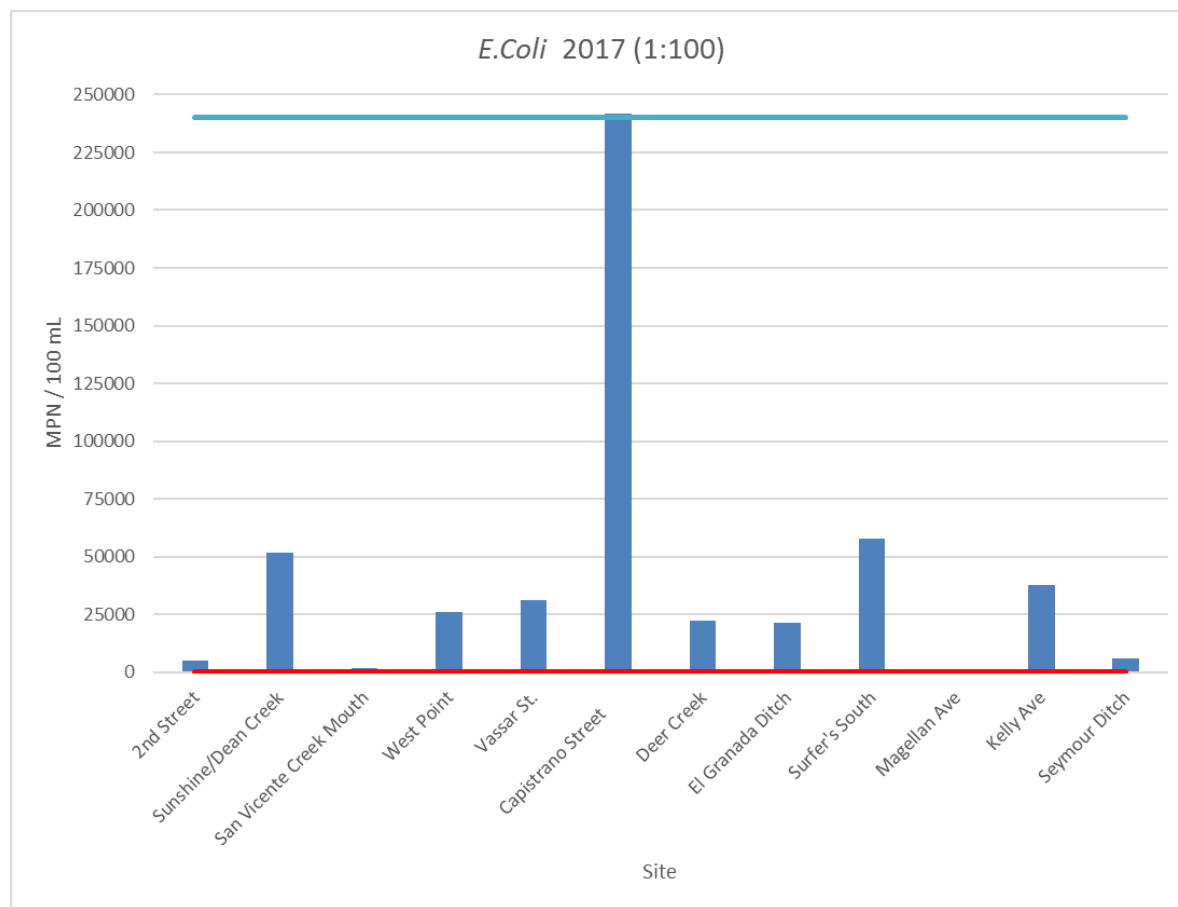
# *E. coli* 2017



**Detection  
Limit: 24,196**

**WQO < 235**

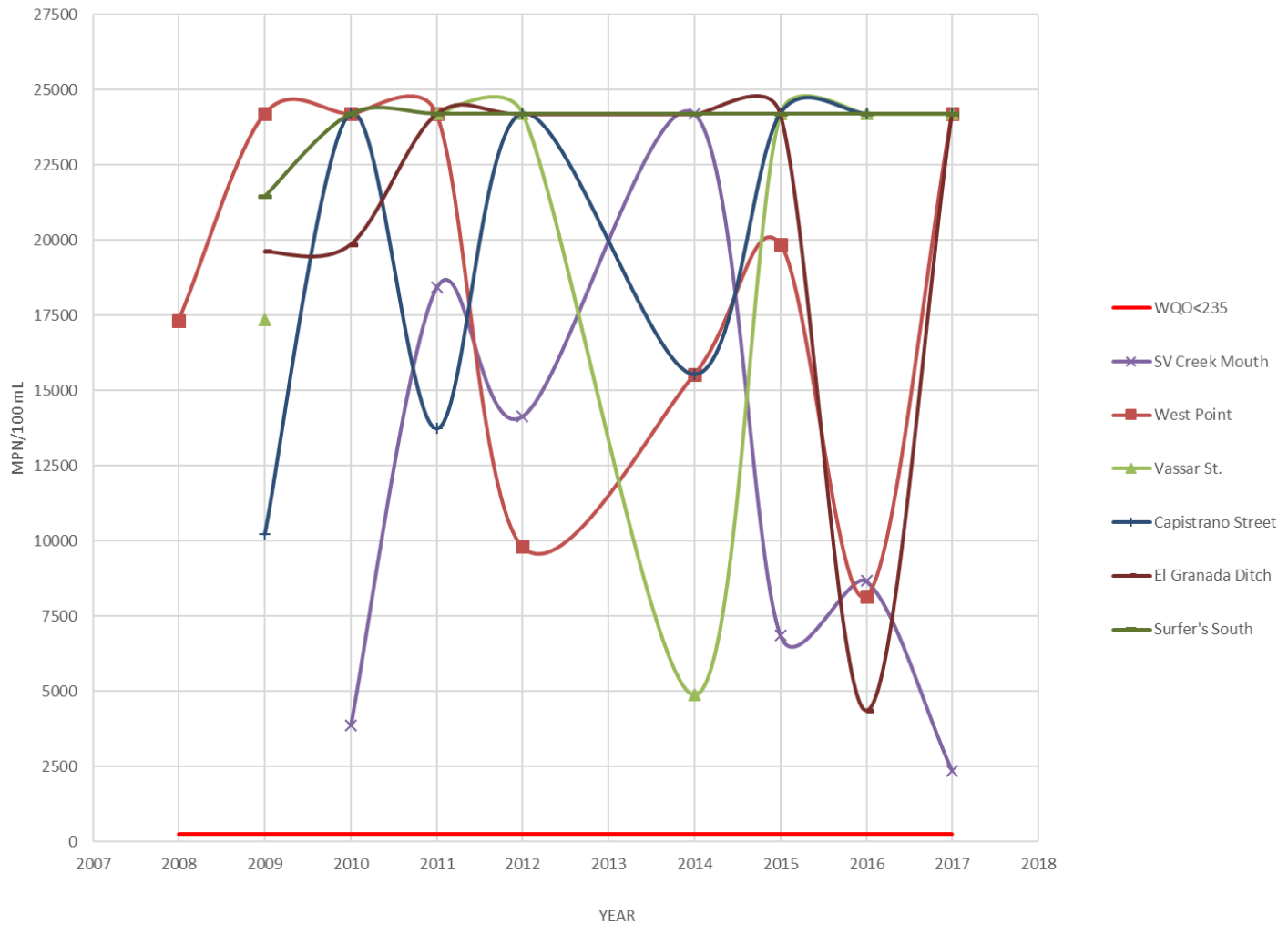
# *E. coli* 2017 (1:100 Dilution)



**Detection  
Limit: 241,960**

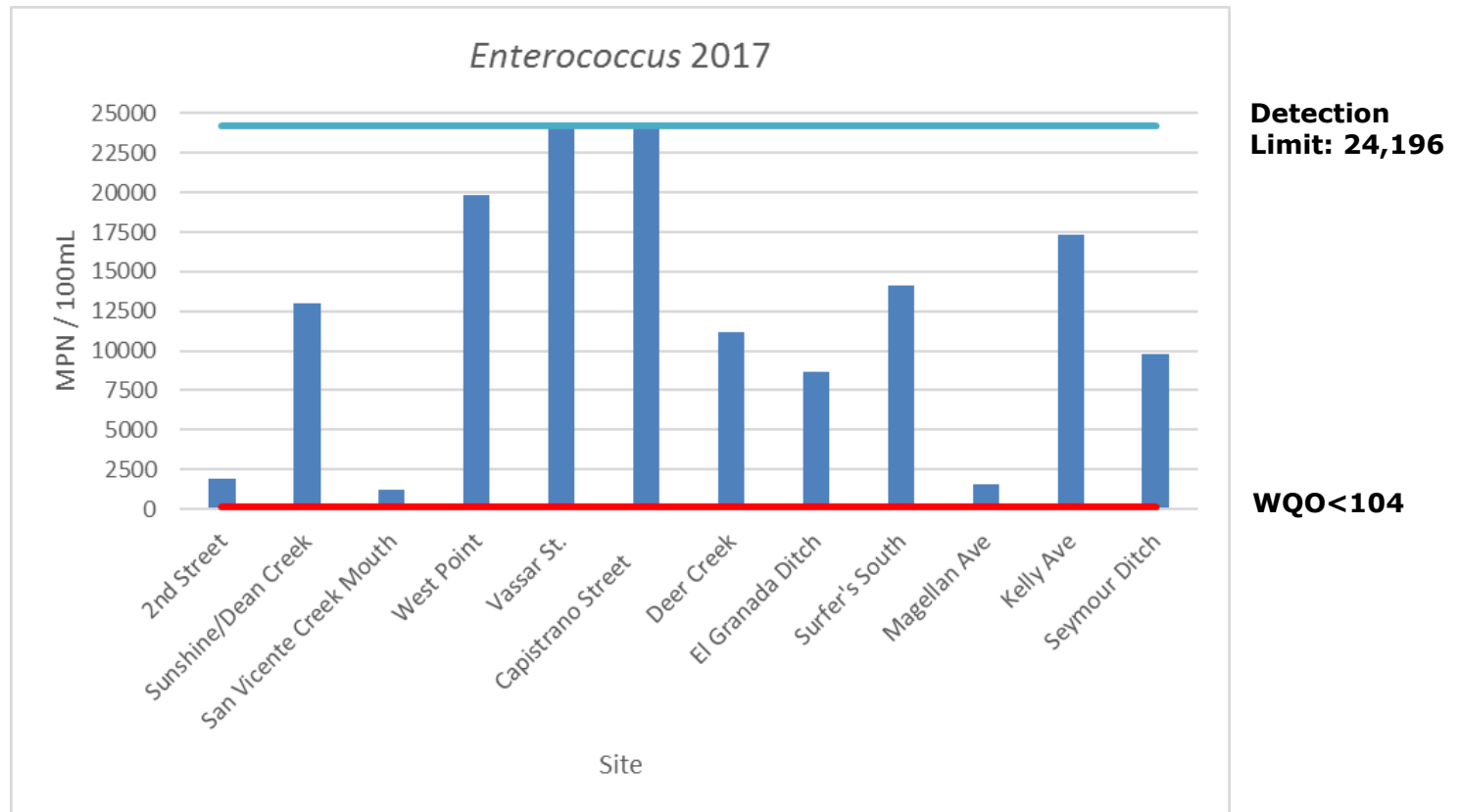
**WQO < 235**

## *E. COLI* HISTORIC SITES

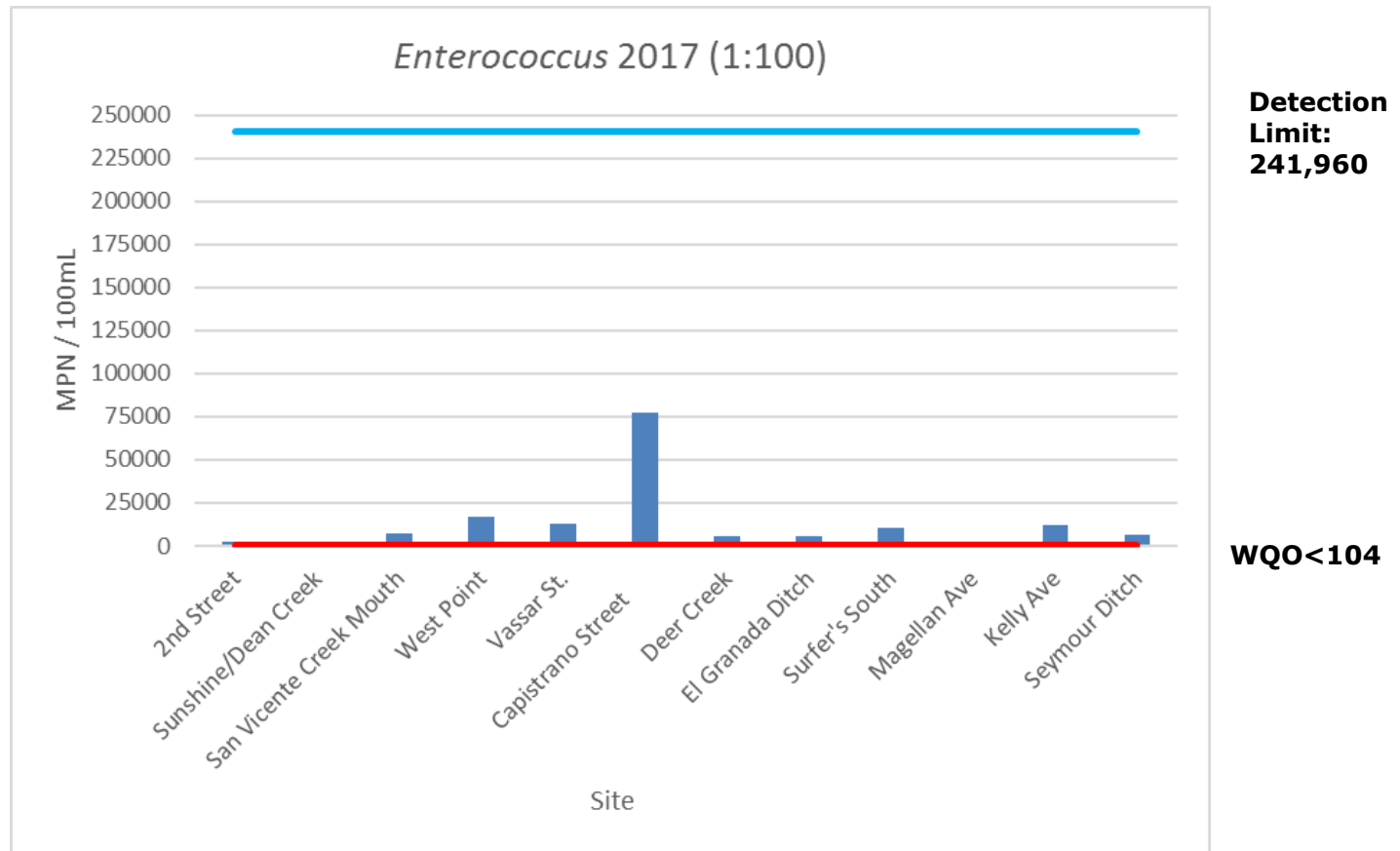




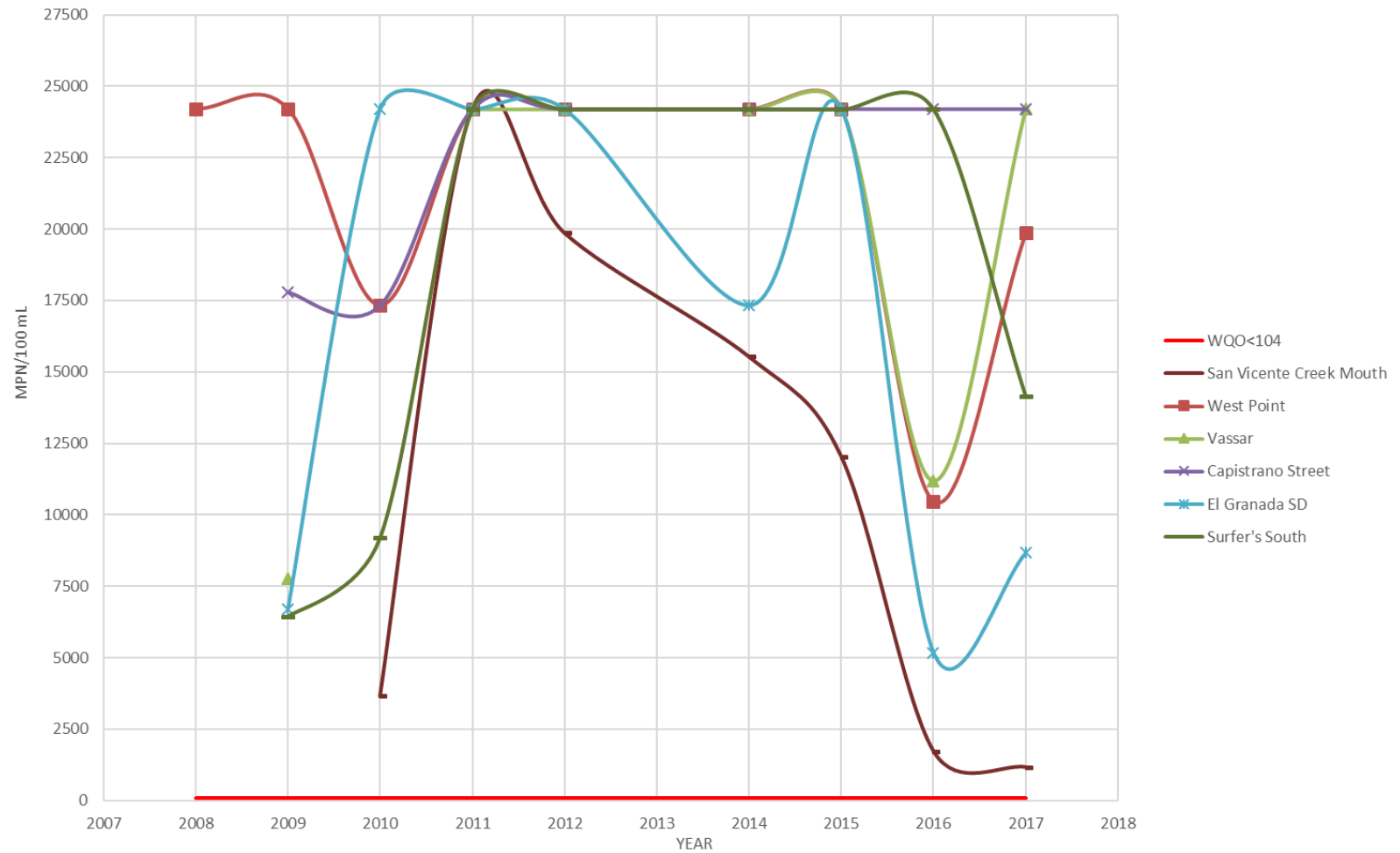
# Enterococcus 2017



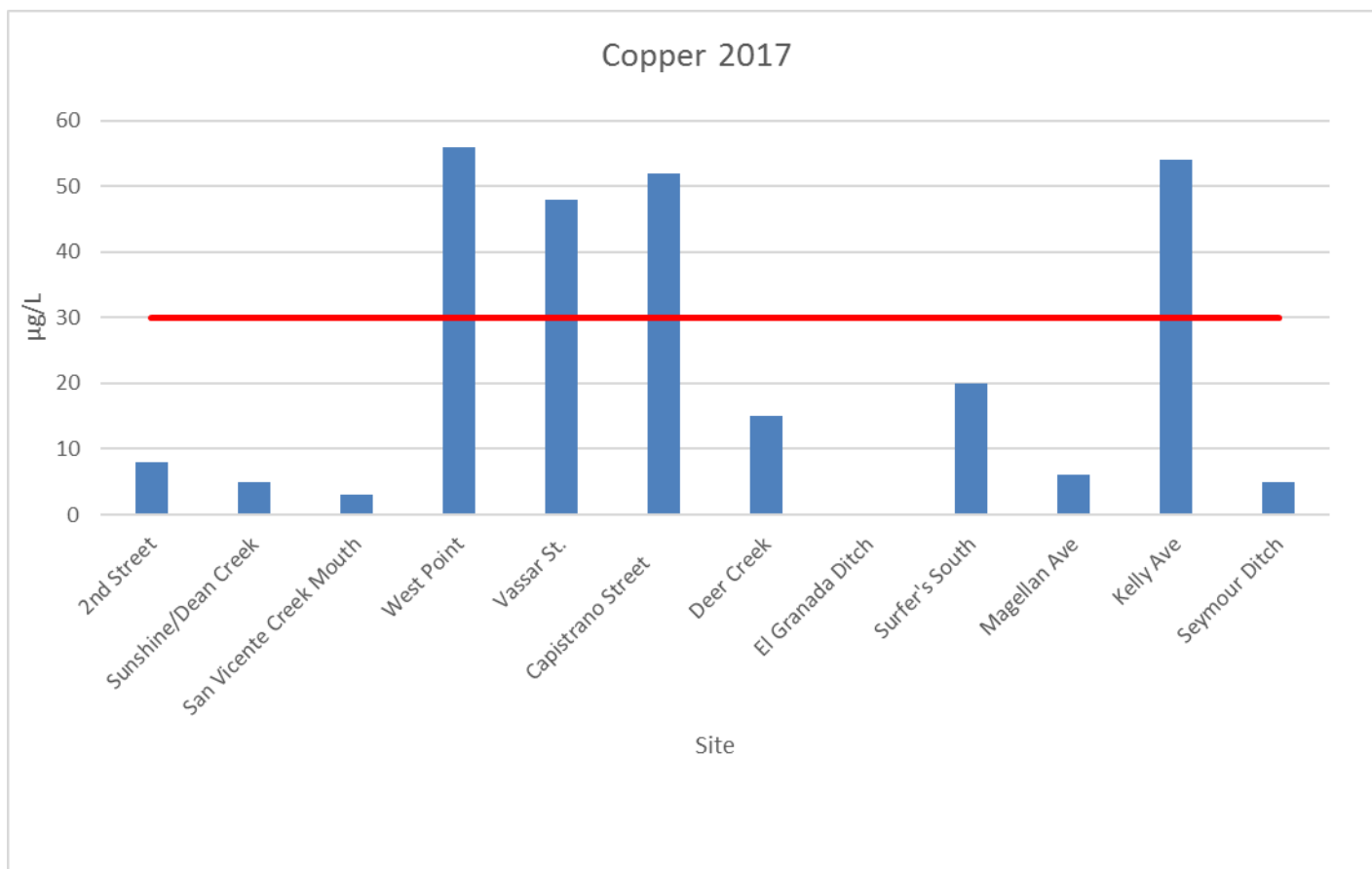
# *Enterococcus* 2017 (1:100 Dilution)



## ENTEROCOCCUS HISTORIC SITES



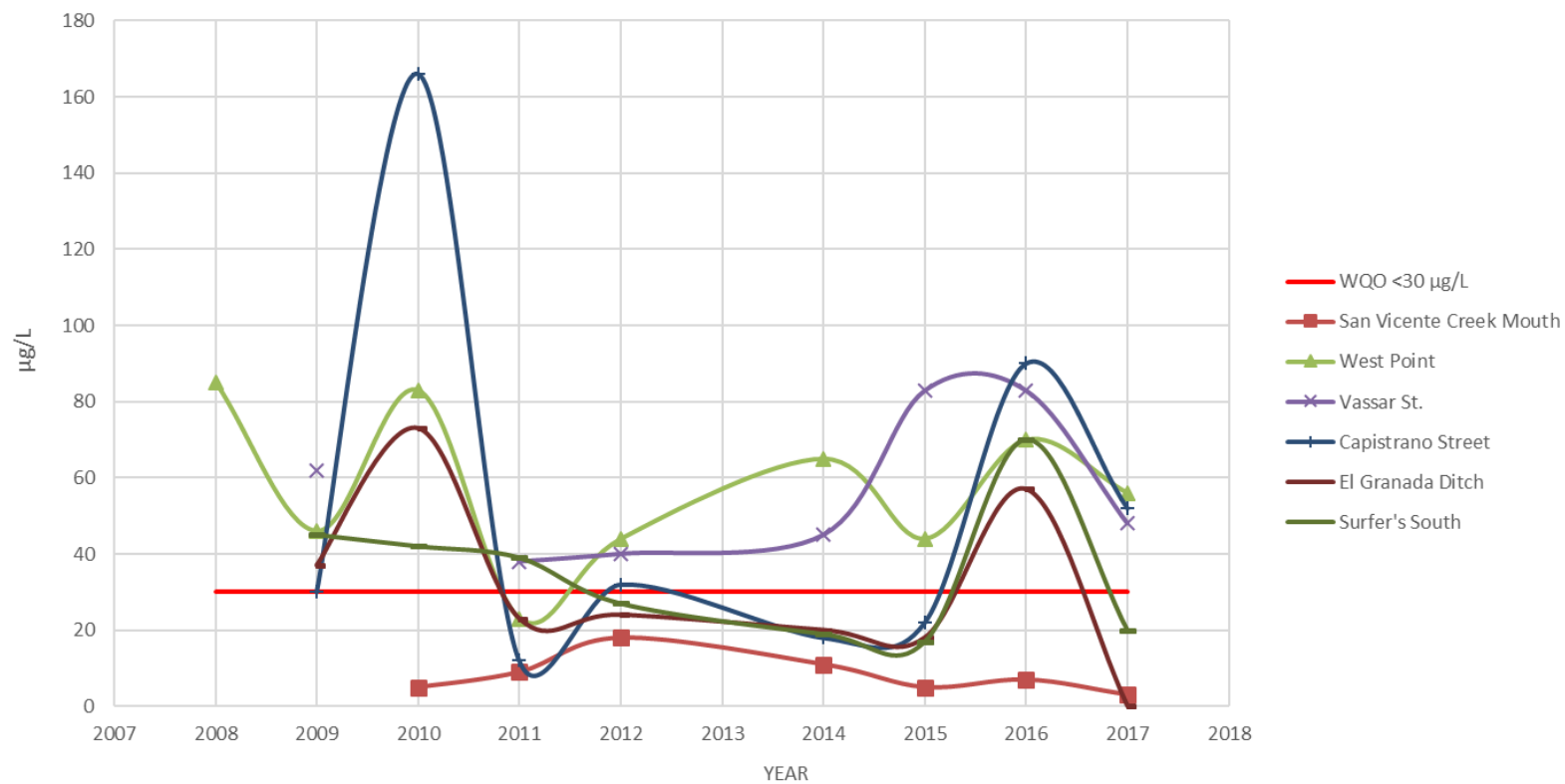
# Copper 2017



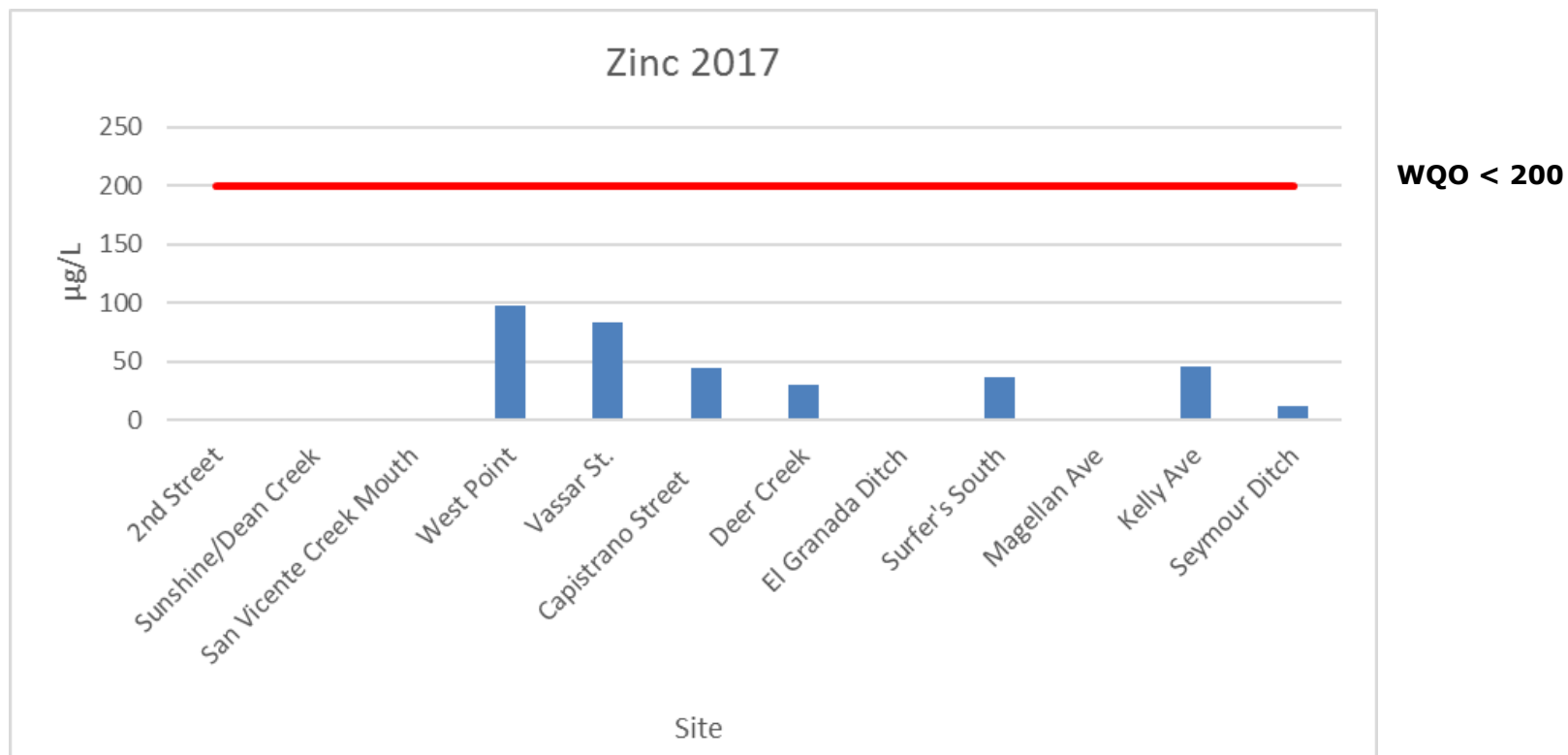
**WQO<30**



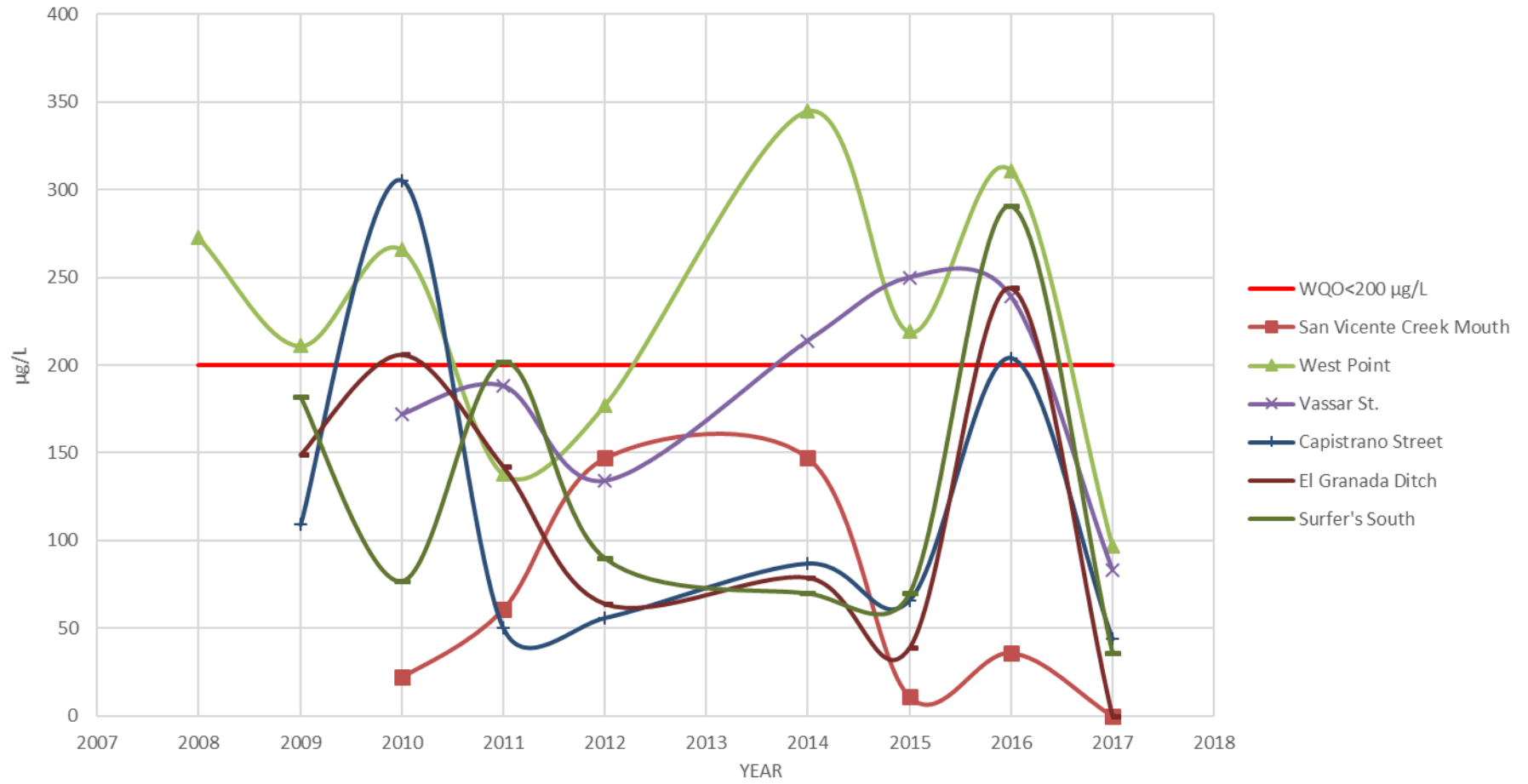
## COPPER HISTORIC SITES



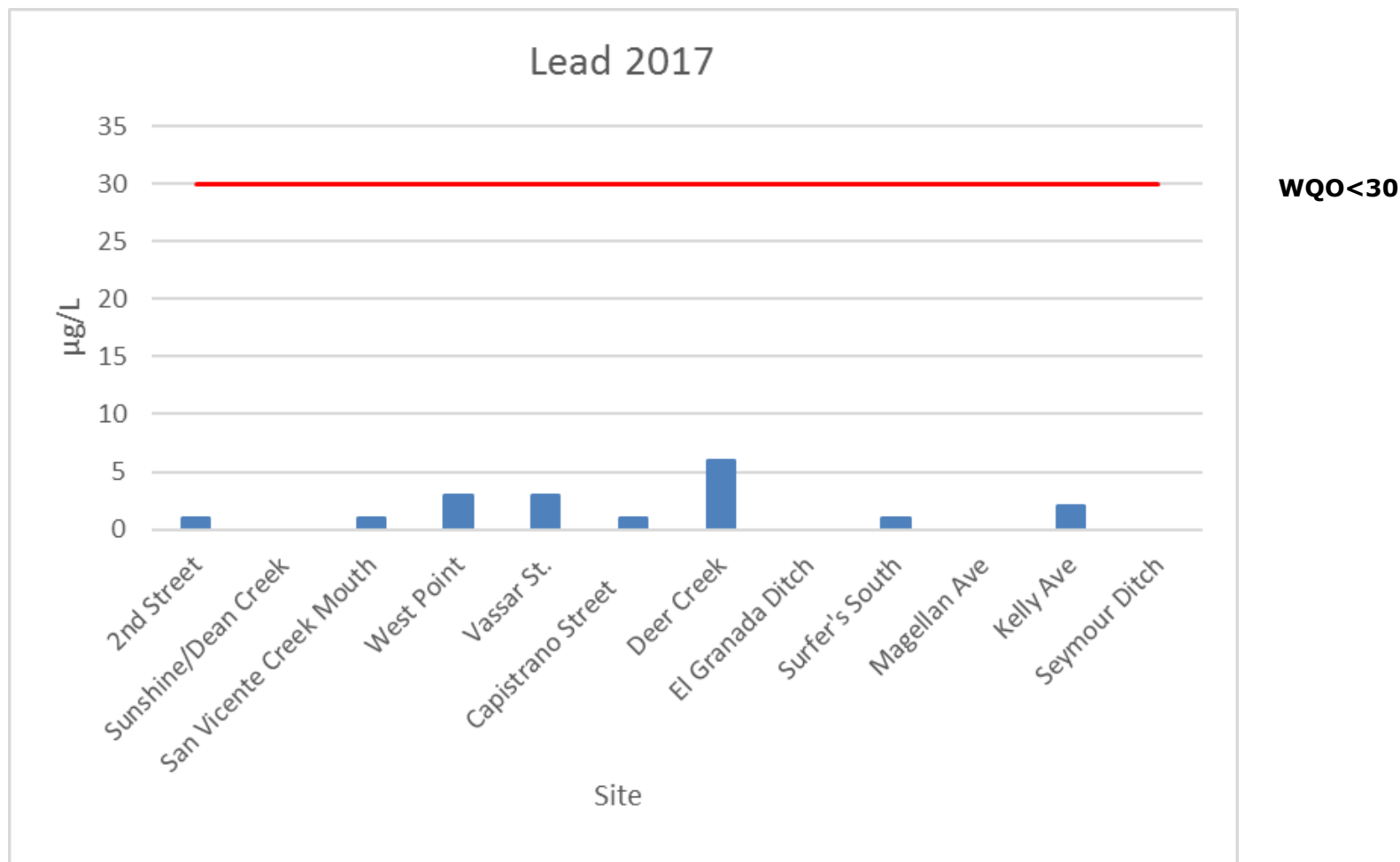
# Zinc 2017



## ZINC HISTORIC SITES

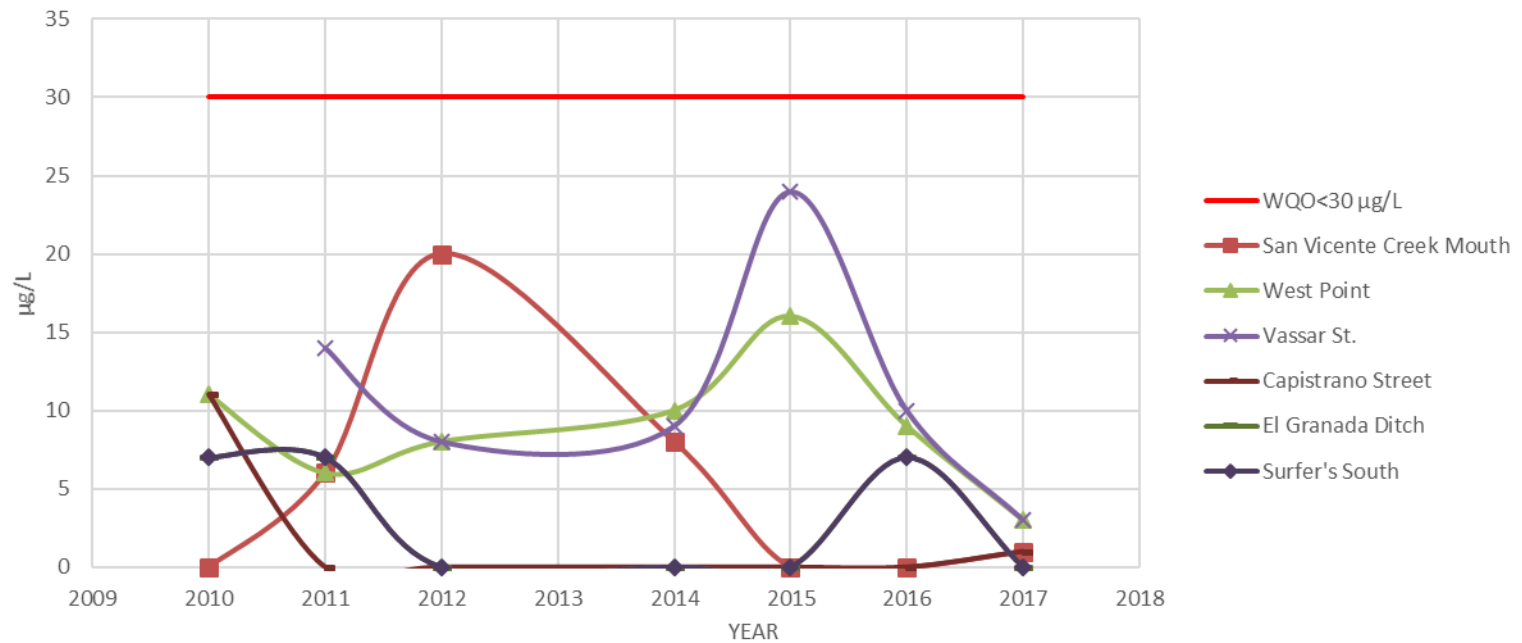


# Lead 2017

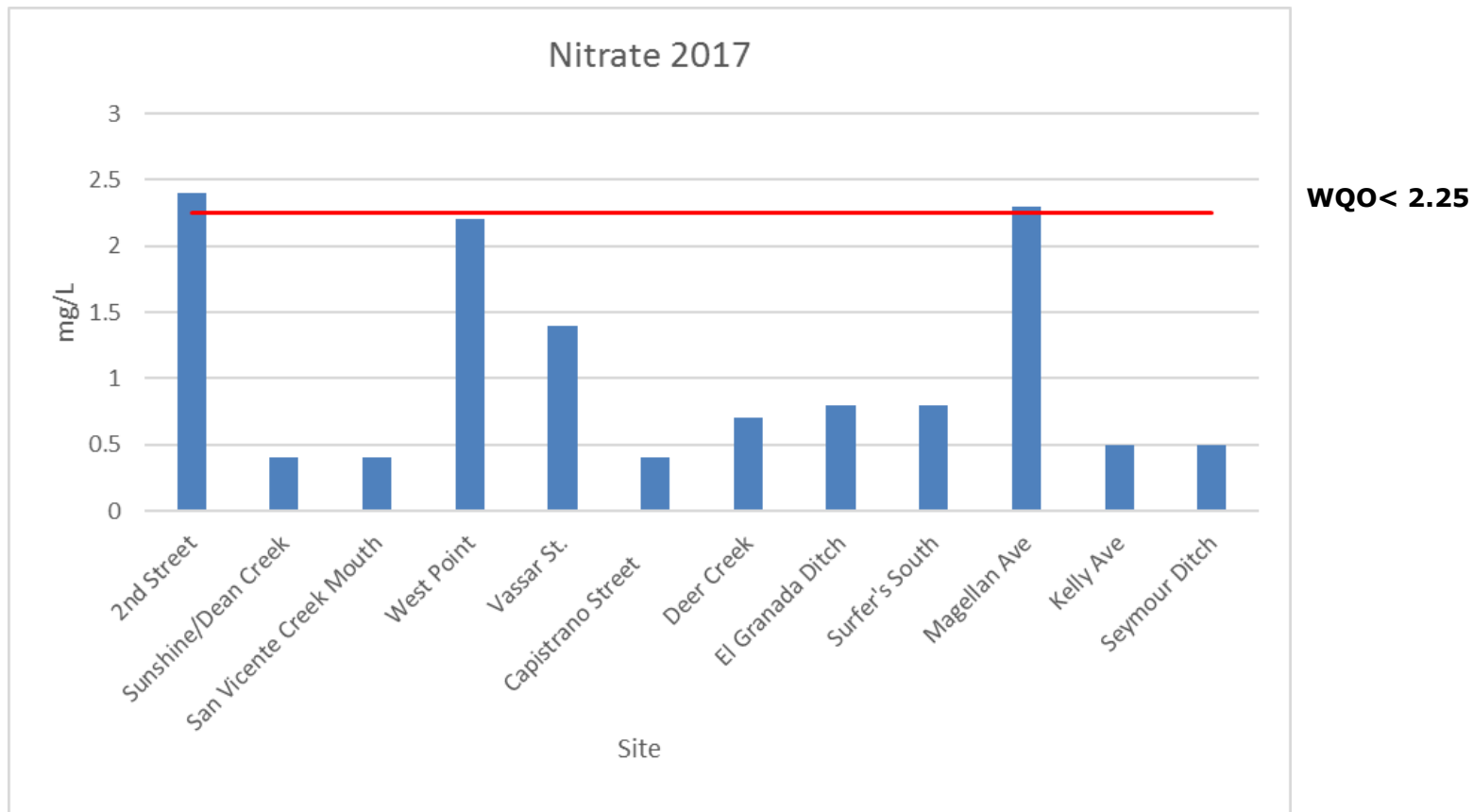




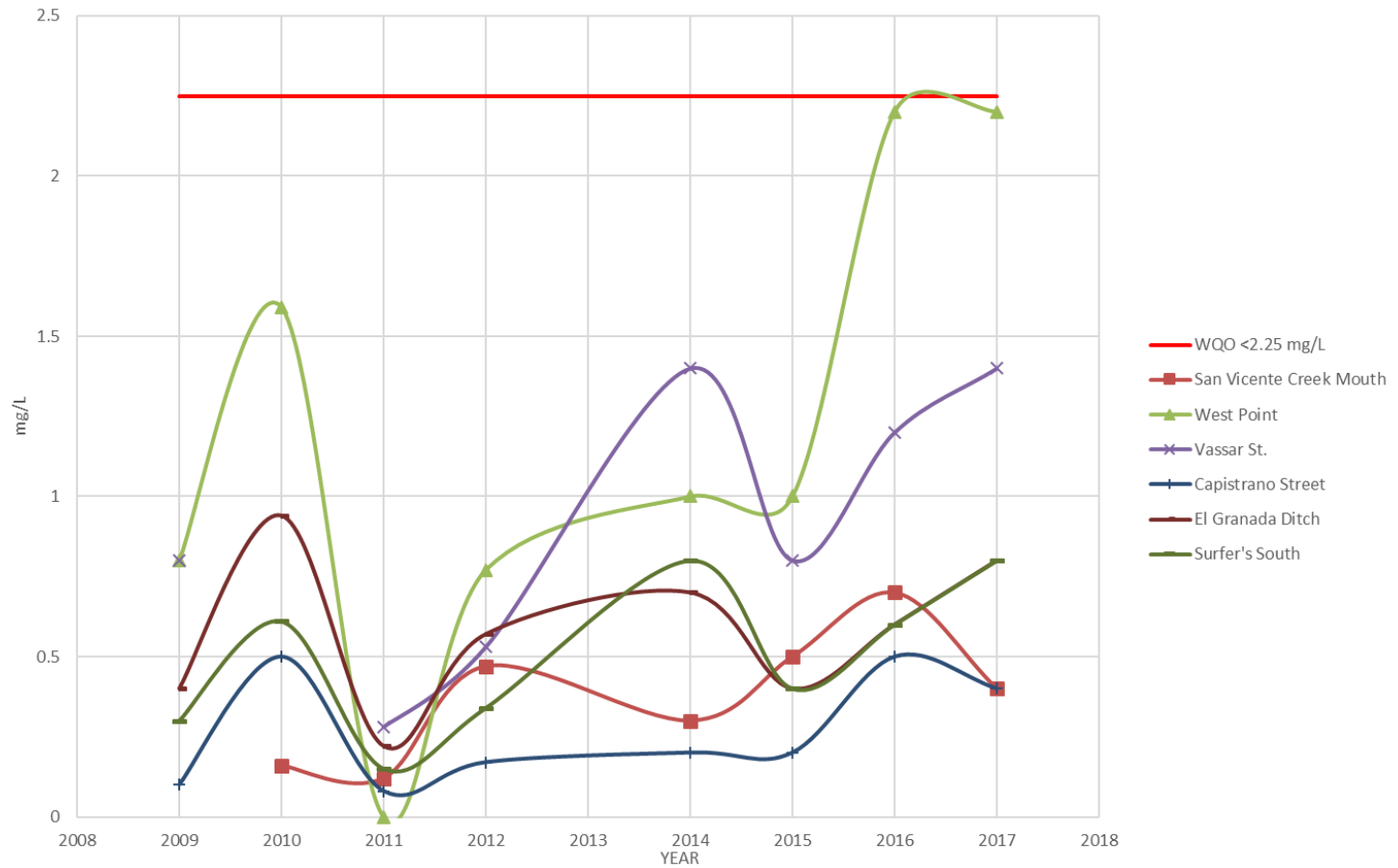
## LEAD HISTORIC SITES



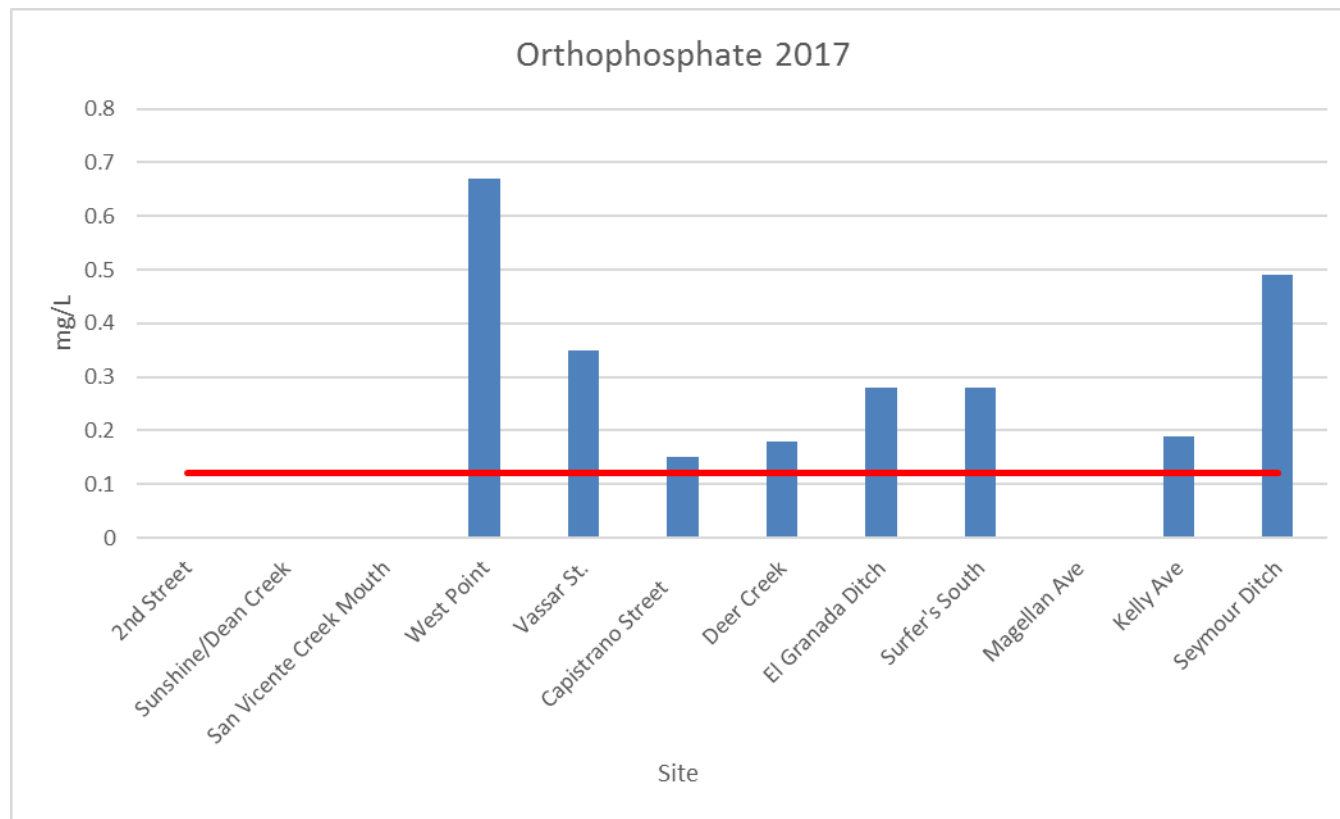
# Nitrate 2017



## NITRATE HISTORIC SITES

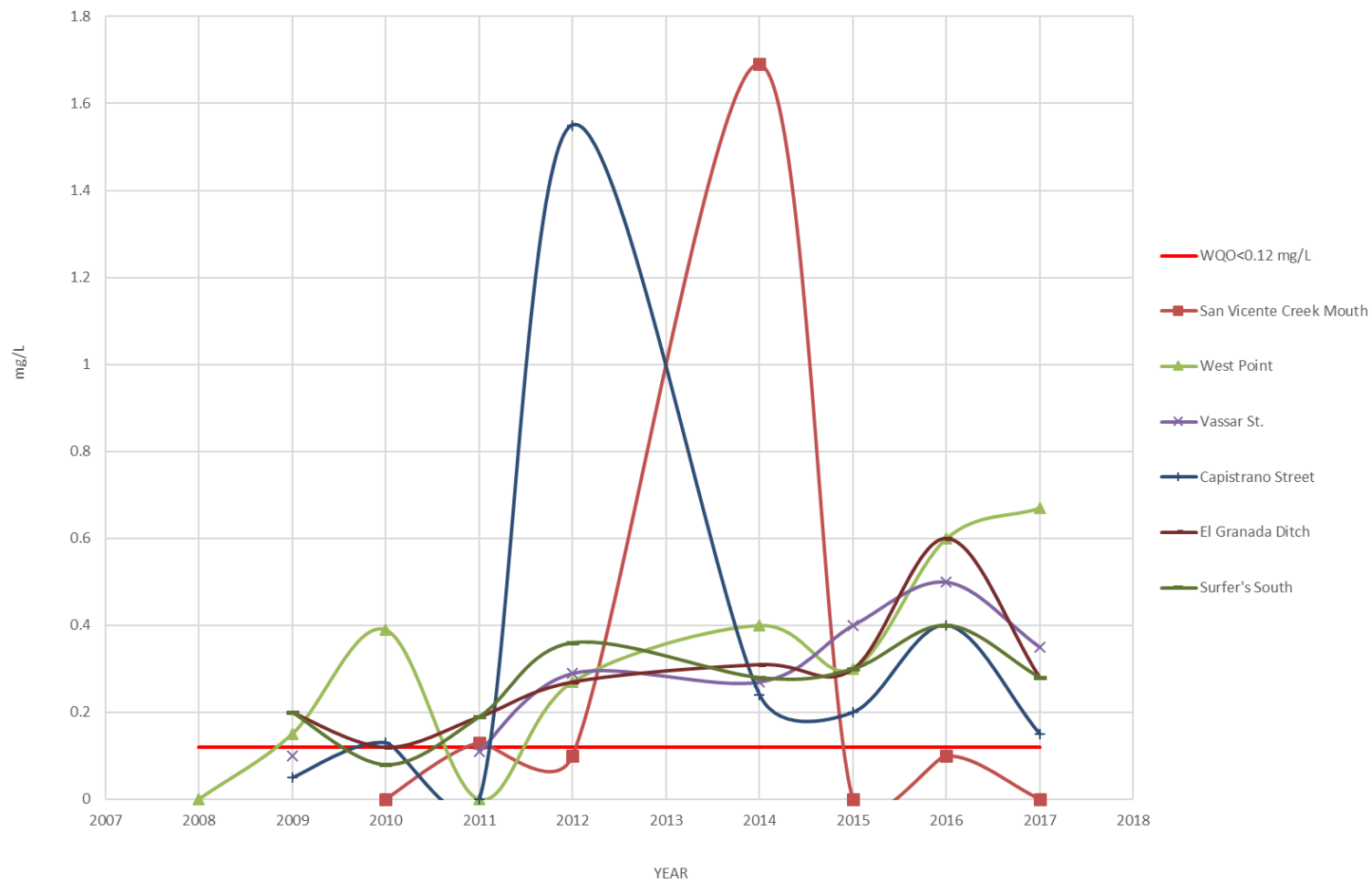


# Orthophosphate 2017

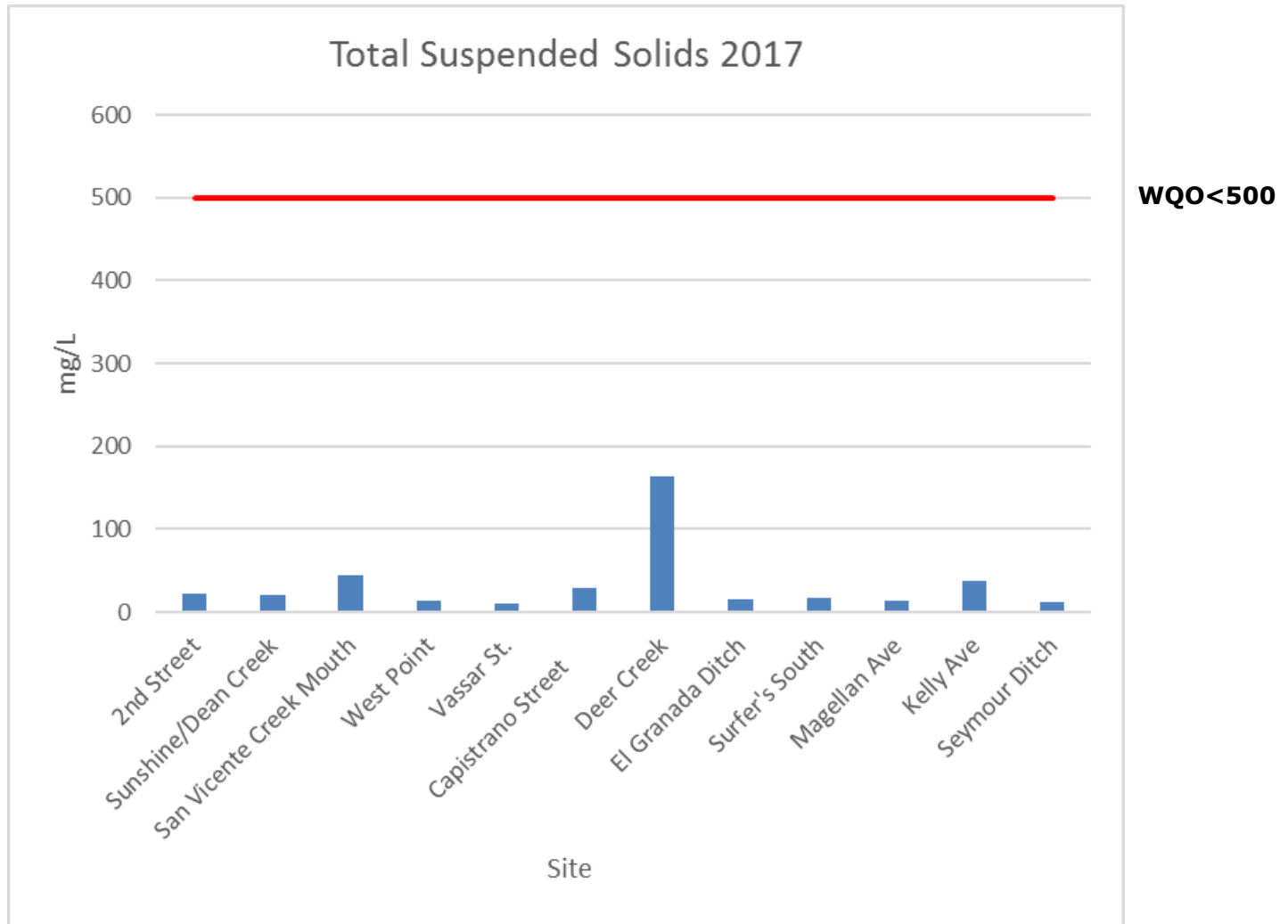


**WQO<0.12**

## ORTHOPHOSPHATE HISTORIC SITES

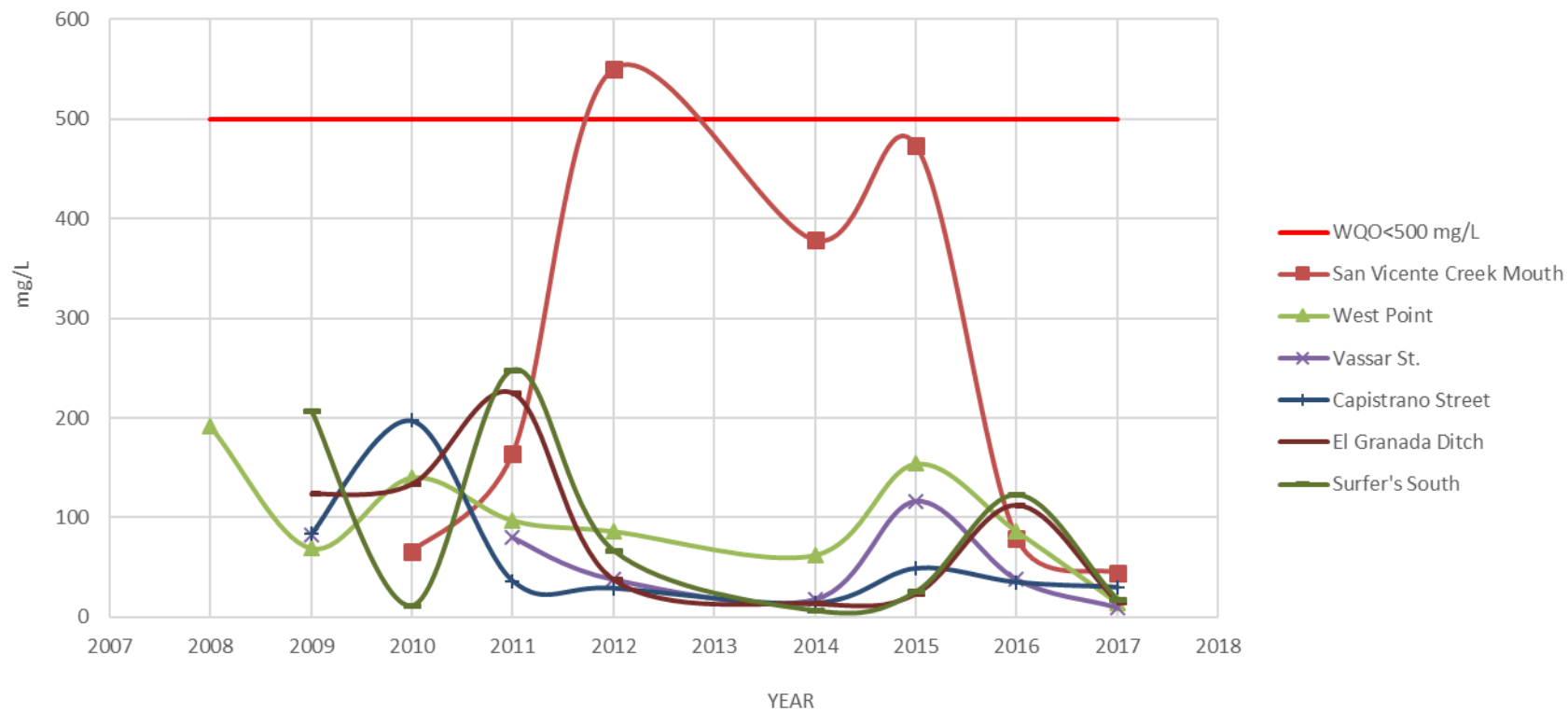


# Total Suspended Solids 2017





## TOTAL SUSPENDED SOLIDS HISTORIC SITES



# Next Steps



Raise Awareness

Distribute Data

Inform management and target practices

Continue program w/ multi-year funding



***Thank you!***

***Questions?***

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