

Solving Regional Water Quality Problems Using a Watershed Approach

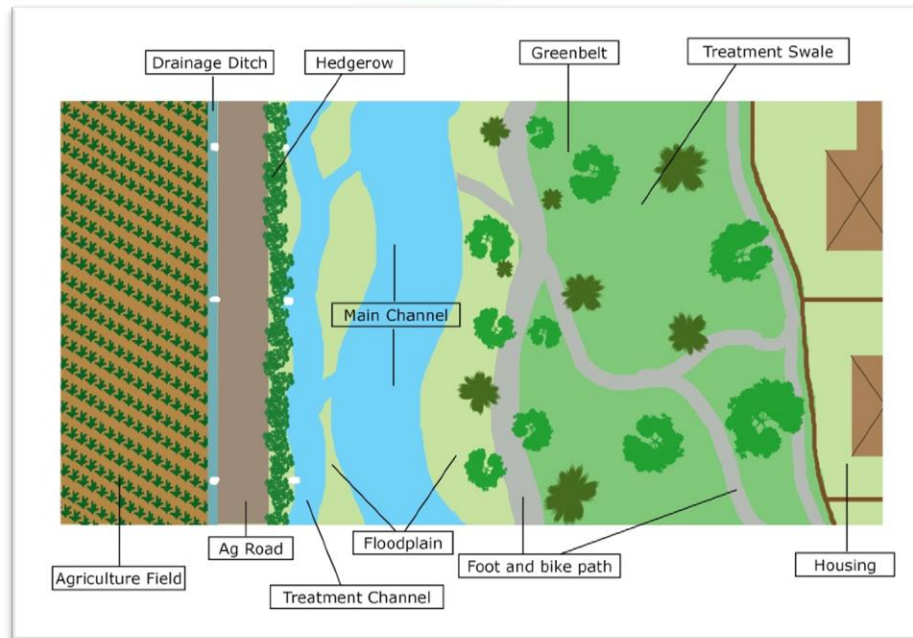
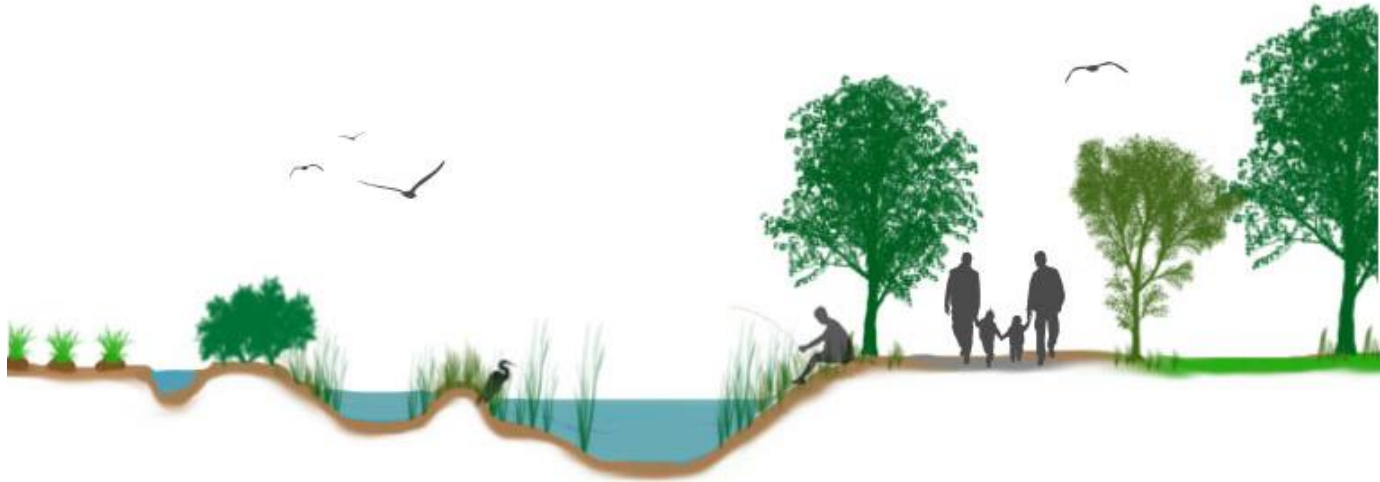


Central Coast Wetlands Group

To coordinate the advancement of wetland
science and management on the central coast

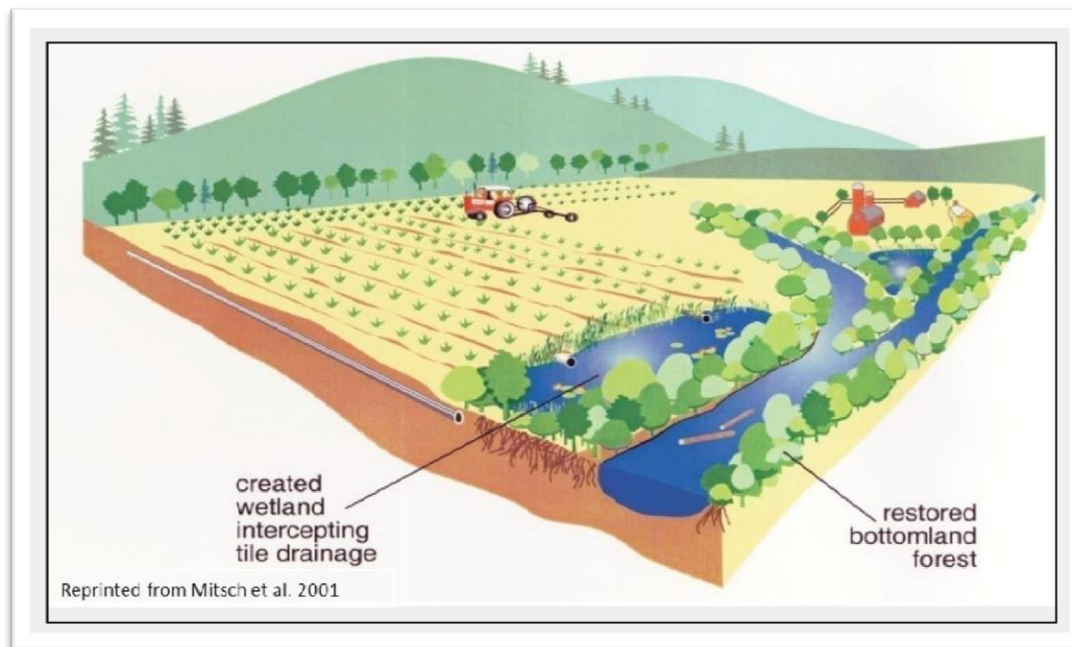


The Vision for the Future



Integrated Water Management

- View water resources holistically – as a system
- Encourage local ownership of resulting improvements to waterways
- Integrate on-farm Best Management Practices with Cooperative treatment wetlands within defined drainages



Alternate Approaches to Ag Water Quality Management

Current Regulatory Approach

- Three sizes fits all
- Easy to administer from state perspective
- Directs changes to farming operations
- Regulatory adherence not linked to environmental result
- Significant admin costs - reporting by thousands of operations
- On-farm strategies must often change with changes in crops

Alternate Approaches to Ag Water Quality Management

Watershed Cooperative Approach (in development)

- Establishes environmental objective for distinct drainages
- Allows industry to select water management approaches as a cooperative
- Compliance through environmental results (sometimes difficult to define)
- Level of on farm success dictates amount of off farm implementation
- Adherence by farm operations the responsibility of the Cooperative
- Monitoring can be standardized, focused and intensive at lower cost.

Watershed Cooperative Approach:

Strategic implementation of actions on a watershed scale

On & Edge of Farm Practices



High rate of Implementation

Treatment Wetlands



Constructed

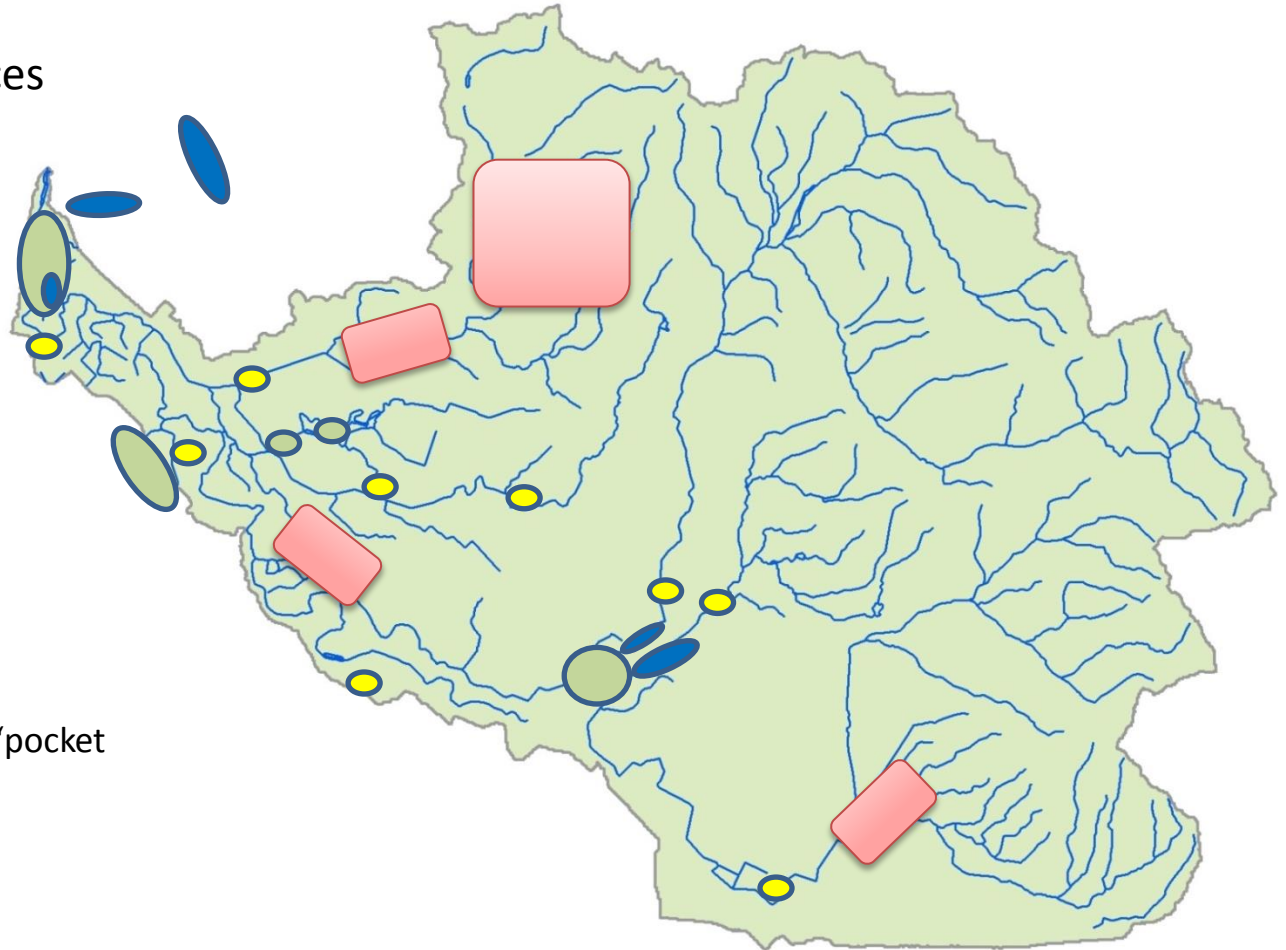


Discussed



Hypothetical

Hypothetical locations where a “pocket treatment” could go.



IRWMP/ INM Watershed Focus Area

- Moro Cojo
- Old Salinas River
- Blanco

Agree on project scope

Sites for Treatment Systems

On Farm Technical

Landowner partnerships

Estimate costs and resources

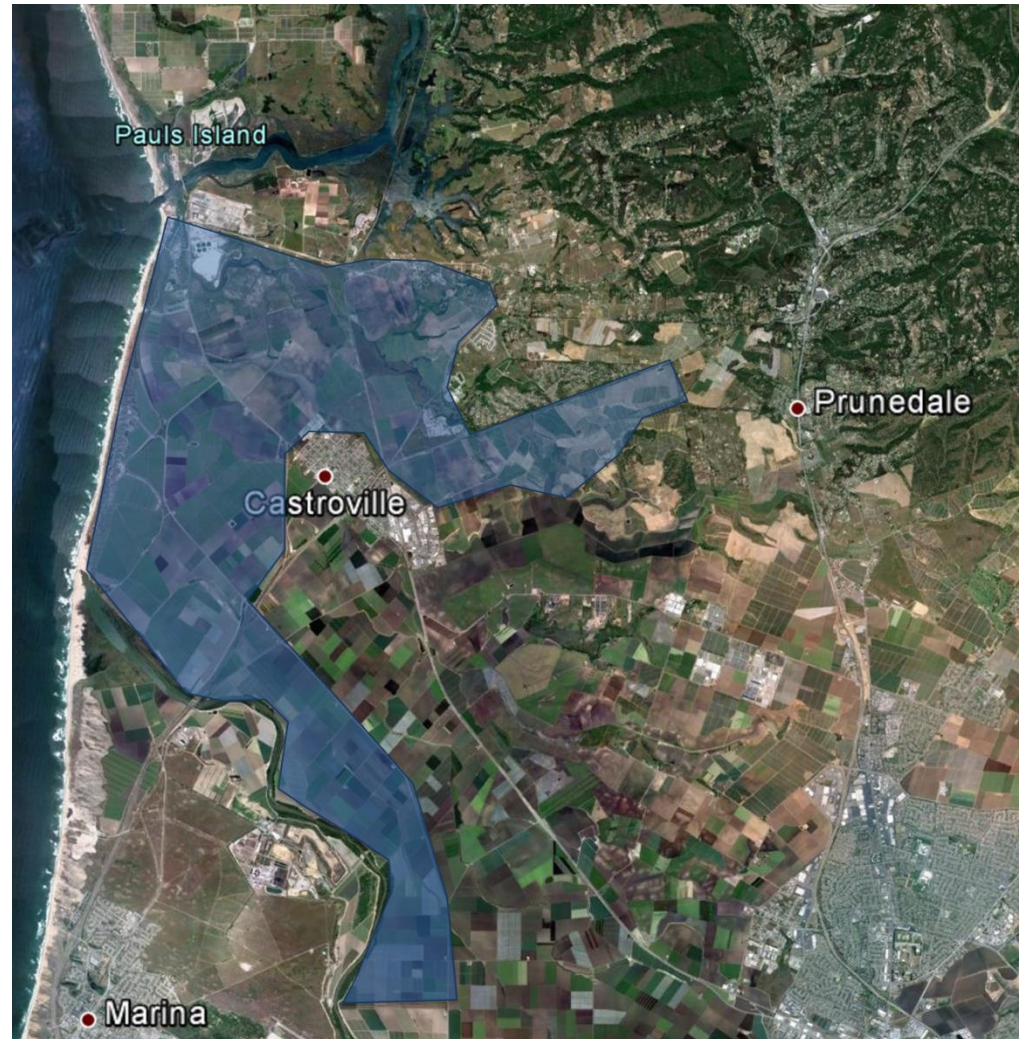
Next Steps

Farm Cooperative framework

Membership

Monitoring Strategy

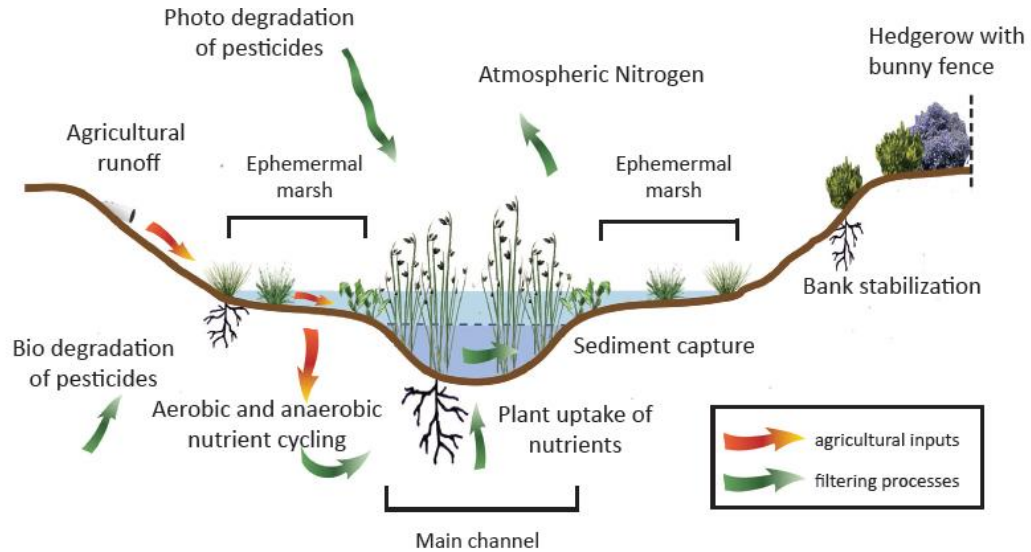
Regulatory acceptance



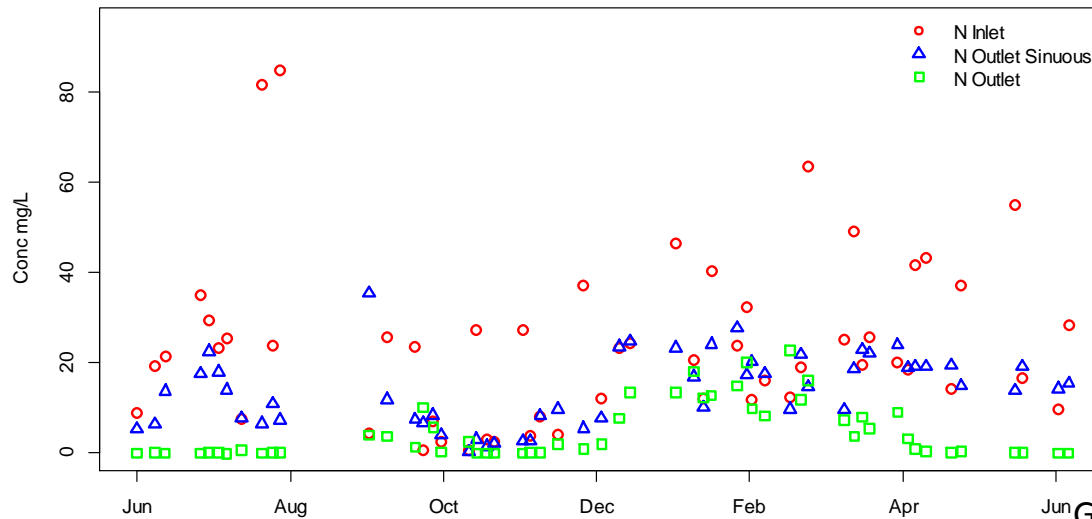
Off-Farm Cooperative Actions



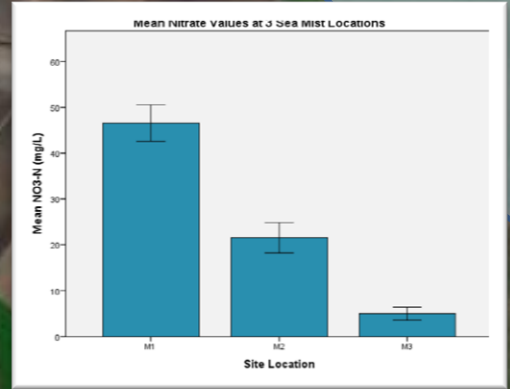
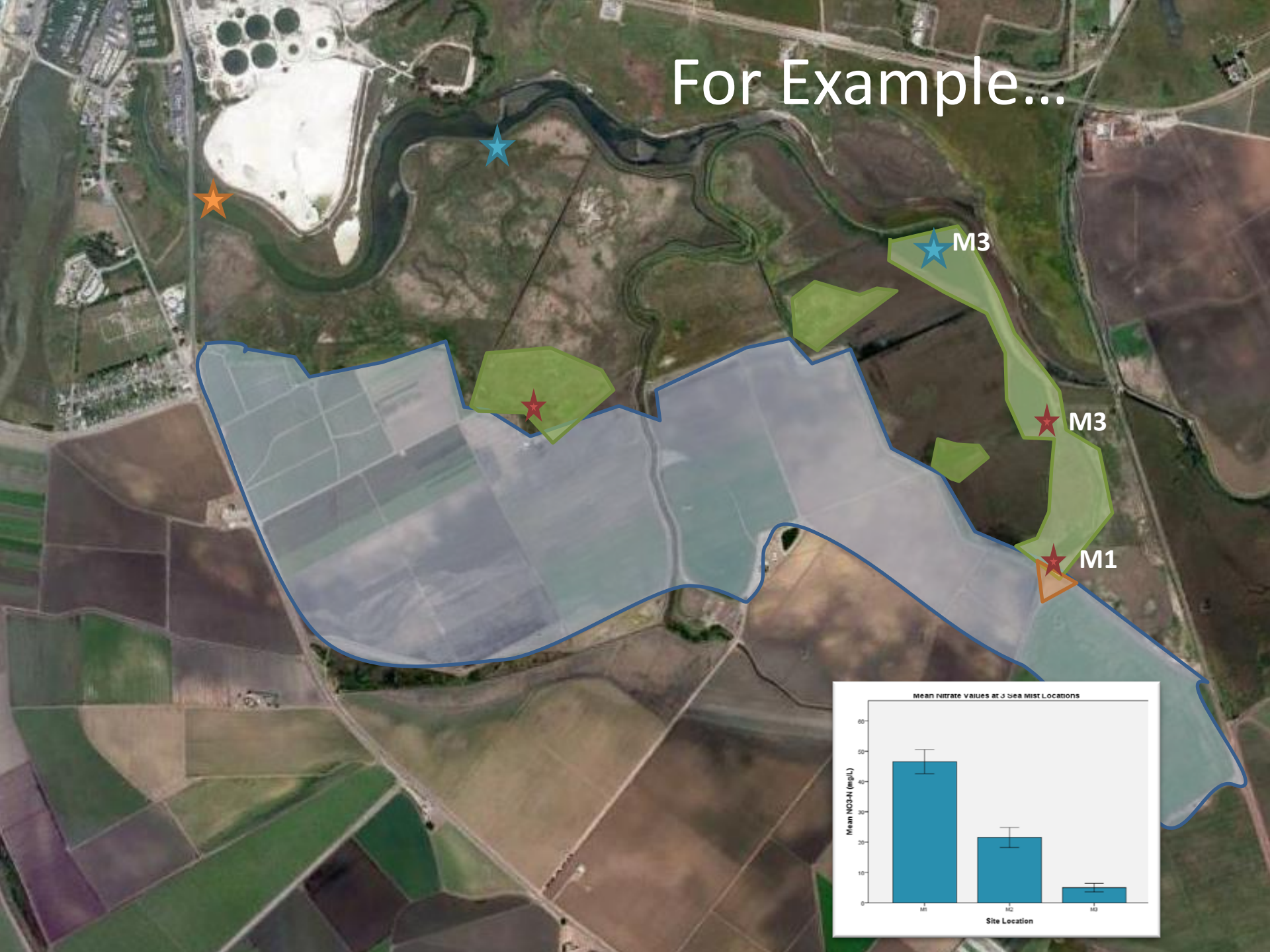
Aerial view of Blanco Drain Treatment Wetland



The physical, chemical, and biological processes that occur in wetlands help filter out pollutants



For Example...





On Farm Practices

On Farm Practices

On Farm Practices

On Farm Practices

On Farm Practices

Goog



Hypothetical Watershed Cooperative

Castroville, CA, USA

- 72+ acres of treatment wetlands
- 7 monitoring stations

Data CSUMB SFML,

Adaptive Management - Treatment Train Approach

BIO-WOODCHIP REACTOR



Seamist Bioreactor

System type – flow through bioreactor

Acres – **1 acre**

Length – Two 900m paths (see map pg. 1)

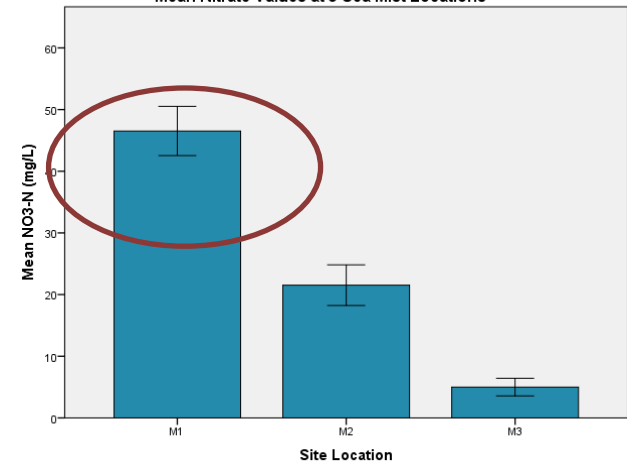
Expected flow volumes – **10,000 gallons per day**

Average nutrient concentrations **NO₃ - 50mg/l**

Residence time – **53 Minutes per linear foot**

Expected load reduction potential - ()

Mean Nitrate Values at 3 Sea Mist Locations



Lower Salinas Valley Cooperative Pilot

5 yrs. Strategy

- Construct Phase I Projects
- Implement on farm practices
- Measure cumulative effect of efforts
- Correlate field results with model projections
- Work with Regional Board to identify “Alternative Approach” to Ag Order
- Establish Watershed Cooperative guidelines for consideration by Regional Board



End Results

- Installation of treatment wetlands that remain functioning for decades
- Focus industry resources towards self defined on the ground actions
- Documented progress towards environmental water quality objectives for entire drainages



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