

**Informational
Public
Workshop:**

Malibu Creek & Lagoon

TMDL & Process & Next Steps

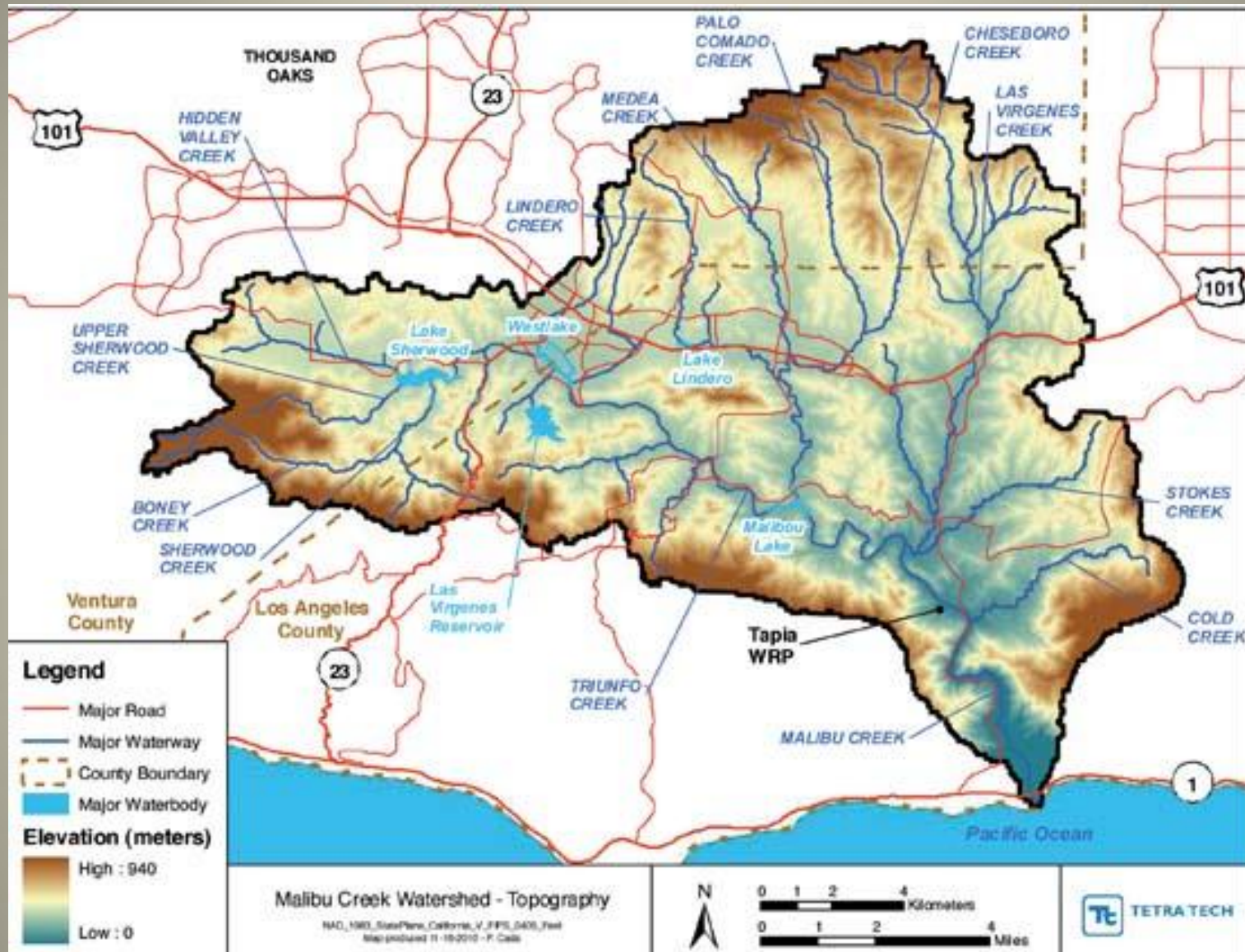


Dr. Cindy Lin, US EPA Region 9

May 1, 2013

Clean Water Act – “Fishable & Swimmable”









Protection of 23 Beneficial Uses in the Watershed:

Recreation, Wildlife, Freshwater Habitat, Estuarine Habitat; Spawning, Reproduction, Early Development of Aquatic Species, Rare, Threatened, Endangered Habitat

Malibu Creek





**Malibu Creek
Algae coverage**





What are Benthic Macroinvertebrates?

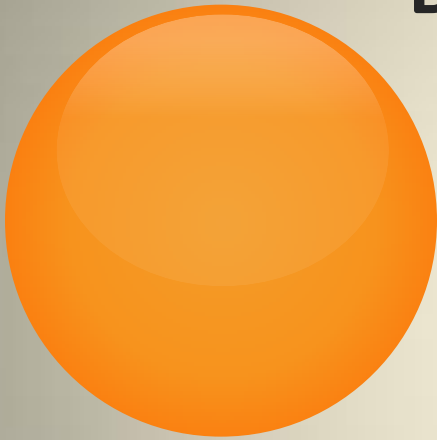


Nymph Mayfly



Adult Mayfly

WATER CANARIES: BENTHIC MACROINVERTEBRATES



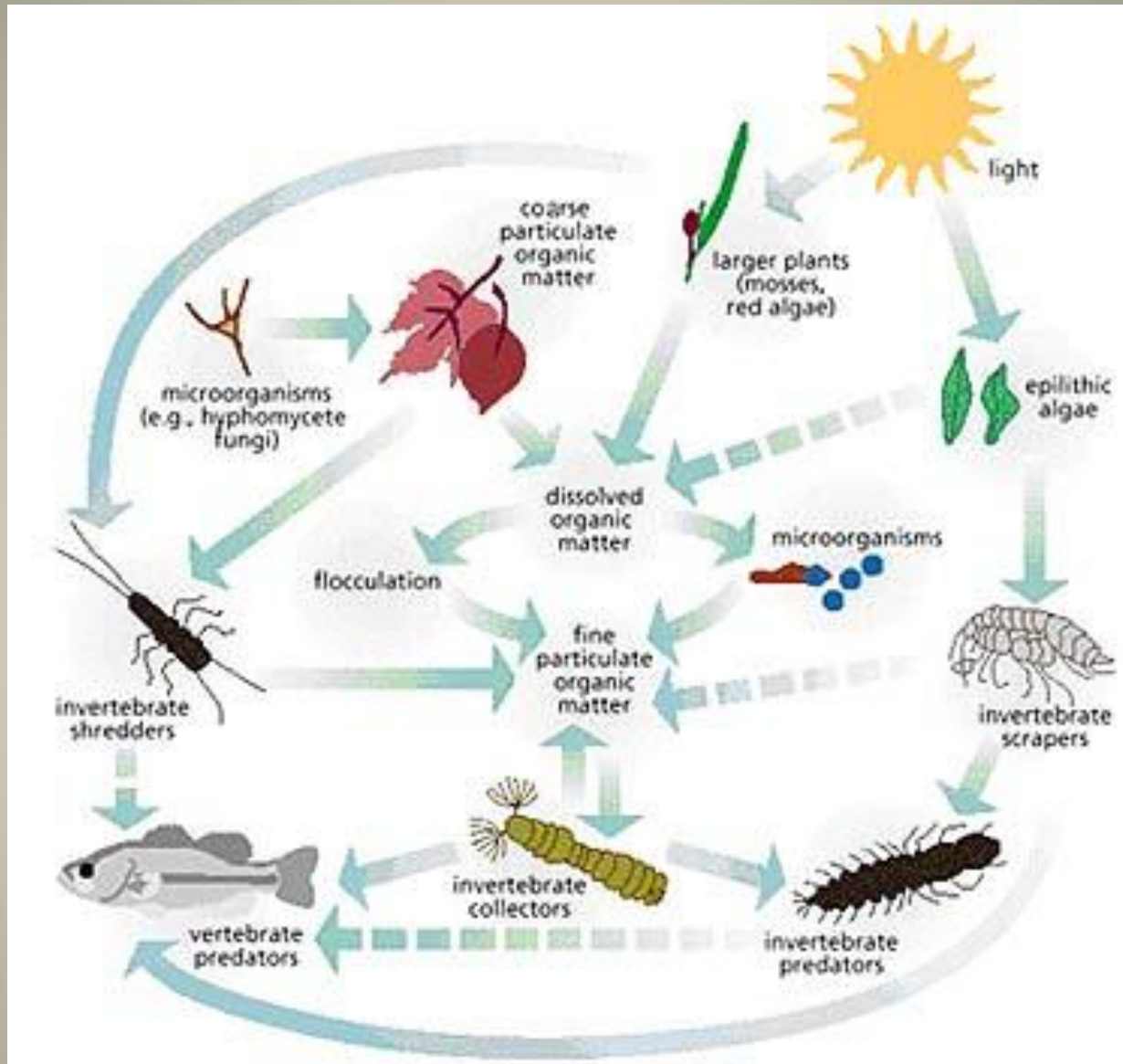
**Indicators of Water Quality &
Ecosystem/Stream Health**

-Critical to balancing Ecosystem Process

(energy flow in food webs)

**-Process leaf litter, dead organic material to prey for
larger consumers**

Important to nutrient cycling, aeration of sediment



Food Web and Ecosystem Cycling

Data Collection & Assessment

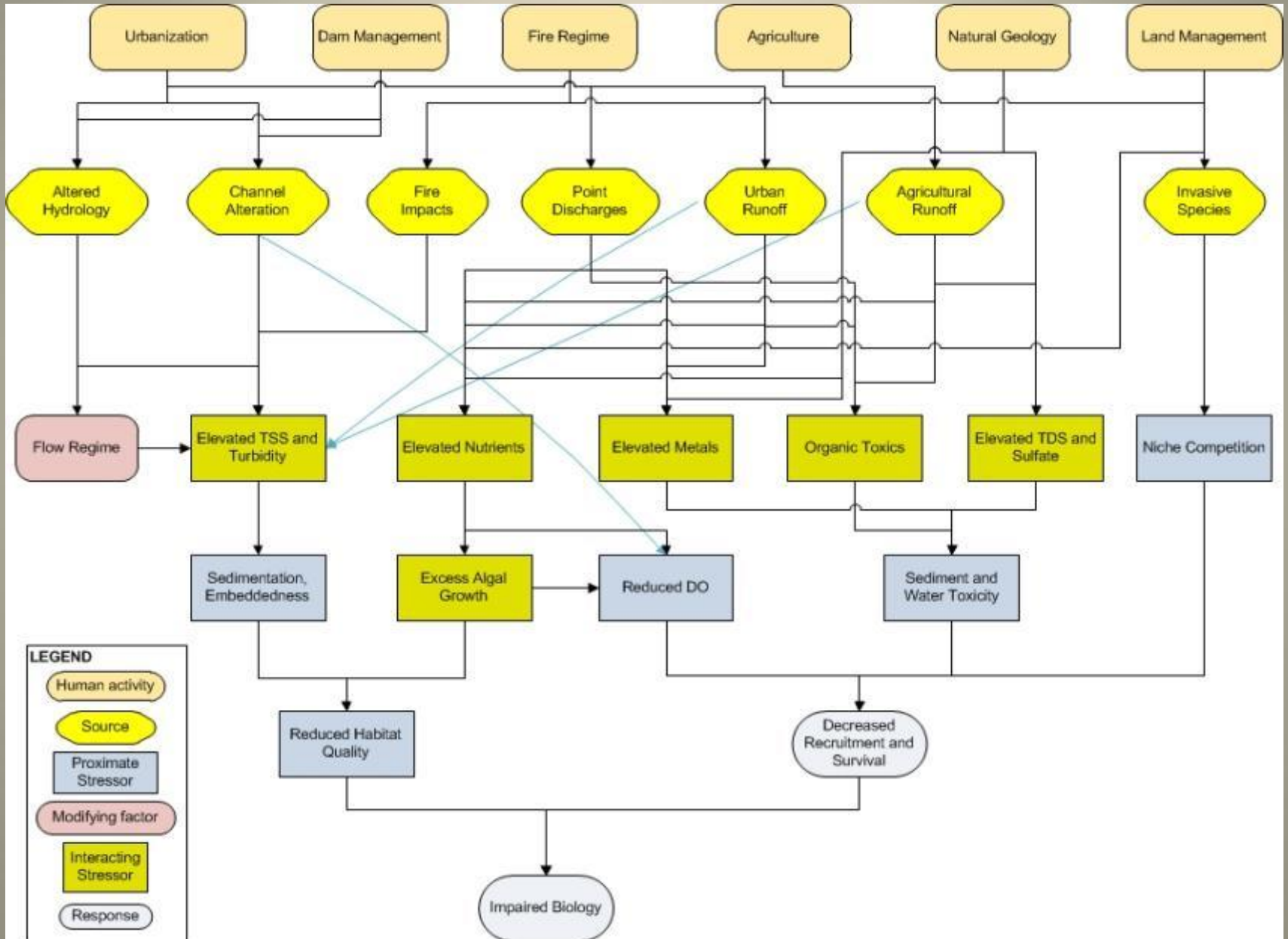
- Water Quality; Benthic Macroinvertebrates; Physical Habitat; Sediment Inventory (Multiple Lines of Evidence)
- Approximately 120 separate sets of data, reports, studies, covering 1998-2011
- Monterey/Modelo Formation; Wildfire History; Land Use History & Change;
- Incorporates Statewide approaches towards Biological Objectives and Nutrient Numeric Methods
- Reports & Studies from local and state scientific experts, NPS, CA DFG, SCCWRP, LVMWD, LA County, UCLA, US Santa Barbara, etc.



Causes/Stressors Evaluated

- Sedimentation
- Nutrient enrichment
- Reduced DO
- Toxicity
- Altered hydrology
- Channel alteration
- Fire regime
- Point source discharge
- Urban runoff
- Agricultural runoff
- Naturally elevated levels of phosphate, sulfate, TDS
- Invasive species (New Zealand mudsnails)

Potential Causes of Impaired Biological Condition



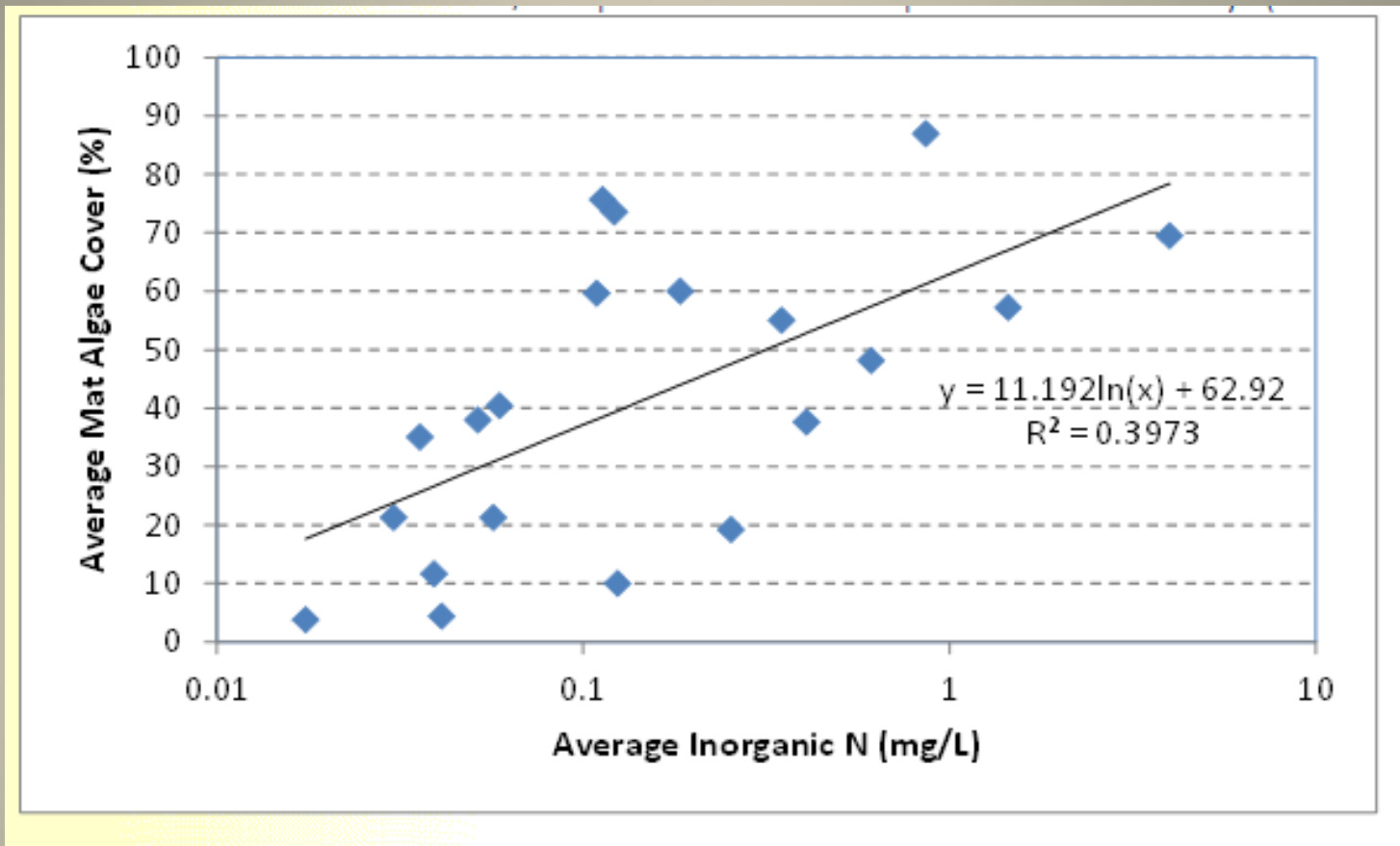


Process Continues

Implementation

Pace





Increasing Nitrogen leads to higher % Mat Algae Cover

Focusing on the growing season between June and September