Water Quality Restoration Plan for Nutrient Reduction in Famosa Slough: Alternative Approach to a Nutrient Total Maximum Daily Load

Item 14 - December 13, 2017

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CALIFORNIA Water Boards

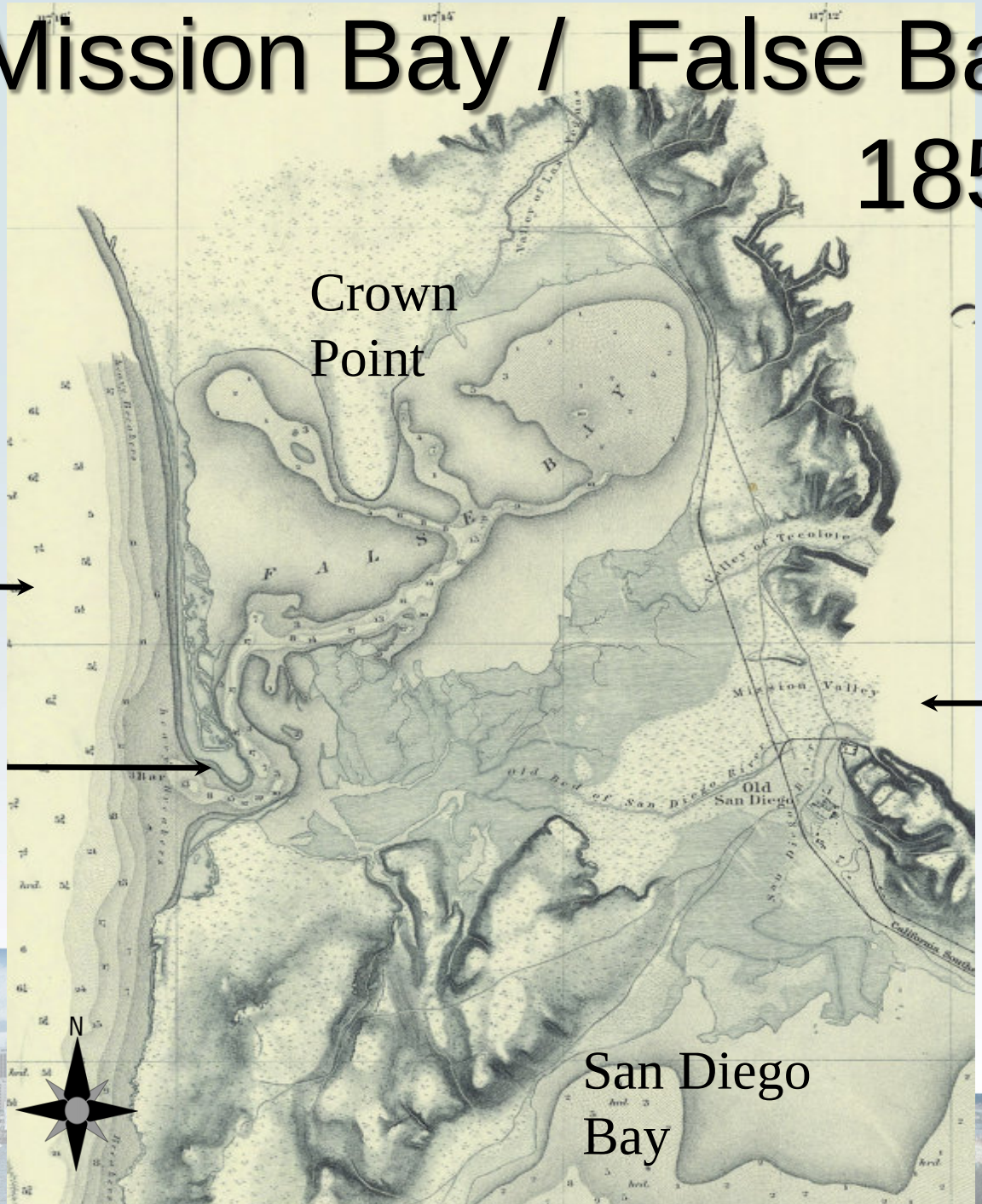
Famosa Slough Information Item

- Project Background
- City of San Diego
- Friends of Famosa Slough
- Wrap Up

Famosa Slough Overview

- Famosa Slough impaired by Eutrophic Conditions
- Rely on existing Regional Municipal Separate Storm Sewer System (MS4) Permit to restore water quality instead of adopting a TMDL
- Consistent with USEPA guidance, State Water Board policy and San Diego Water Board Practical Vision
- City of San Diego's commitment to restore water quality and beneficial uses

Mission Bay / False Bay 1859




Pacific Ocean
Mission Bay
Legend
San Diego River
Famosa Slough
Google Earth
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
4000 ft
N


Channel
Slough
Google Earth

Famosa Slough

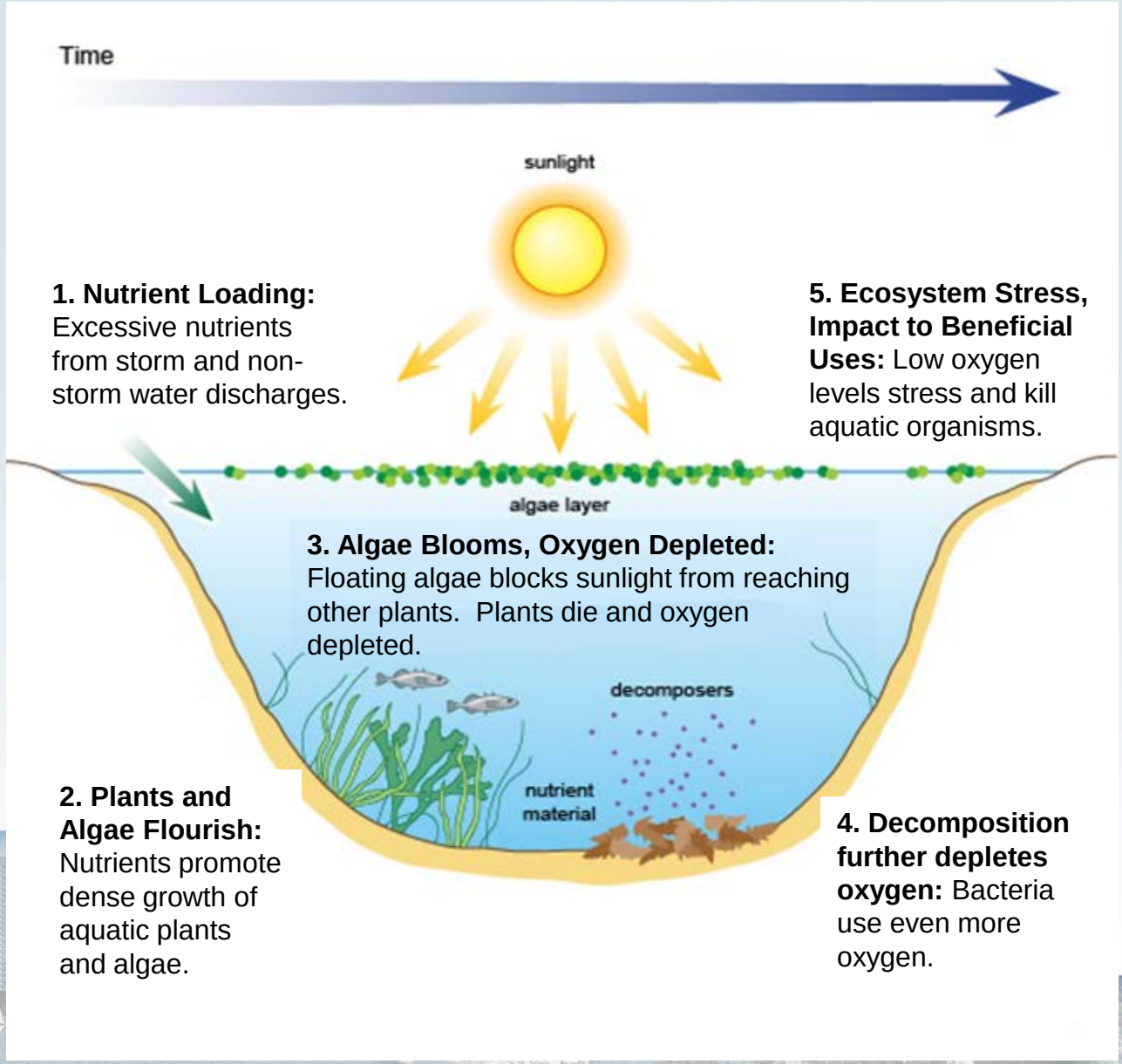
Famosa Slough

Famosa Slough

Famosa Slough

- CWA 303(d) List for Eutrophication
- Eutrophication Caused by Excess Nutrients
- Primary Source of Nutrients from City of San Diego MS4

Eutrophication Caused By Excess Nutrients



Famosa Slough

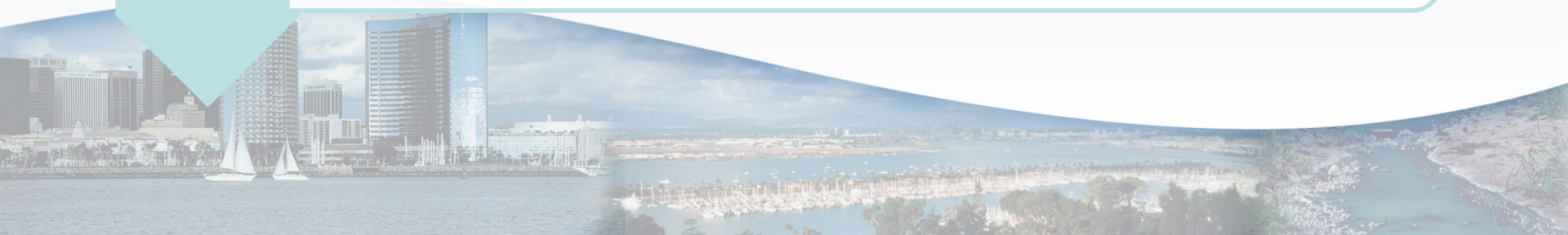
- Lagoons Investigative Order
- R9-2006-0076

- City of San Diego Investigated Famosa Slough

- Developed TMDL Analysis

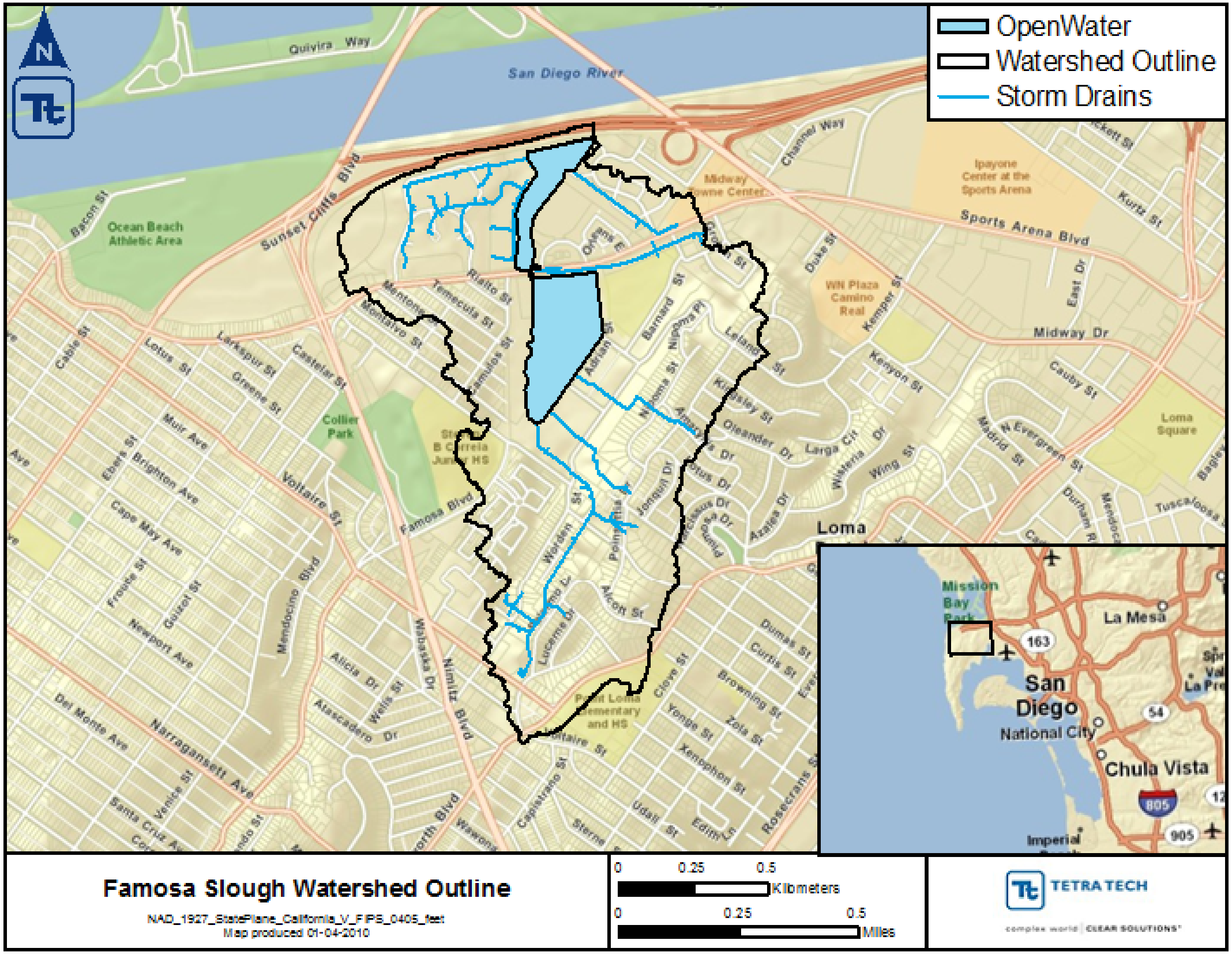
TMDL Analysis

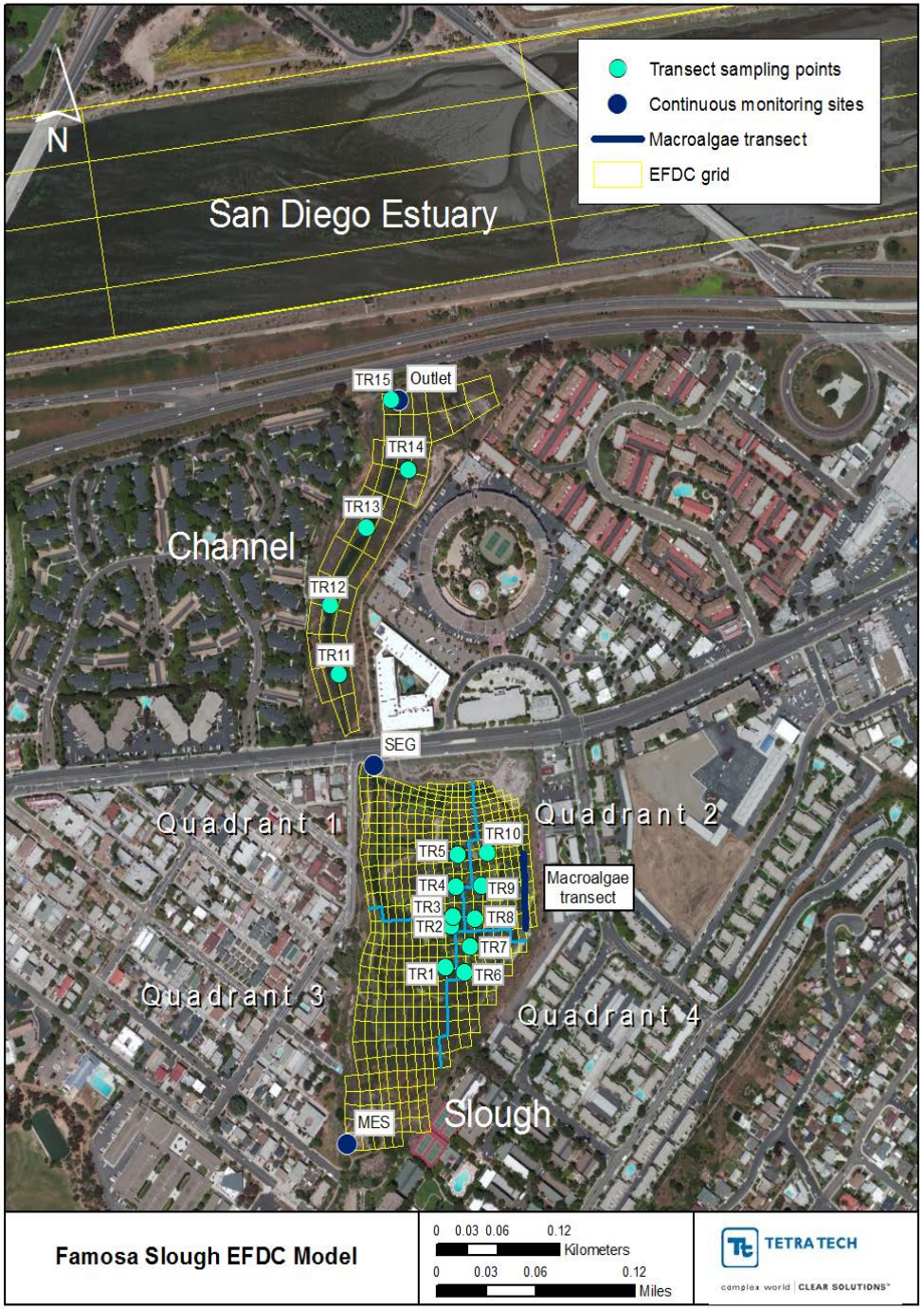
- Nutrient Sources
- Nutrient Loads
- Management Actions



Stakeholders

- San Diego Water Board
- City of San Diego (Tetra Tech)
- Friends of Famosa Slough


OpenWater
Watershed Outline
Storm Drains
San Diego River
Quivira Way
Sunset Cliffs Blvd
Ocean Beach Athletic Area
Midway Towne Center
Ipayone Center at the Sports Arena
Sports Arena Blvd
WN Plaza Camino Real
Midway Dr
Collier Park
Loma Square
Loma
Voltaire St
Famosa Blvd
Nimitz Blvd
Rosecrans St
Mission Bay Park
La Mesa
San Diego
National City
Chula Vista
Imperial
Famosa Slough Watershed Outline
NAD_1927_StatePlane_California_V_FIPS_0405_feet
Map produced 01-04-2010
0 0.25 0.5 Kilometers
0 0.25 0.5 Miles
TETRA TECH
complex world | CLEAR SOLUTIONS


Transect sampling points
Continuous monitoring sites
Macroalgae transect
EFDC grid
N
San Diego Estuary
TR15
Outlet
TR14
TR13
Channel
TR12
TR11
SEG
Quadrant 1
Quadrant 2
TR10
TR5
TR4
TR9
TR3
TR8
TR2
TR7
TR1
TR6
Macroalgae transect
Quadrant 3
Quadrant 4
MES
Slough
Famosa Slough EFDC Model
0 0.03 0.06 0.12
Kilometers
0 0.03 0.06 0.12
Miles
TETRA TECH
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Famosa Slough

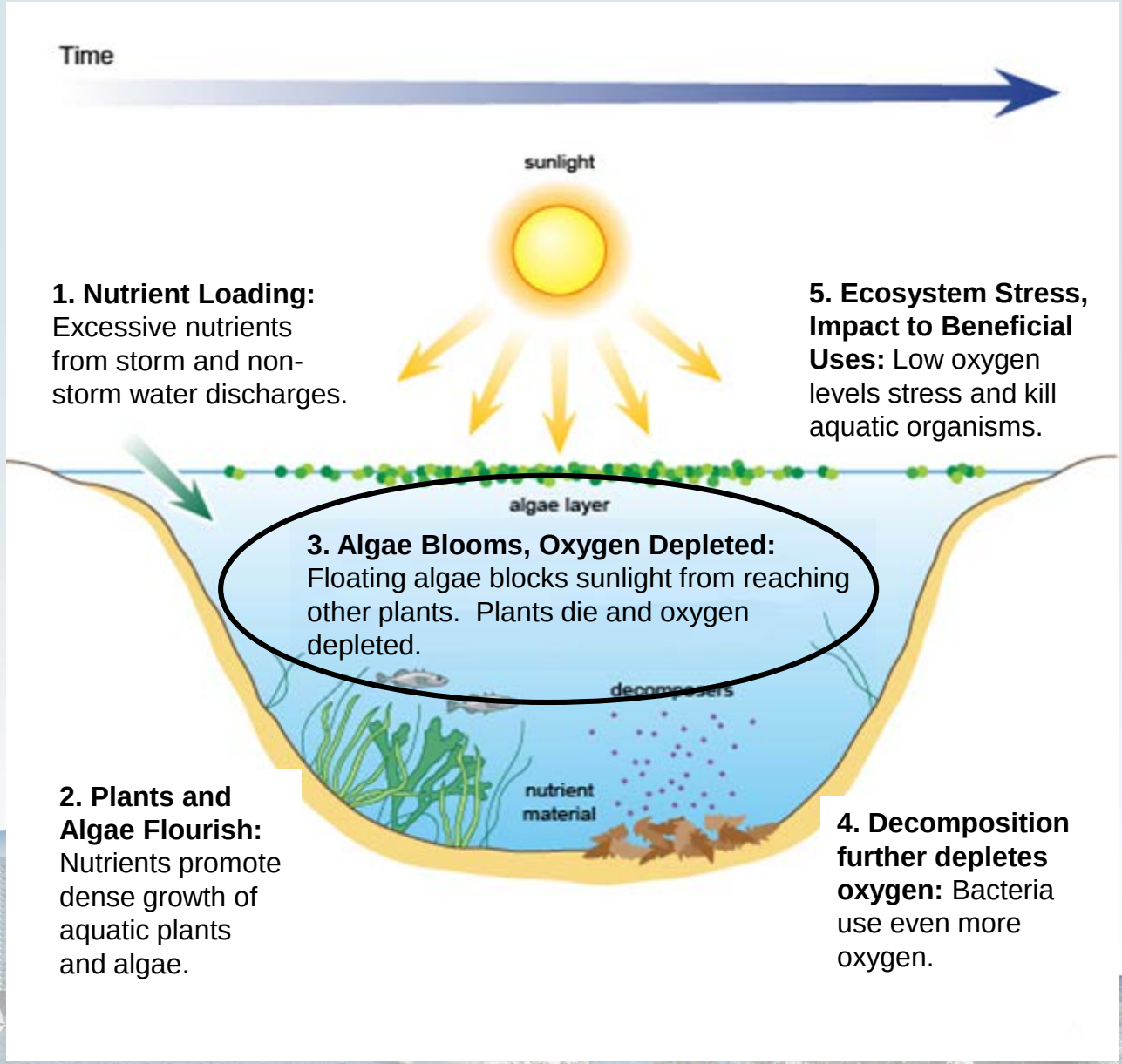
Ecosystem Responses to Nutrients

Wide variation on appropriate nutrient levels necessary to maintain healthy aquatic ecosystems

Nutrient Numeric Endpoints (NNEs) Response indicators measure the health in aquatic ecosystem

Biomass and dissolved oxygen levels are good indicators of aquatic health

Eutrophication Caused By Excess Nutrients



TMDL Analysis Results

- **Targets:**
  - Macroalgae Biomass –
    58 grams dry weight per meter squared
  - Dissolved Oxygen – 5 milligrams per liter
- **Management Actions:**
  - Annual 37% nutrient load reduction
  - Twice annual algae harvests – June - October

Use Alternative Regulatory Approach

TMDL Analysis → Regional MS4 Permit

Regulatory Consistency

- USEPA Guidance
- State Water Resources Control Board Policy
- San Diego Water Board Practical Vision

City of San Diego Commitment

- High Priority to reduce nutrient loads in Famosa Slough
- Regional MS4 Permit and
  Water Quality Improvement Plan for the San Diego River
  - Track and report progress
  - Voluntarily invoke Section B.3.c
    Alternative Compliance Pathway

Next Steps

- January 2018 – Update Jurisdictional Runoff Management Program
- Spring 2018 – Begin Annual Monitoring
- January 2019 – Update Water Quality Improvement Plan for the San Diego River
- January 2022 – Interim Goal 40% Load Reduction
- January 2026 – Interim Goal 80% Load Reduction
- January 2028 – Final Monitoring Report – Targets Met

Thank You