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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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
Famosa Slough
Famosa Slough
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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

1. **Nutrient Loading:** Excessive nutrients from storm and non-storm water discharges.

2. **Plants and Algae Flourish:** Nutrients promote dense growth of aquatic plants and algae.

3. **Algae Blooms, Oxygen Depleted:** Floating algae blocks sunlight from reaching other plants. Plants die and oxygen depleted.

4. **Decomposition further depletes oxygen:** Bacteria use even more oxygen.

5. **Ecosystem Stress, Impact to Beneficial Uses:** Low oxygen levels stress and kill aquatic organisms.
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
Ecosystem Responses to Nutrients

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

Nutrient Numeric Endpoint (NNE) Response indicators measure the health in aquatic ecosystems

Biomass and dissolved oxygen levels are good indicators of aquatic health
Eutrophication Caused By Excess Nutrients

1. Nutrient Loading: Excessive nutrients from storm and non-storm water discharges.

2. Plants and Algae Flourish: Nutrients promote dense growth of aquatic plants and algae.

3. Algae Blooms, Oxygen Depleted: Floating algae blocks sunlight from reaching other plants. Plants die and oxygen depleted.

4. Decomposition further depletes oxygen: Bacteria use even more oxygen.

5. Ecosystem Stress, Impact to Beneficial Uses: Low oxygen levels stress and kill aquatic organisms.
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