MARINA DEL REY HARBOR JUSTIFICATION REPORT FOR A SITE-SPECIFIC OBJECTIVE STUDY FOR DISSOLVED COPPER

PRESENTATION

1. TMDL Background and Water Quality Improvement Actions
2. State Implementation Policy Justification Report
3. Site Specific Objective Study Overview

TMDLS IN MARINA DEL REY

1. Toxics/Copper
2. Bacteria (Basins D, E & F)
3. Trash

TOXICS/COPPER TMDL

- TMDL – Total Maximum Daily Load
- Toxic Pollutants TMDL – First became effective in 2006 and was revised by the Regional and State Boards in 2014, approved by EPA in 2015

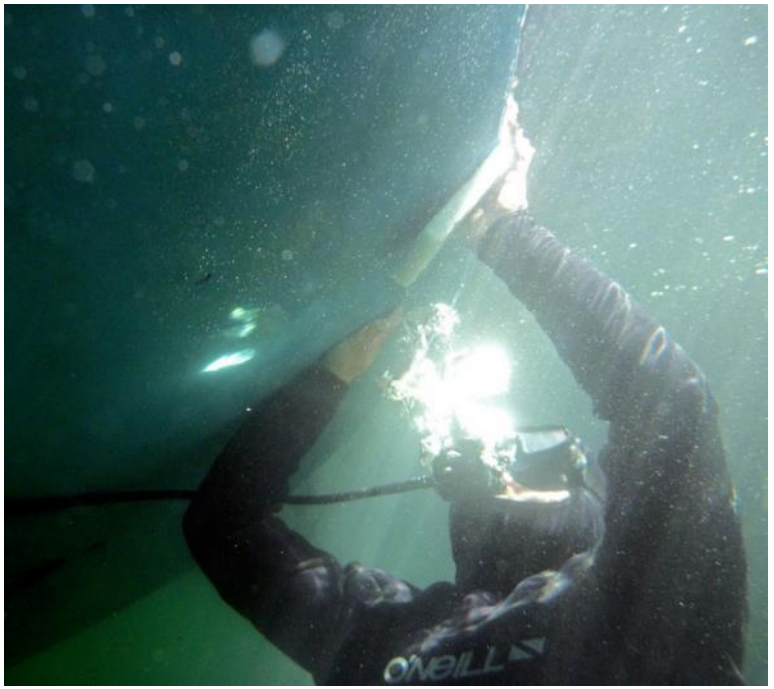
TOXICS/COPPER TMDL

- Revisions included a finding of copper impairment and a set Load Allocation for copper in the water column
- To meet the TMDL targets, there must be an 85% reduction of copper leaching from boat hull paints by 2024.

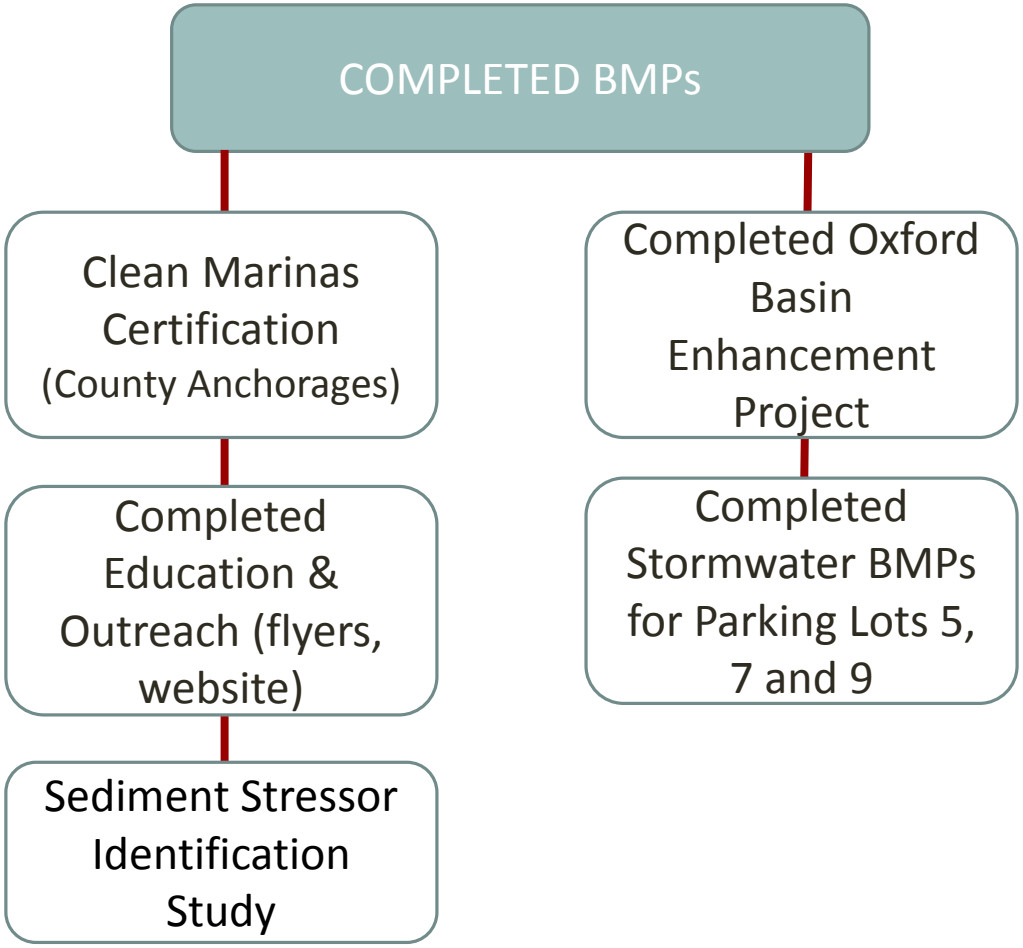
KEY SOURCES OF DISSOLVED COPPER IN THE MARINA

Passive Leaching of Hull Paint

Hull Cleaning



EFFORTS TO ADDRESS TOXICS/COPPER TMDL



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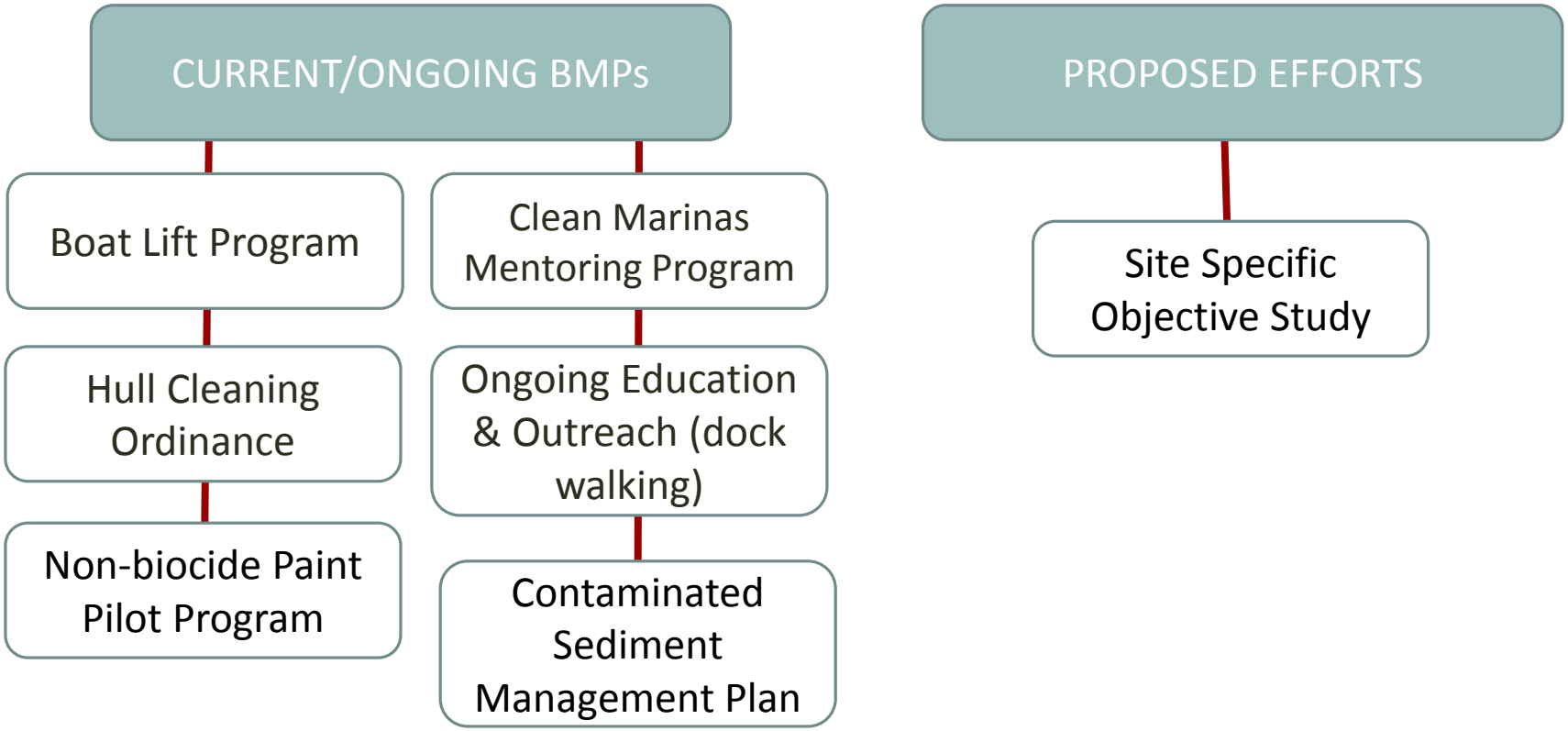
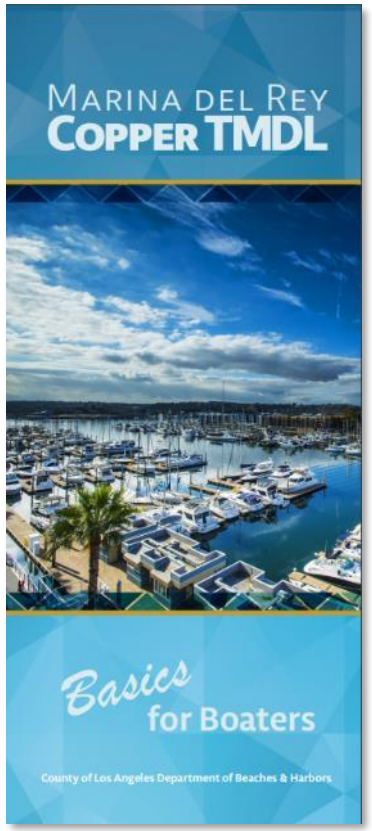
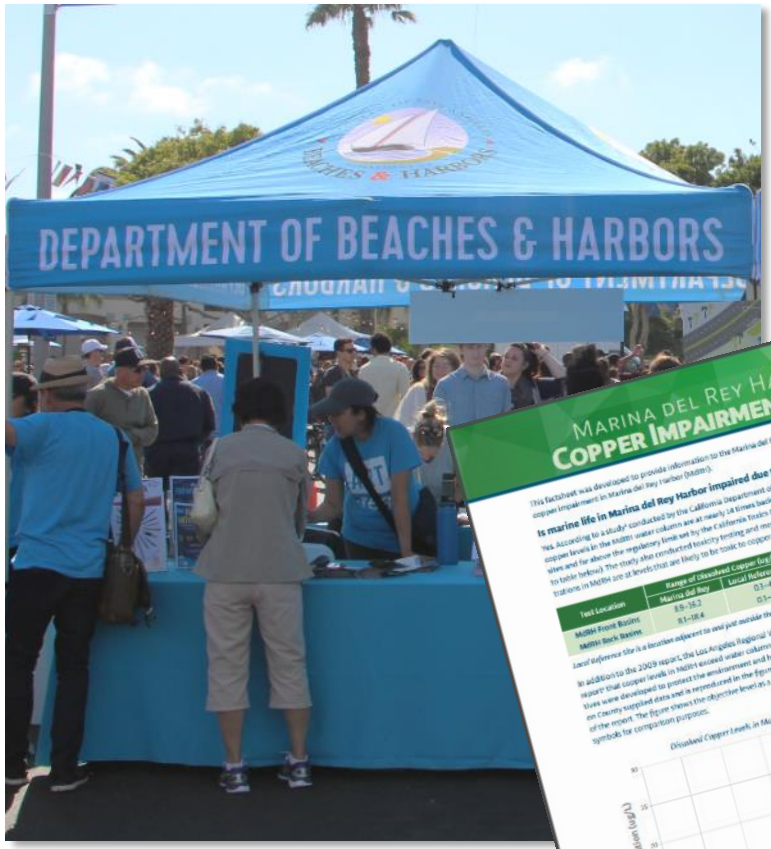


TOXICS/COPPER TMDL: EDUCATION & OUTREACH





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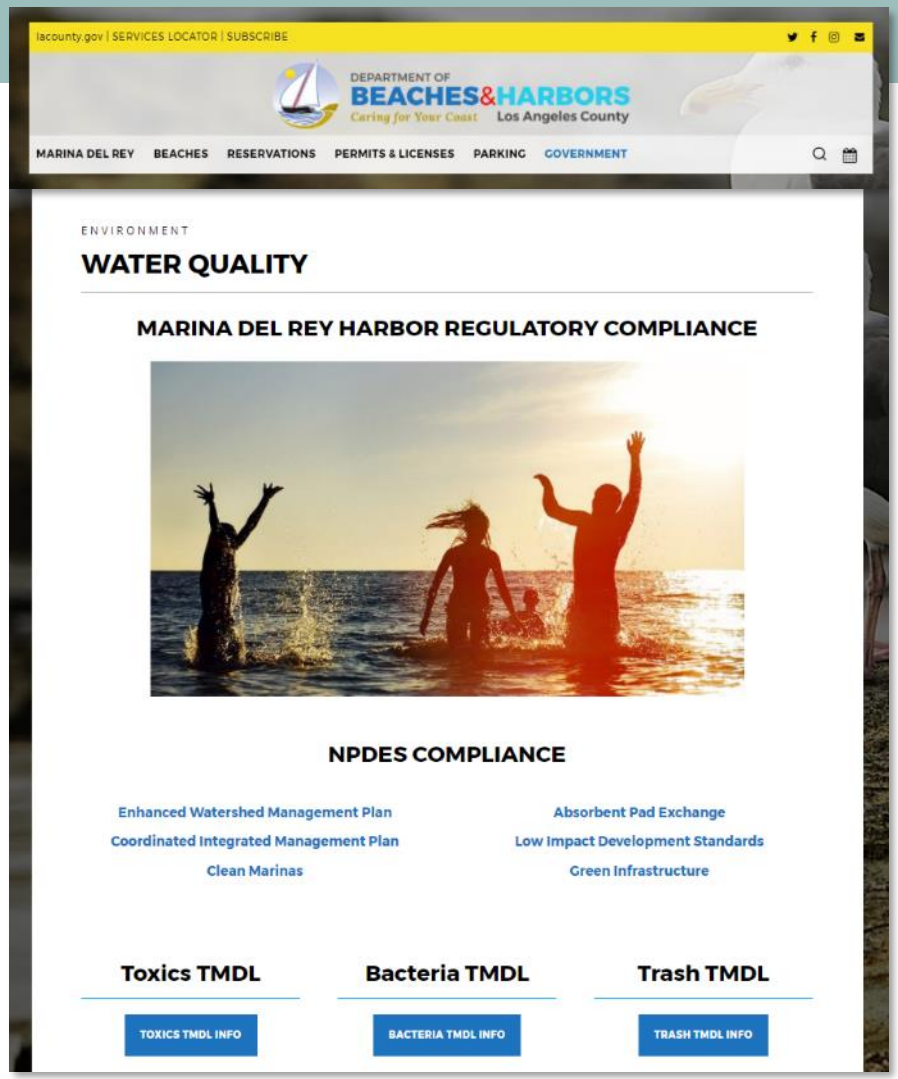
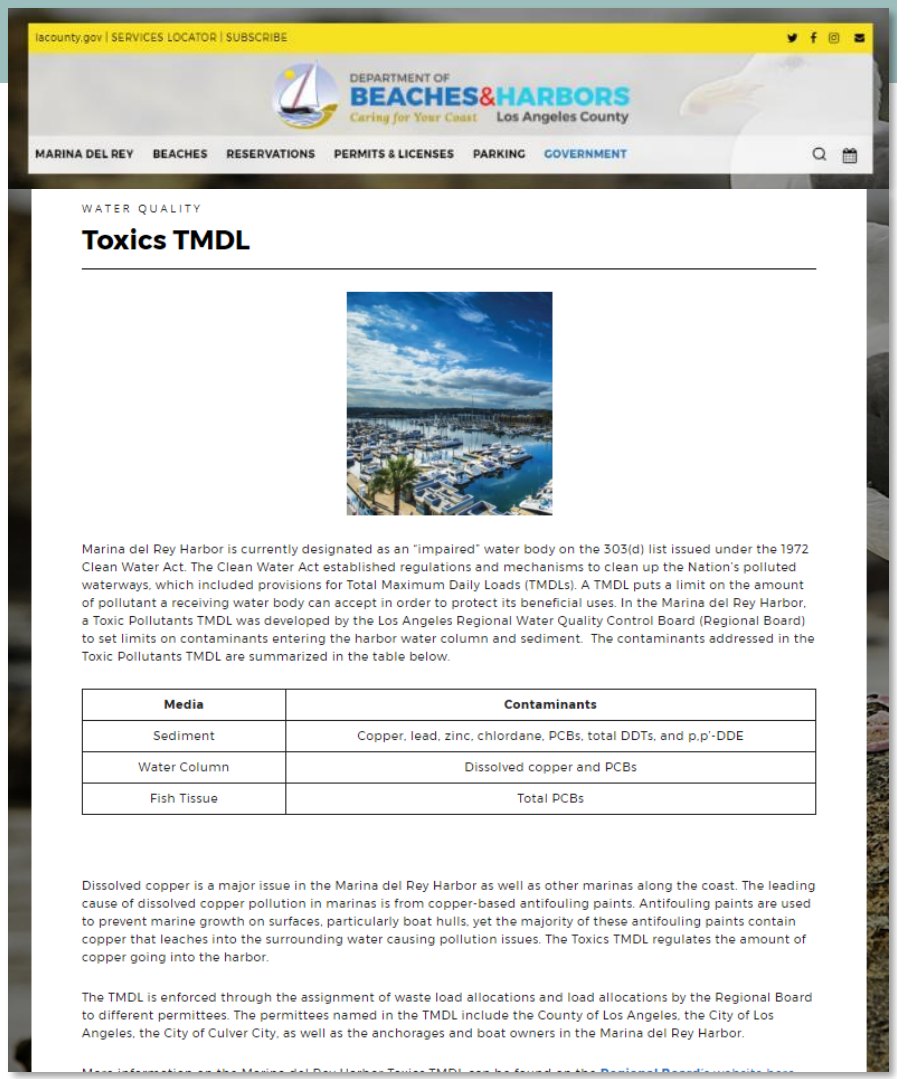




TOXICS/COPPER TMDL: UPCOMING BMPS

Hull Cleaning Ordinance (In Development)

Boat Lift Program (Starts this Summer!)

SEDIMENT STRESSOR IDENTIFICATION STUDY

- Completed and submitted to the Regional Board in December 2016

Oxford Basin Project

- Water Quality Components constructed 12/31/15
- Additional Features constructed 5/26/16

Marina del Rey - Parking Lot 9

- Water Quality Components constructed 12/31/16
- Additional Features constructed 3/15/17

CONTAMINATED SEDIMENT MANAGEMENT PLAN

- Currently Developing Strategies to Meet Target Date
- Due to the Regional Board December 31, 2019

QUESTIONS?

- Next Presentation: State Implementation Policy Justification Report

COUNTY OF LOS ANGELES
DEPARTMENT OF
BEACHES
& HARBORS
Caring for Your Coast

STATE IMPLEMENTATION POLICY JUSTIFICATION REPORT

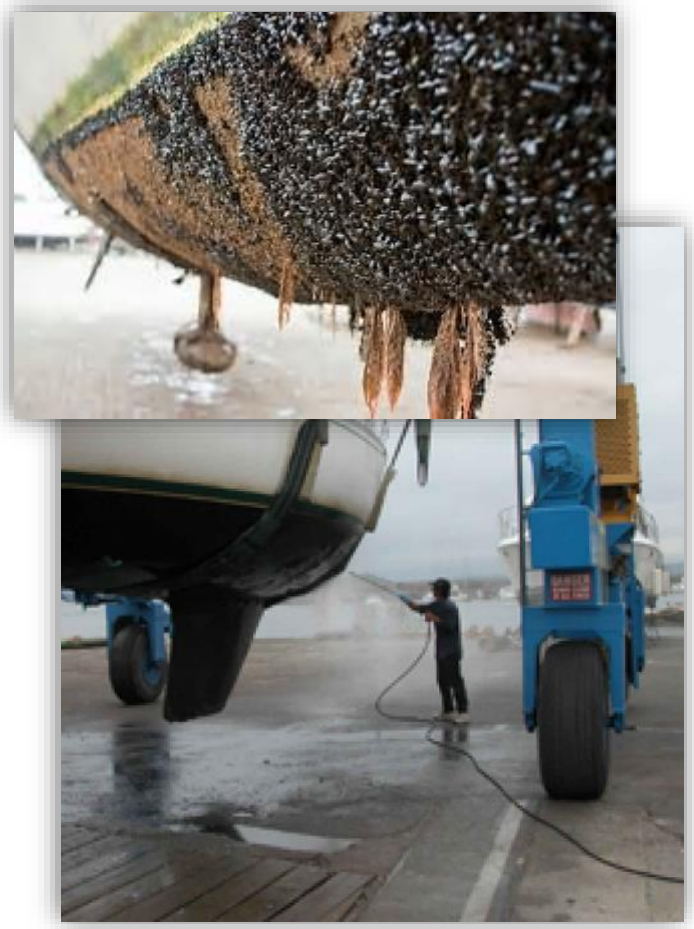
Shelly Anghera, Ph.D.

August 23, 2017

LATITUDE ENVIRONMENTAL

MARINA DEL REY TMDL

- Copper boat paint is the largest source of copper in the water
- Regional Board TMDL mandates reduction of copper by 85%
- The use of non-copper antifouling paints (AFPs) is growing and new paints continue to be developed



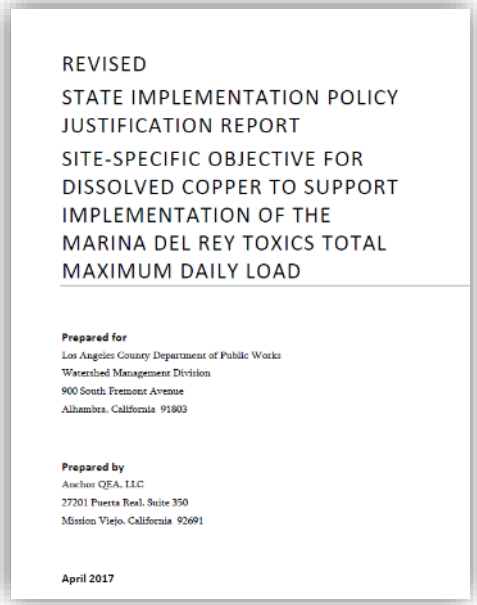
COUNTY TMDL IMPLEMENTATION

- Multiple ongoing activities are being implemented to restore and maintain water quality for the designated beneficial uses including reducing copper loading
- County has applied for grant funds to assist in funding copper-reducing BMPs
- County is implementing financial incentives to encourage the use of alternative antifouling strategies (e.g., paint conversion funding, boatlift funding) and investigating incentive-based lease agreements
- County is implementing a non-biocidal paint pilot program

State implementation policy Justification Requirement	Response	
Section 5.2(1): A written request for a SSO study	Letter and draft SIP Justification submitted	√
Section 5.2(2): Demonstration of exceedance to an existing WQ objective	Section 2: Monitoring data compared to the CTR numeric target for dissolved copper	√
Section 5.2(3)(a): Analysis of Compliance and Consistency with All Relevant Federal and State Plans, Policies, Laws, and Regulations	Section 3.1 • State & federal regulation review • Antidegradation review • Anti-backsliding review	√
SIP Section 5.2(3)(b): Review of Historical Limits and Compliance with Those Limits	Section 3.2 • List of County activities	√
SIP Section 5.2(3)(c): Review of Current Technology and Technology-based Limits	Section 3.3 • Antifouling paints • Mitigation measures • Feasibility to achieve TMDL compliance schedule	√
SIP Section 5.2(3)(d): An Economic Analysis of Compliance	Section 3.4 • Regional and local cost analyses	√

SIP JUSTIFICATION REPORT

- Section 5.2(1) through (3) contain technical and administrative information to meet requirements to initiate a SSO study
- Has satisfied the requirements to initiate the development of a site specific objective.
- This SSO study will provide needed information to support various implementation actions and to evaluate the success of those actions to reduce copper loading from boats.



REVISED

STATE IMPLEMENTATION POLICY JUSTIFICATION REPORT

SITE-SPECIFIC OBJECTIVE FOR DISSOLVED COPPER TO SUPPORT IMPLEMENTATION OF THE MARINA DEL REY TOXICS TOTAL MAXIMUM DAILY LOAD

Prepared for
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April 2017

THE COUNTY IS COMMITTED TO WATER QUALITY

- Currently working with the public to address alternative paint information gaps through notifications, workshops, and educational flyers
- Conducting public surveys to understand:
  - Boat paint use
  - Effectiveness of alternative AFPs
  - Cost and constraints of changing AFPs
- Conducting special studies to identify and support the most effective management strategies
- SSO study will help the County develop and identify efficient and effective implementation options to reduce dissolved copper discharge from boats in MdR Harbor.

QUESTIONS?

- Next presentation: Site Specific Objective Study Overview

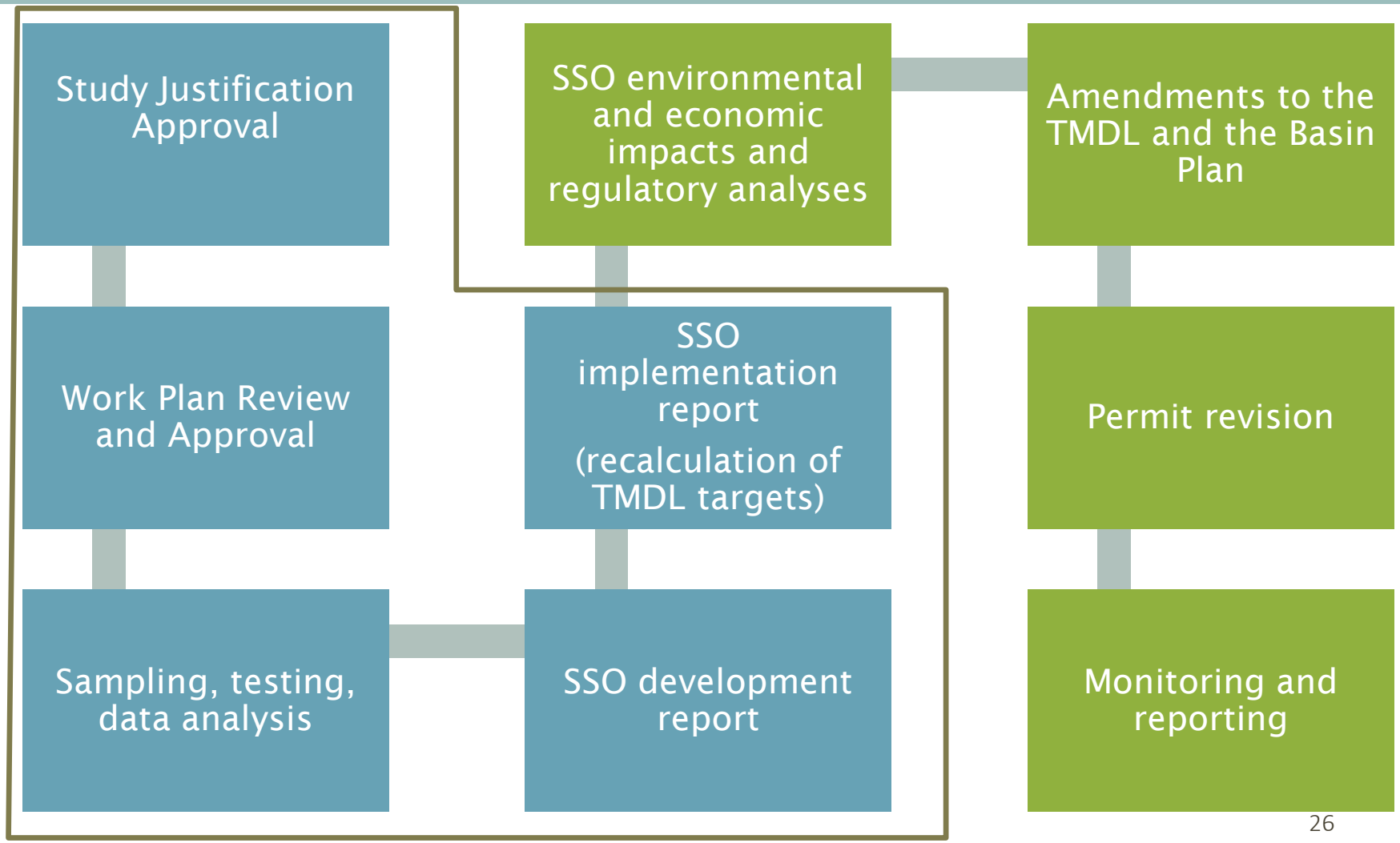
SITE SPECIFIC OBJECTIVE STUDY OVERVIEW

Steven Bay
Southern California Coastal Water Research Project
August 23, 2017

GOALS OF THE SSO STUDY

- Determine the copper threshold that is protective of marine life in MdRH in a scientifically sound manner
- Communicate study findings to regulators and stakeholders
- Develop implementation details needed to support consideration of SSO adoption into TMDL and Basin Plan

SSO DEVELOPMENT AND IMPLEMENTATION



EPA AND CALIF. RECOGNIZE POTENTIAL NEED TO CALIBRATE OBJECTIVES

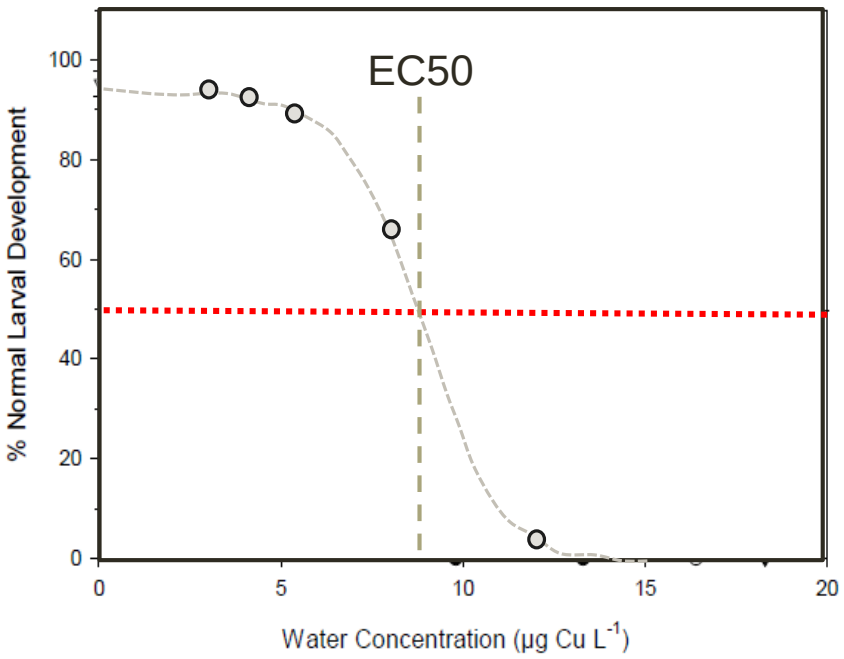
- Water quality objectives are established to be protective of aquatic life under a wide variety of environmental conditions
  - Based on standardized laboratory tests and conservative assumptions
- Objectives do not account for site specific environmental factors that affect toxic potency
  - Water chemistry differs among sites/habitats
  - May affect accuracy of objective
- EPA established guidelines for development of site specific objectives
  - Science-based process to evaluate objective
  - Adjustments maintain aquatic life protection

WATER EFFECT RATIO (WER)

- Scientific method to evaluate water quality objective accuracy
  - Compares toxicity of contaminant in site water to lab water

EC50 = Toxicant concentration causing 50% effect

$$WER = \frac{\text{Site Water EC50}}{\text{Lab Water EC50}}$$



WER INTERPRETATION

- WER = 1
  - Water quality objective accurate with respect to site conditions
- WER > 1
  - Site conditions reduce toxic potency
- WER < 1
  - Site conditions increase toxic potency
- Magnitude and consistency of WER used as part of basis to determine need for SSO
  - Adjustment factor to restore level of aquatic life protection to that intended by EPA

PREVIOUS CU SSO STUDIES

- Site water quality shown to affect copper toxicity in multiple studies
  - Los Angeles River and tributaries
  - Calleguas Creek and Malibu Lagoon
  - San Francisco Bay
  - San Diego Bay
- TMDLs and Basin Plans modified in several cases
  - Public process with external scientific review

MDRH STUDY OBJECTIVES

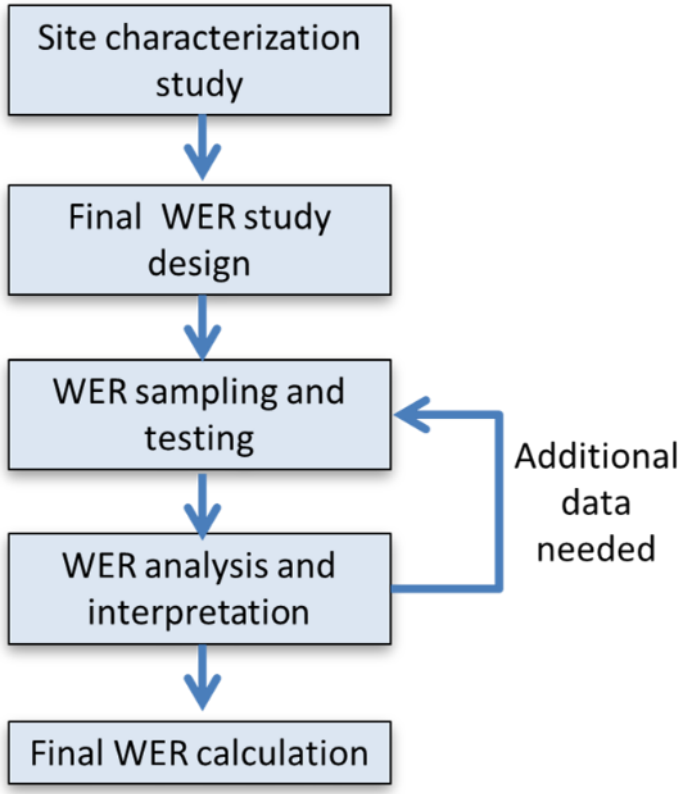
- Measure toxicity and water chemistry throughout harbor
  - Identify conditions when toxic potential of Cu is greatest
  - Use same toxicity test methods selected by EPA for calculating original water quality objective
- Calculate WER at multiple locations and times
- Document the effects of season, tide, and location
- Analyze the results to determine whether there is a scientific basis for a SSO
  - Statistical analysis of potential SSO values
  - Technical Advisory Committee review

TECHNICAL ADVISORY COMMITTEE

Name	Affiliation	Expertise
Peter Campbell	University of Quebec, INRS, Quebec, Canada	Trace metal analysis, speciation, toxicology, bioaccumulation
Gary Cherr	Bodega Marine Laboratory, University of California, Davis, CA	Reproductive physiology, developmental biology, environmental toxicology
Samuel Luoma	John Muir Institute of the Environment, University of California, Davis, CA	Metals bioavailability and ecological effects in aquatic environments
Robert Santore	Windward Environmental, Syracuse, NY	Metals bioavailability, site-specific criteria, chemical modeling, ecological risk assessment

DRAFT WORK PLAN

- Site characterization
  - Determine site factors to include in WER testing
- WER testing
  - Dose-response toxicity tests at multiple times and locations
- Analysis and interpretation
  - Calculate WERs
  - Assess scientific basis for SSO
  - Describe implementation options



COMMUNICATION AND REVIEW

- Draft work plan review
  - Public, Water Board, TAC
- Agency consultation meetings
  - Quarterly meetings with study partners
- TAC meetings
  - Scientific review and guidance at key phases of study
- Public workshops (2)
  - Explain study details and findings
  - Respond to stakeholder concerns

REPORTS

- Technical Report
  - Sampling and testing activities
  - Toxicity and chemistry data
  - Statistical evaluation WER results
  - Comparison to other studies
- Implementation Report
  - Environmental and economic impacts
  - Anti-degradation & anti-backsliding

NEXT STEPS (TENTATIVE)

- Complete study justification report review
- Review of draft work plan
  - Pending approval of justification report
  - Technical Advisory Committee meeting

QUESTIONS?

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