



MARINA DEL REY HARBOR TOXIC POLLUTANTS TMDL





PRESENTATION

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

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

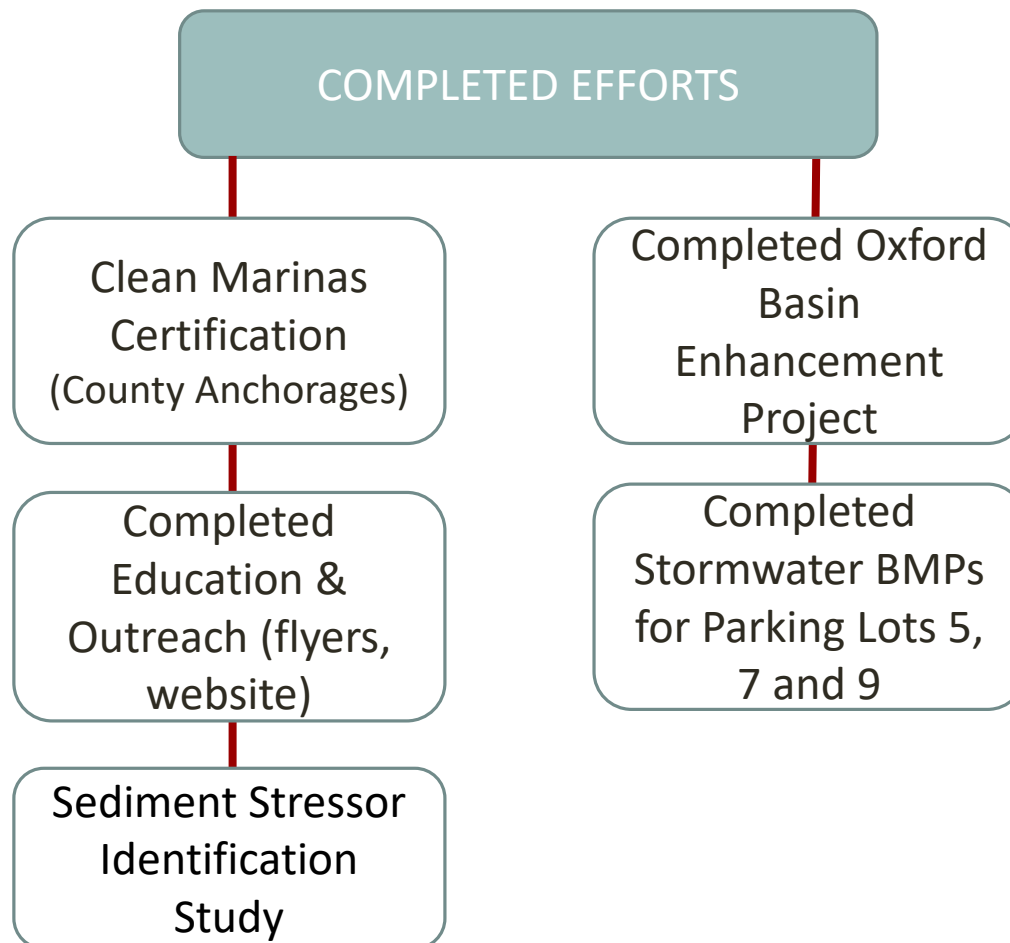
Passive Leaching of Hull Paint



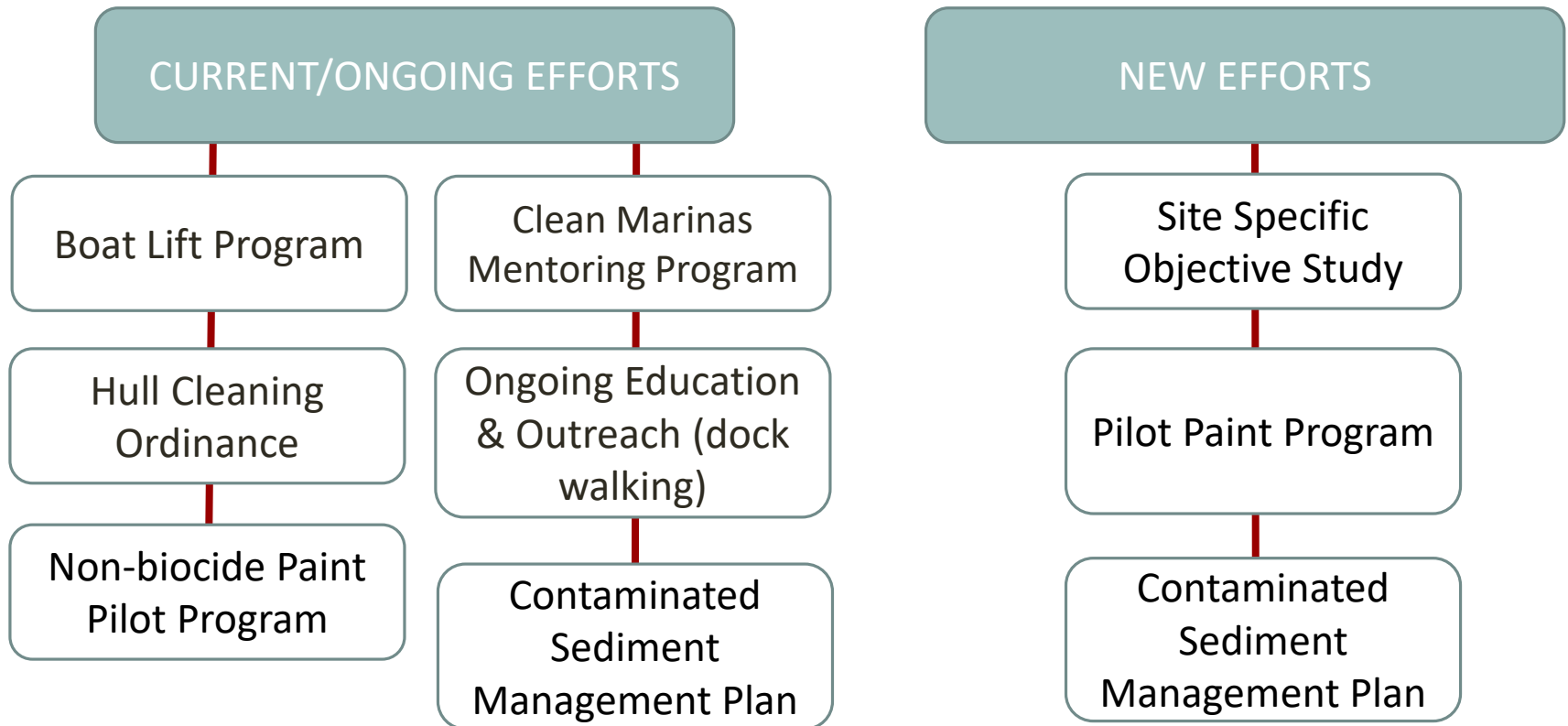
Hull Cleaning



EFFORTS TO ADDRESS TOXICS/COPPER TMDL



EFFORTS TO ADDRESS TOXICS/COPPER TMDL



TOXICS/COPPER TMDL: EDUCATION & OUTREACH



MARINA DEL REY HARBOR COPPER IMPAIRMENT FACTS

This fact sheet was developed to provide information to the Marina del Rey community on the water column copper impairment in Marina del Rey Harbor (MDRH).

Is marine life in Marina del Rey Harbor impaired due to water column copper?
 Yes. According to a study conducted by the California Department of Pesticide Regulation in 2008, dissolved copper levels in the water column are at nearly 14 times background levels (as defined as local reference sites and far above the regulatory limit set by the California Toxic Subst. 15 program per their 0.03 µg/L (table below). The study also indicated heavy testing and modeling that indicated that the copper in MDRH is at levels that are likely to be toxic to copper sensitive organisms.

Test Location	Range of Dissolved Copper (µg/L)	Local Reference Site	Median of Dissolved Copper (µg/L)	Local
Miller Point Basins	8.9-16.3	0.3-4.7	3.8	31x
MARH Basins	8.9-16.4	0.3-4.7	3.8	31x

Local reference site is a location expected to and just outside the marine, but within the same basin.

In addition to the 2009 report, the Los Angeles Regional Water Quality Control Board of report that copper levels in MDRH exceed water column regulatory numeric targets. The data were developed to protect the environment and human health. The data were on County supplied data and is represented in the figure below with additional symbols for comparison purposes.

The figure shows the objective levels as a red line and the different symbols for comparison purposes.

MARINA DEL REY HARBOR IN-WATER BOAT HULL CLEANING

Best Management Practices (BMPs)



Antifouling paints are used on boat hulls to slow the growth of marine organisms. The paints most commonly work in one of three ways: (1) slowly releasing a toxic chemical (biocide) from the hull coating, (2) slowly releasing the paint surface like a bar of soap over time (ablative coating), or (3) presenting a hard or slippery surface that makes it difficult for organisms to attach. Each type of paint has its own cleaning restrictions and requirements.

The main objective of implementing hull cleaning best management practices (BMPs) is to reduce the pollution generated during cleaning operations. The best way to accomplish this is to use the least abrasive cleaning method possible when performing in-water hull cleaning.

MARINA DEL REY HARBOR IS A BOAT LIFT RIGHT FOR ME?

Boat lifts are a great way to protect the hull of your boat from seaweed growth, corrosion, and other potential damages such as electrolysis. These devices greatly reduce or eliminate hull maintenance requirements such as in-water hull cleaning and periodic painting, which can save the boat owner money and extend the lifespan of the boat.

These devices greatly reduce or eliminate hull maintenance requirements.

An added benefit of boat lifts is they can be used as an alternative to copper leaching and other toxic antifouling paints. Because the lift raises the boat out of the water while docked at the slip, fouling is greatly reduced. Therefore, boat lifts can be used in conjunction with a non-toxic hull paint or no hull paint at all.

Types of Boat Lifts

Inflatable Collapsible Chambers

For these types of lifts, the boat sits on inflatable air chambers that function like an industrial air mattress under the boat. The lift also holds up a floating frame kit, so the lift has less potential to damage a boat than a standard structure lift.



Inflatable Rigid Tanks

With this type of lift, the boat sits on an aluminum frame that is pulled out of the water using a winch. A newer style of lift also uses a floating frame kit, so the lift has less potential to damage a boat than a standard structure lift.



HTTP://BEACHES.LACOUNTY.GOV/WATER-QUALITY/

lacounty.gov | SERVICES LOCATOR | SUBSCRIBE


DEPARTMENT OF **BEACHES & HARBORS**
Caring for Your Coast Los Angeles County

MARINA DEL REY BEACHES RESERVATIONS PERMITS & LICENSES PARKING GOVERNMENT

ENVIRONMENT

WATER QUALITY

MARINA DEL REY HARBOR REGULATORY COMPLIANCE



NPDES COMPLIANCE

- Enhanced Watershed Management Plan
- Coordinated Integrated Management Plan
- Clean Marinas
- Absorbent Pad Exchange
- Low Impact Development Standards
- Green Infrastructure

Toxics TMDL

[TOXICS TMDL INFO](#)

Bacteria TMDL

[BACTERIA TMDL INFO](#)

Trash TMDL

[TRASH TMDL INFO](#)


lacounty.gov | SERVICES LOCATOR | SUBSCRIBE

DEPARTMENT OF **BEACHES & HARBORS**
Caring for Your Coast Los Angeles County

MARINA DEL REY BEACHES RESERVATIONS PERMITS & LICENSES PARKING GOVERNMENT

WATER QUALITY

Toxics TMDL



Marina del Rey Harbor is currently designated as an "impaired" water body on the 303(d) list issued under the 1972 Clean Water Act. The Clean Water Act established regulations and mechanisms to clean up the Nation's polluted waterways, which included provisions for Total Maximum Daily Loads (TMDLs). A TMDL puts a limit on the amount of pollutant a receiving water body can accept in order to protect its beneficial uses. In the Marina del Rey Harbor, a Toxic Pollutants TMDL was developed by the Los Angeles Regional Water Quality Control Board (Regional Board) to set limits on contaminants entering the harbor water column and sediment. The contaminants addressed in the Toxic Pollutants TMDL are summarized in the table below.

Media	Contaminants
Sediment	Copper, lead, zinc, chlordane, PCBs, total DDTs, and p,p'-DDE
Water Column	Dissolved copper and PCBs
Fish Tissue	Total PCBs

Dissolved copper is a major issue in the Marina del Rey Harbor as well as other marinas along the coast. The leading cause of dissolved copper pollution in marinas is from copper-based antifouling paints. Antifouling paints are used to prevent marine growth on surfaces, particularly boat hulls, yet the majority of these antifouling paints contain copper that leaches into the surrounding water causing pollution issues. The Toxics TMDL regulates the amount of copper going into the harbor.

The TMDL is enforced through the assignment of waste load allocations and load allocations by the Regional Board to different permittees. The permittees named in the TMDL include the County of Los Angeles, the City of Los Angeles, the City of Culver City, as well as the anchorages and boat owners in the Marina del Rey Harbor.

TOXICS/COPPER TMDL: UPCOMING BMPS

Hull Cleaning Ordinance
(Going to the Board of
Supervisors in October)



Boat Lift Program
(Started 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

MARINA DEL REY TOXICS TMDL

- State Implementation Policy Justification Report



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 <ul style="list-style-type: none"> • 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	√
SIP Section 5.2(3)(c): Review of Current Technology and Technology-based Limits	Section 3.3 <ul style="list-style-type: none"> • Antifouling paints • Mitigation measures • Feasibility to achieve TMDL compliance schedule 	√
SIP Section 5.2(3)(d): An Economic Analysis of Compliance	Section 3.4	√

SIP JUSTIFICATION REPORT

- First Submitted to Regional Board on August 20, 2015
- Received Comments from the Regional Board on September 21, 2015
- Resubmitted Report on January 28, 2016
- Received Additional Comments on December 19, 2016
- Public Meeting on SIP August 23, 2017

SIP APPROVED SEPTEMBER 12, 2017!



Los Angeles Regional Water Quality Control Board

Daniel Lafferty
Division Head
Los Angeles County
Department of Public Works
Watershed Management Division
900 South Fremont Avenue
Alhambra, CA 91803

September 12, 2017

CONDITIONAL APPROVAL TO PROCEED WITH STUDY TO DEVELOP SITE-SPECIFIC OBJECTIVES FOR DISSOLVED COPPER IN MARINA DEL REY HARBOR

Dear Mr. Lafferty:

The Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) received the "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" (SIP Justification Report) from the Los Angeles County Department of Public Works (County) on April 5, 2017. We acknowledge that this report serves as the County's written request to pursue a site-specific study pursuant to section 5.2 of the State Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). Los Angeles Water Board staff posted the SIP Justification Report on the Los Angeles Water Board's website for public review on July 10, 2017. Eleven stakeholders submitted letters regarding the SIP Justification Report. Pursuant to section 5.2 of the SIP, Los Angeles Water Board staff held a public workshop on August 23, 2017 to consider the County's request to initiate development of a site-specific objective based on the data, information and reasoning provided in the SIP Justification Report.

After considering the SIP Justification Report, comment letters, and input during the public workshop, Board management has determined that the County may initiate the study to develop a site-specific objective for dissolved copper in Marina del Rey Harbor under the condition that the County proceeds with all four implementation actions detailed in section 3.3.3.2 of the SIP Justification Report in a timely fashion and concurrently with the study. The County needs to present the Los Angeles Water Board with ongoing evidence that it is diligently implementing each of these actions. In particular, the implementation actions include a pilot program to convert 100 boats to non-biocide hull paint. The County must submit monthly reports to the Los Angeles Water Board detailing the progress of this program, including the number of boats participating, the type of hull paint used on each boat, the frequency of hull cleaning for each boat, and an evaluation of each hull paint relative to its use in Marina del Rey Harbor. The program must place non-biocide hull paint on a minimum of 25 boats within six months of the date of this letter. The pilot program must have a minimum of 100 boats fully participating within two years of the date of this letter. The boats participating in the non-biocide hull paint program

IRMA MUÑOZ, CHAIR | SAMUEL UNGER, EXECUTIVE OFFICER

320 West 4th St., Suite 200, Los Angeles, CA 90013 | www.waterboards.ca.gov/laangeles

♻️ RECYCLED PAPER

NEW EFFORTS TO IMPLEMENT TMDL

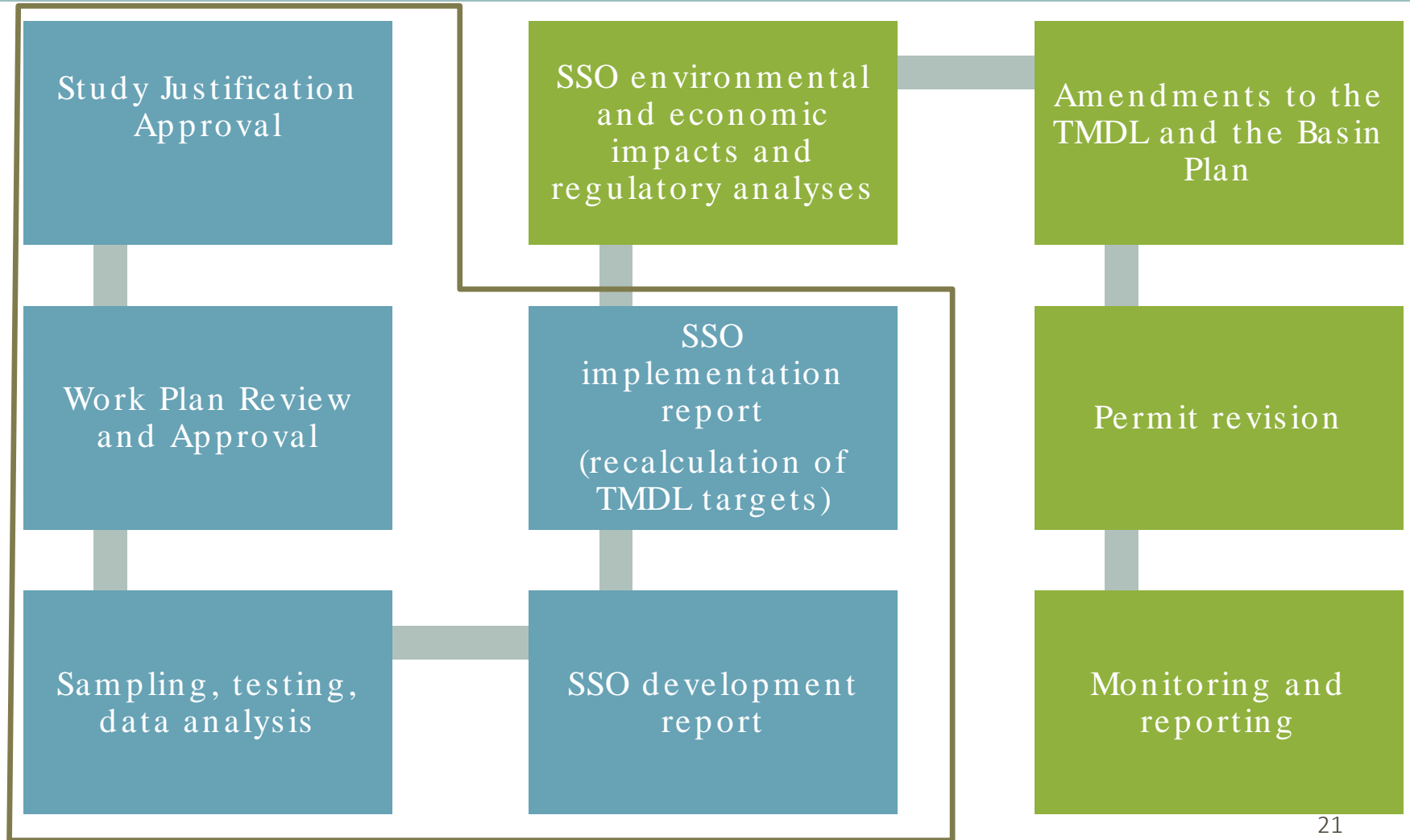
- Site Specific Objective Study
- Pilot Paint Program
- Contaminated Sediment Management Plan



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

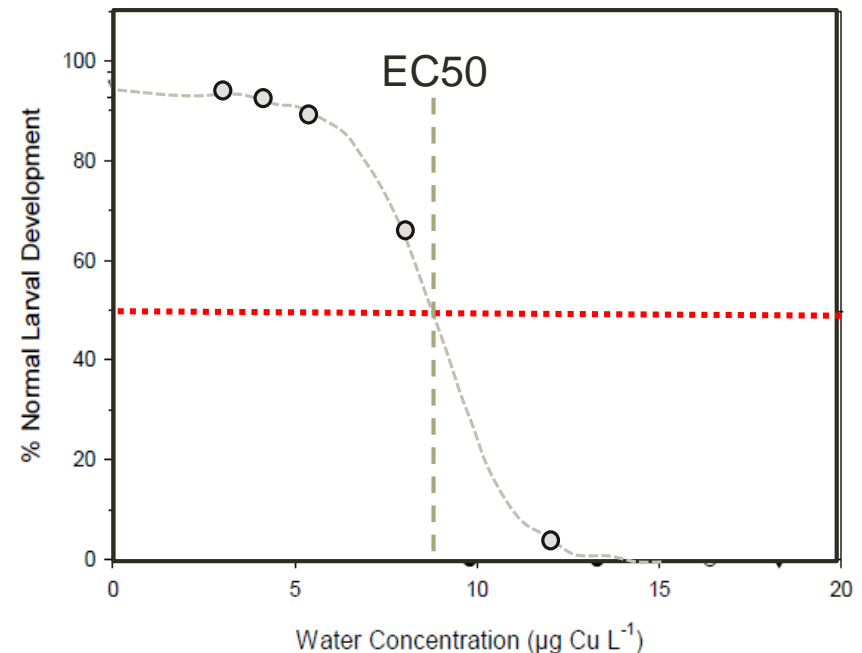


WATER EFFECT RATIO (WER)

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

EC50 = Toxicant concentration causing 50% effect

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



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

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

PILOT PAINT PROGRAM



- SIP requires 25 boats to be painted with non-biocide paint within six months and 100 boats to be painted within two years

PILOT PAINT PROGRAM

- Phase 1 will be focused on the one anchorage controlled by the County (242 slips)
- Phase 2 will involve the privately-leased anchorages
- Will offer financial incentives to boaters who are willing to switch to non-biocide paints
- Will involve different types of boats that are used differently (leisure sailors, racers, fishing boats, liveaboards, work vessels)
- Will include water sampling

CONTAMINATED SEDIMENT MANAGEMENT PLAN



MARINA DEL REY TOXIC POLLUTANTS TMDL

Questions?

Michael Tripp
Los Angeles County Department of Beaches and Harbors
424-526-7745
mtripp@bh.lacounty.gov