



## Legislation Details (With Text)

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**DATE:** June 20, 2017

**SUBJECT:**

### PRESENTATION ON THE 2016 COPPER LOAD REDUCTION EFFORTS RELATED TO THE SHELTER ISLAND YACHT BASIN TOTAL MAXIMUM DAILY LOAD

#### EXECUTIVE SUMMARY:

In 2005, the San Diego Regional Water Quality Control Board (Regional Board) set a Dissolved Copper Total Maximum Daily Load (TMDL) for the Shelter Island Yacht Basin (SIYB). The TMDL required a 76 percent reduction of copper loading by 2022, with interim loading targets of 10 percent and 40 percent by 2012 and 2017, respectively. The TMDL named the District, the City of San Diego, the SIYB marinas and yacht clubs, hull cleaners, and the recreational boaters themselves, as parties responsible for reducing their copper pollution loads. On March 11, 2011, the Regional Board issued Investigative Order No. R9-2011-0036 to the District. The Investigative Order required that the District annually assess TMDL implementation progress and provide written compliance reports (herein referred to as Progress Reports) to document the District and stakeholder actions to comply with the TMDL.

The 2016 Progress Report shows that copper reduction efforts are reducing the copper loading. Water quality testing shows the basin average to be 7.1 µg/L, a decrease from the baseline average of 8.3 µg/L. The Progress Report also concludes that the basin water quality has been relatively consistent over the past three years. In addition, based on the vessel tracking data reported by the Shelter Island Master Leaseholders, there has been an estimated 41.6 percent (approximately 873 kg/yr) reduction of dissolved copper into SIYB when compared with the TMDL baseline of 2100 kg/yr. This meets the upcoming second interim TMDL target slightly ahead of the 2017 TMDL schedule.

In addition to the ongoing education efforts, monitoring, and BMP implementation, the District made

considerable progress on the key initiatives presented at last year's annual Board update. Studies were completed to improve the scientific understanding of basin water quality conditions, alternative copper reduction technologies are being explored through the District's new Blue Economy program, and progress continued on the engineering feasibility of a culvert to improve the basin's water flow.

A milestone was achieved when the Department of Pesticide Regulation (DPR) released a draft rule to formally limit copper paint availability to only those products meeting their low leach criteria (DPR Rule). If adopted, this rule would be in effect starting July 1, 2018 and would apply to paints used on recreational vessels in the Bay.

The final TMDL phase will begin in 2018. The DPR Rule has the potential to significantly reduce the copper loading into the basin. However, staff continues to explore additional initiative and policy concepts that could be triggered if the aforementioned items do not fully achieve the compliance targets. The District will continue to collaborate with the Regional Board, SIYB tenants and other stakeholders throughout this process.

### **RECOMMENDATION:**

Receive presentation from staff regarding results of the Shelter Island Yacht Basin TMDL and efforts to reduce copper in the bay.

### **FISCAL IMPACT:**

This presentation has no fiscal impact. Funds for the FY 16/17 Budget will be considered by the Board, and funds required for future fiscal years will be budgeted in the appropriate fiscal year and cost accounts and will be subject to Board approval.

### **COMPASS STRATEGIC GOALS:**

This agenda item supports the District's strategic goals by seeking copper reductions throughout San Diego Bay and working to improve water quality, with an emphasis on SIYB.

This agenda item supports the following Strategic Goal(s).

- A Port that the public understands and trusts.
- A Port with a healthy and sustainable bay and its environment.

### **DISCUSSION:**

#### **REGULATORY BACKGROUND**

In 1996, high concentrations of copper in the water of SIYB prompted the Regional Board to add SIYB to the state's Clean Water Act Section 303(d) List of Water Quality Limited Segments. The Regional Board found that copper concentrations in SIYB ranged from three to eight micrograms per liter (µg/L), thereby exceeding the water quality objective of 3.1 µg/L.

In 2005, the Regional Board set a TMDL<sup>1</sup> for the basin, requiring a 76 percent reduction of copper loading by 2022, with interim loading targets of 10 percent and 40 percent by 2012 and 2017, respectively. The TMDL named the District, the City of San Diego, the SIYB marinas and yacht clubs,

hull cleaners and the recreational boaters themselves as parties responsible for reducing copper pollution loads. Passive leaching of copper from boat hulls and in-water hull cleaning were identified as the major sources of copper in SIYB.

In March 2011, the Regional Board issued Investigative Order No. R9-2011-0036 to the District. This Investigative Order outlines the SIYB TMDL annual reporting requirements and requires the development of monitoring and best management practice (BMP) implementation plans to guide activities over the course of the TMDL. The Investigative Order also requires that the District annually assess TMDL implementation progress and provide annual Progress Reports to document the actions the District and stakeholders are taking to comply with the TMDL.

Staff has been implementing a multi-faceted copper reduction program (Program) to achieve the TMDL's load reductions and reduce copper throughout the Bay. The Program focuses on the largest copper sources and identifies a strategic approach to effectively achieve regulatory compliance, while balancing economic and public interests. It is comprised of five elements:

1. Testing and Research
2. Hull Paint Transition
3. Policy Development / Legislation
4. Education and Outreach
5. Monitoring and Data Assessment

In 2013 the District sponsored Assembly Bill 425 (AB 425)<sup>2</sup> authored by Speaker of the Assembly, Toni Atkins; the bill was signed by Governor Jerry Brown in October 2013. The bill required the DPR to set leach rates and identify mitigation measures that could protect aquatic environments from the effects of copper antifouling paints. In 2014, DPR established leach rates for copper antifouling paints. The lower leach rates are expected to reduce the amount of copper into the Bay in the future.

Staff is currently working on several key projects and tasks to execute the multiple elements of the Program. These efforts are summarized annually in the Progress Reports. This Board update is intended to discuss the Program's progress to date, and discuss the next steps as the TMDL moves into its final five-year compliance phase.

## **SIYB TMDL - 2016 FINDINGS**

The 2016 Progress Report discusses BMP implementation in SIYB and San Diego Bay, and provides information on vessel conversions along with water quality and toxicity monitoring results (Attachment A). Several activities were implemented during 2016, including education and outreach, coordination with state agencies, and permitting and inspecting in-water hull cleaning activities. The District also continues collaborative efforts with the Shelter Island Master Leaseholders to track vessels and report on hull paint use within the basin. Also notable was the Department of Pesticide Regulation's release of a proposed rule to require the use of low leach paints for recreational vessels. In addition, staff made significant progress on the near-term initiatives that were presented in last year's annual update to Board: an enhanced water quality study; exploration of alternative copper mitigation technologies; and an engineering feasibility assessment of a culvert to increase water flow. Summaries of the key initiatives and the 2016 water quality and vessel tracking results are provided herein.

### **■ Key Initiatives**

Over the course of the Program, the District has been working to improve the scientific understanding of dissolved copper within the Basin. This increased knowledge helps to refine the Program and the management approaches to best address the largest copper sources. Two key efforts were completed during 2016.

### ***Special Studies***

- ***Conceptual Model Study***

In 2015, the District initiated a modeling study to evaluate the potential changes in water quality (i.e., reduction in dissolved copper levels) that could be expected as higher leach rate paints are phased out or reformulated. This study was finalized in March 2016 and presented in last year's Progress Report. The modeling indicated that moving toward the DPR's low leach paints would result in lower concentrations of dissolved copper in the water column. However, it also validated DPR's finding that transitioning to the low leach paints would not completely reduce copper to the TMDL compliance levels. In addition, the Conceptual Model Study identified a need to better understand the copper concentrations throughout the basin's water column.

- ***Enhanced Water Quality Study***

Based upon the recommendations from the Conceptual Model Study and input from stakeholders including the District's Environmental Advisory Committee, the District conducted a comprehensive assessment of copper concentrations throughout the water column. This special study involved the collection of surface, mid-level, and deep water samples at the six TMDL stations and 12 additional sites throughout the basin. The results of this study showed that exceedances of the dissolved copper objectives were present throughout the water column, whether within marinas or in open water areas (Attachment B). The results are in general agreement with the findings of the 2016 TMDL monitoring.

### ***Alternative Copper Mitigation Technologies and the Blue Economy Incubator***

In 2015 District staff began exploring alternative technologies and mitigation concepts to remediate copper in the water, capture loads from hull cleaning, and use natural ecosystem enhancements (i.e. bioremediation) to reduce copper. In April 2016, a request for proposals (RFP) was issued for innovative hull-cleaning and remediation technology businesses to work with the District.

Concurrently, the District established a Blue Economy incubator and strategic investment fund to assist in the creation, development and scaling of new business ventures on San Diego Bay, focusing on aquaculture and blue technology. At the November 8, 2016, Board meeting, staff presented a strategy to advance blue technology opportunities by building synergy with the copper reduction program and focusing on emerging solutions for copper reduction in San Diego Bay. Once the incubator was in place, the copper research efforts were incorporated into the newly developed Blue Economy incubator program. The incubator provides a more effective longer term mechanism to identifying regulatory-driven research and demonstration projects.

Under the Blue Economy program, successful proposals are being initiated as pilot projects to evaluate, and potentially to lead to, subsequent installation of the demonstrated technology; this has significant value to the Copper Reduction Program. Two copper-related Blue Economy

business proposals were received in 2016 and moved forward for consideration under the District's Blue Economy incubator competitive review process. It should be noted that these Blue Economy items also are being brought to the Board for consideration as Agenda Item 2017-0172.

### ***Culvert Feasibility Assessment***

The District continues to evaluate the feasibility of increasing the water flow within SIYB, as this should decrease the residence time of water in SIYB and may help to further enhance water quality when paired with other management strategies. Previous hydrodynamic modeling of a connecting culvert between SIYB and America's Cup Harbor suggested a potential 17% to 21% reduction in copper concentrations in SIYB.

During this reporting period, an engineering feasibility analysis of the culvert concept was completed. This effort evaluated various culvert configurations along with the landside and waterside design needs for SIYB and the surrounding area. The study concluded that a culvert design could be constructed and provided further recommendation for the next planning phases and additional feasibility analysis. Staff is continuing efforts to evaluate the environmental impacts of such a project along with the potential costs and possible impacts to tenant leaseholds for various design scenarios.

### ***Regulatory Progress at the State Level***

Part of the Program's strategic approach has been to encourage statewide resolution to reduce copper paint impacts. As a result of the District-sponsored AB425 legislation passed in 2013, DPR has been working to formally establish the leach rates set forth from AB425.

A milestone was achieved in November 2016 when DPR published for public review, a draft rule for copper antifouling paint leach rates (DPR Rule) (Attachment C). The DPR Rule sets forth a maximum allowable copper leach rate of  $\leq 9.5 \mu\text{g}/\text{cm}^2/\text{day}$  for copper antifouling paint products registered in California for use on recreational vessels. In addition, the DPR Rule proposes to cancel the registration for all products exceeding the leach rate. The DPR Rule is proposed to become effective July 1, 2018. District staff provided comments to DPR in support of the proposed rule. (Attachment D)

If this rule goes into effect as proposed, all DPR-registered products available for recreational vessels would need to conform to the  $9.5 \mu\text{g}/\text{cm}^2/\text{day}$  leach rate after July 1, 2018. This would apply to all recreational vessels in the SIYB and San Diego Bay. Based upon the current vessel paint statistics from the 2016 reporting period, an initial assessment (presented in the Progress Report) estimates that the implementation of the DPR Rule could result in a 61% load reduction from the baseline, a reduction of approximately 20% from the current conditions. This reduction could be largely achieved within three years based upon the average life cycle of copper antifouling paints.

## **■ SIYB Water Quality**

The basin-wide levels of dissolved copper (and toxicity) in surface waters have remained relatively constant (not increasing or decreasing) over the past three monitoring cycles and the Enhanced Water Quality Study found basin-wide concentrations similar to the findings of the TMDL. The 2016 monitoring results even show the average dissolved copper level in the basin's surface waters to be

7.1 microgram(s) per liter ( $\mu\text{g/L}$ ). This was approximately 14 percent lower than the baseline average (8.3  $\mu\text{g/L}$ ). The result is also similar to the basin-wide average observed in 2015 (6.9  $\mu\text{g/L}$ ) and 2014 (7.0  $\mu\text{g/L}$ ). Five of the six SIYB sampling stations exceed the California Toxics Rule (CTR) criterion continuous concentrations (CCC) water quality objective of 3.1  $\mu\text{g/L}$  while four of the six stations exceed the CTR acute criterion maximum concentration (CMC) of 4.8  $\mu\text{g/L}$ .

The 2016 monitoring program also found one station (SIYB-1, the station farthest inside the basin) to have statistically significant effects on developing mussel larvae. However, no toxicity was observed in the fish larvae survival tests.

### ■ SIYB Vessel tracking

The annual copper load reduction is determined by monitoring the conversions of SIYB vessels from copper antifouling paint to non-copper, DPR Category I (lower leach paints), or low-copper (i.e., less than 40 percent copper) products, and aged copper paints. Vessel tracking indicates that there has been an estimated reduction of 41.6 percent (approximately 873 kg/yr) in annual copper loading to SIYB from vessels when compared with the SIYB TMDL-assumed baseline loading of 2,100 kg/yr.

These results indicate that the second interim target, a 40 percent load reduction, was achieved during 2015, and was repeated in 2016. As such, the program, with continued implementation, appears on track to maintain this load reduction through the 2017 target year.

### NEXT STEPS

The Progress Report suggests that copper reduction efforts are having a positive impact on decreasing the copper loads. The pending adoption of the DPR Rule is likely to lower the copper loads into SIYB and other marina basins in the Bay after July 1, 2018. As such, it will be critical to monitor and understand how the load reductions and water quality change as a result of this statewide mandate.

The final five-year compliance phase of the TDML begins in 2018. During this period, the Regional Board may identify enforcement measures or requirements for the District or Shelter Island leaseholders if continued progress is not occurring. Consistent with the Program's adaptive approach, staff will be evaluating the changes to copper loading and water quality once the DPR Rule is in effect. Staff will also be analyzing the continued progress on the Blue Economy Incubator projects and the culvert feasibility. Additional reductions in copper loading may be necessary. However until the aforementioned efforts are further underway, the cumulative benefit of their implementation cannot be fully analyzed.

Staff will be presenting to the Board an overview of some initiatives and potential policy concepts that may be considered in the final TMDL compliance phase. Some options for consideration include adjustments to the District's current in-water hull cleaning regulations; formalizing requirements to track copper paint usage; and exploration of using copper paint credits to limit paint use in impaired waters.

Monitoring the effectiveness of DPR's required lower leach rate paints in reducing copper loading from 2018 to 2021 will guide the direction and need for such future policy items. Over the next year, staff will continue to further explore the options, their costs, and potential impacts to stakeholders and to identify implementation triggers to determine when and how each could be phased in. Working

with the Regional Board and stakeholders will be an important part of developing these initiatives.

### **General Counsel's Comments:**

The General Counsel's office reviewed and approved this agenda as to form and legality.

### **Environmental Review:**

This presentation to the Board does not constitute an "approval" or a "project" under the definitions set forth in California Environmental Quality Act (CEQA) Guidelines Sections 15352 and 15378 because no direct or indirect changes to the physical environment would occur, including without limitation, physical changes within the District's jurisdiction. CEQA requires that the District adequately assess the environmental impacts of its projects. This presentation to staff will not bind the District to a definite course of action prior to CEQA review. Full CEQA analysis will be completed prior to the approval of any projects that may be contemplated as part of copper load reduction efforts. Moreover, the Board/District in its sole and absolute discretion, reserves its discretion to adopt any and all feasible mitigation measures, alternatives to the project, including a no project alternative, a statement of overriding consideration, if applicable, as well as approve or disapprove the project and any necessary permits or entitlements. Based on the totality of the circumstances and the entire record, the Board's direction does not commit the District to a definite course of action prior to CEQA review being conducted. No further action under CEQA is required at this time.

In addition, this presentation allows for the District to fulfil its obligations under the Port Act and/or other laws. The Port Act was enacted by the California Legislature and is consistent with the Public Trust Doctrine. Consequently, this presentation is consistent with the Public Trust Doctrine.

Finally, this presentation to the Board does not allow for "development," as defined in Section 30106 of the California Coastal Act, or "new development," pursuant to Section 1.a. of the District's Coastal Development Permit (CDP) Regulations because it will not result in, without limitation, a physical change, change in use or increase the intensity of uses. Therefore, issuance of a CDP or exclusion is not required. However, the District's projects require processing under the District's CDP Regulations. The Board will consider approval of future development projects formulated as a result of copper load reduction efforts after the appropriate documentation under District's CDP Regulations has been completed and authorized by the Board, if necessary. The Board's direction in no way limits the exercise of the District's discretion under the District's CDP Regulations.

### **Equal Opportunity Program:**

Not applicable.

**PREPARED BY:**

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Principal  
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Attachment(s):

- Attachment A: Executive Summary of the 2016 Shelter Island Yacht Basin Dissolved Copper Total Maximum Daily Load Monitoring and Progress Report
- Attachment B: 2016 SIYB Enhanced Water Quality Study - Map of Sampling Sites and Testing Results
- Attachment C: Department of Pesticide Regulation Initial Statement of Reasons: Title 3 California Code of Regulations (CCR) section 6190 *Rule 16-005*
- Attachment D: January 31, 2017, District Comment Letter Supporting DPR Rule

<sup>1</sup>-SIYB TMDL Technical Report, 2005

[http://www.waterboards.ca.gov/sandiego/water\\_issues/programs/watershed/docs/swu/shelter\\_island/techrpt020905.pdf](http://www.waterboards.ca.gov/sandiego/water_issues/programs/watershed/docs/swu/shelter_island/techrpt020905.pdf)

<sup>2</sup>-Assembly Bill 425 (Atkins). [http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201320140AB425](http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB425)