



San Diego Unified Port District

3165 Pacific Hwy.
San Diego, CA 92101

File #:2016-0219

DATE: May 10, 2016

SUBJECT:

PRESENTATION ON THE REGIONAL HARBOR MONITORING PROGRAM AND THE ASSESSMENT OF THE QUALITY OF WATER, SEDIMENT, AND BIOLOGY OF SAN DIEGO BAY

EXECUTIVE SUMMARY:

In 2003, the San Diego Regional Water Quality Control Board (SDRWQCB), under §13225 of the California Water Code, requested that the District, Cities of San Diego and Oceanside (Cities), and the County of Orange (County) coordinate and develop a Regional Harbor Monitoring Program (RHMP) to assess conditions and trends in the quality of water, sediments, and aquatic life in San Diego Bay, Mission Bay, Oceanside Harbor, and Dana Point Harbor. The District, Cities, and County developed a monitoring approach whereby ambient monitoring occurs in the harbors every five years. Following the first core monitoring effort in 2008, the RHMP agencies conducted the second regional monitoring effort in 2013.

The results of the 2013 RHMP were summarized in a final report and submitted to the SDRWQCB in February 2016. Most of the sampling results indicate sediment and water quality conditions that are supportive of healthy biological resources. Areas of the harbors most closely associated with anthropogenic influences (for example, marinas and industrial/port water-side areas) tended to have higher chemical concentrations and certain exceedances of chemical thresholds in surface waters and sediments. When compared to the program's thresholds established to evaluate trends, the 2013 RHMP indicates continuing improvement from historical conditions. These results will help evaluate the District's programs aimed at reducing pollution in the Bay. In addition, during 2016-2017 the data will be used by the SDRWQCB as part of their comprehensive assessment of San Diego Bay.

RECOMMENDATION:

Receive a presentation from staff regarding the results of the Regional Harbor Monitoring Program and the assessment of the quality of water, sediment, and biology of San Diego 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.

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COMPASS STRATEGIC GOALS:

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

- A Port with a healthy and sustainable bay and its environment.
- A Port with a comprehensive vision for Port land and water uses integrated to regional plans.
- A Port that is a safe place to visit, work and play.

DISCUSSION:

Background

In 2003, the San Diego Regional Water Quality Control Board (SDRWQCB), under §13225 of the California Water Code, requested that the District, Cities of San Diego and Oceanside (Cities), and the County of Orange (County) coordinate and develop a Regional Harbor Monitoring Program (RHMP). (Attachment A) The RHMP is a comprehensive effort to determine ambient conditions and trends in the quality of water, sediments, and aquatic life in San Diego Bay, Mission Bay, Oceanside Harbor, and Dana Point Harbor. Following receipt of the SDRWQCB's §13225 request, the District, Cities, and County began the development of the RHMP framework. A technical report outlining the monitoring objectives, approach, and sample design was completed and submitted to the SDRWQCB in February 2004.

The RHMP consists of a core monitoring effort that is incorporated into a larger Southern California Bight Regional Monitoring Program (Bight Program) that is conducted every five years. Consistent with the Bight Program, the harbors were classified into five strata according to function, surrounding land uses, and environmental factors. The strata can be compared based on the results of monitoring to better understand the spatial distribution of pollutants. The five strata include:

- **Marinas:** Areas in close proximity to permanent docks for recreational or commercial (i.e.: fishing or excursion) vessels.
- **Industrial/Port:** Areas surrounded and influenced by heavy industrial or maritime port activities. This stratum is only located in San Diego Bay.
- **Freshwater Influence:** Areas located at the mouth of major streams or major storm drain outfalls (greater than 50 inches in diameter) which may be influenced by the input of fresh water or storm water runoff.
- **Shallow:** Areas less than 12 feet in depth not otherwise categorized above.
- **Deep:** Areas greater than 12 feet in depth not otherwise categorized above.

San Diego Bay contains all five of these strata.

The sampling design consists of a question-driven approach where a predetermined number of sampling stations are allocated and randomly placed within each stratum across the harbors to address the program's core questions. Constituents sampled in the program include general chemistry, metals, microbiology, pesticides, and organics. In addition, the benthic community and demersal fish populations are assessed to measure biologic health. Utilizing historical data from

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previous monitoring programs, thresholds were developed for a set of primary and secondary constituents that could be used to compare trends over time.

RHMP 2005 Pilot Program and 2008-2013 Core Monitoring Effort

To effectively implement the RHMP, the District, Cities, and County entered into their first Memorandum of Understanding (MOU) in July of 2005 and a second in July 2008. The MOU outlined the responsibilities of all parties and provided a mechanism to share the costs between the parties. The District was identified as the lead agency with responsibilities to act as a liaison with the RWQCB; administer the program budget; and oversee the consultant contract. According to the cost share formula, the District's share of costs was approximately 56 percent of the total cost because the District represents the largest harbor area. Roughly 44 percent of costs were designated to be reimbursed annually to the District from the Cities and County. Pursuant to the MOU, the Cities and County were also required to provide the District with a five percent fee based on annual total costs of the consultant contract to account for administrative responsibilities, coordination efforts, and management of the consultant agreement.

A pilot program took place in 2005 to determine the level of sampling effort to assess trends and refine the design as needed. Following the pilot, the RHMP conducted its first core monitoring effort in July 2008 in coordination with the Bight Program. Seventy-five sampling locations were randomly placed among the four harbors and 18 fish trawling stations were assigned to evaluate the condition of demersal fish and invertebrate communities. Results of the 2008 monitoring effort indicated that the majority of the areas within the harbors had sediment and water quality conditions supportive of biological resources and human uses.

Between 2008 and 2013, the RHMP expended over \$1,379,000. The Cities and County reimbursed the District over \$650,000, which included a five percent administrative fee.

RHMP 2013-2018

The District, Cities, and County entered into a new MOU for the five-year period from July 1, 2013 to June 30, 2018 to continue the RHMP's trend assessments (Attachment B). The MOU remained consistent with previous versions; however, a budget of \$1,525,000 was established for the five-year period. Since the 2013 MOU, the RHMP has expended \$1,274,245. The Cities and County have reimbursed the District approximately \$560,000. The District has also received administrative fees of approximately \$63,712.

The 2013 core monitoring effort followed the same question-driven monitoring approach, with 75 sampling stations randomly allocated among the four harbors; 15 stations were assigned to each stratum. During 2013, four stations were located in Dana Point Harbor; three were located in Oceanside Harbor, nine in Mission Bay, and 59 in San Diego Bay. Sampling occurred in the four harbors during August and September of 2013.

The results of monitoring were summarized in a final report and submitted to the RWQCB in February of 2016. (Attachment C) The results are discussed in relation to the three core monitoring questions:

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What are the contributions and spatial distributions of inputs of pollutants?

Fifty-two analytes were evaluated in the water column and compared to regulatory water quality objectives. The only constituents in the water column which demonstrated exceedances were total and dissolved copper. These exceedances occurred primarily in the marina stratum of San Diego Bay and the other harbors.

Sediment chemistry indicators were compared to two common thresholds used in sediment analysis¹. The greatest number of exceedances observed in the sediment samples occurred primarily in marina and industrial/port strata and to a lesser extent in the freshwater-influenced stratum. Constituents exceeding the sediment thresholds in San Diego Bay and in other harbors included metals, arsenic, chromium, copper, lead, mercury, nickel, and zinc; organics, PAHs and PCBs; and pesticides, chlordane and DDTs.

Do the waters and sediments in the harbors sustain healthy biota?

The RHMP utilized state standards known as Sediment Quality Objectives (SQOs)² to evaluate the biological community conditions and the potential for chemical effects to impact benthic organisms. The SQOs consist of three lines of evidence including sediment chemistry, sediment toxicity, and the condition of the benthic community. Combined, the three lines of evidence provide an integrated ranking (ranging from “unimpacted” to “clearly impacted”) to determine the potential impacts of sediment quality.

Data indicated that the benthic infauna at a majority of stations occurred in most areas at an abundance and diversity indicative of healthy communities. Overall, 72 percent of stations were classified as “unimpacted” or “likely unimpacted” based on the SQO analysis. Additionally, 100-percent of the stations throughout all harbors were considered non-toxic or having low toxicity. A total of 60-percent of stations had benthic infaunal communities consistent with reference or low disturbance conditions.

The evaluation of the demersal fish and invertebrate community also revealed healthy individuals, with a diversity and abundance of species that were consistent with those of prior regional monitoring assessments. Of note, the proportion of top predators caught during fish trawls represented 30-percent in Oceanside Harbor, 40 percent in both Mission Bay and San Diego Bay, and 70 percent in Dana Point Harbor of all individuals caught. Various studies indicate that presences of top predators are an important indicator of ecological health.

What are the long-term trends in water and sediment quality?

In order to evaluate trends over time, the RHMP established thresholds for a suite of primary and secondary indicators. Of the 22 indicators assessed for trends, the results of 16 indicators showed improvement during 2013. The remaining six indicators did not indicate a trend. There was no sign of degradation from historical conditions.

Comparing the results of sampling conducted during 2013 to the previous 2008 sampling, the harbors appear to have reached a steady state with some improvements. The percentage of stations with integrated SQO scores considered to be “unimpacted” and having a “low impact” increased from

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64 percent to 72 percent between 2008 and 2013. In addition, stations indicating nontoxic or low toxicity conditions improved from 92 percent during 2008 to 100 percent in 2013.

Conclusion

The District currently has a number of programs directed at improving the quality of water and sediment in San Diego Bay. Under the Municipal Storm Water Permit, Order No. R9-2013-0001³, staff members regularly inspect District and tenant operations for compliance with required best management practices to reduce pollutants from entering the storm drain network and the Bay. A Total Maximum Daily Load (TMDL) for dissolved copper exists in the Shelter Island Yacht Basin and requires a reduction of dissolved copper in the water column. In addition, a variety of sediment remediation efforts have taken place to cap or dredge Bay sediments impacted by historical contamination. Through habitat restoration efforts such as at the Chula Vista Wildlife Reserve and the salt ponds in the south Bay, the District is actively engaged in improving the biological resources in the Bay. Lastly, the SDRWQCB intends to utilize the 2013 RHMP results to conduct a comprehensive assessment of the ecological health of San Diego Bay.

The results of the 2013 RHMP demonstrate that most of the areas sampled within San Diego Bay and the other harbors have sediment and water quality conditions that are supportive of healthy biological resources. Management efforts such as those described above should continue to improve the health of the bay, while ongoing implementation of the RHMP's long-term monitoring will enable the District to track trends over time.

General Counsel's Comments:

The General Counsel's office reviewed this agenda sheet as presented to it and approved it 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 the Regional Harbor Monitoring Program. 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 administrate its obligations under the Port Act and/or other laws. The Port Act was enacted by the California Legislature and is consistent with the

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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 the Regional Harbor Monitoring Program 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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Attachment(s):

Attachment A:	California Water Code §13225 Letter from the San Diego Regional Water Quality Control Board
Attachment B:	Memorandum of Understanding Regarding the Regional Harbor Monitoring Program 2013-2018
Attachment C:	Executive Summary of the Regional Harbor Monitoring Program 2013 Final Report

¹Common thresholds for sediment analysis include effects concentrations where toxic impacts to biota in the sediment may be observed or predicted due to chemical concentration. Effects range low (ER-L) is a measurement where effects are rarely observed or predicted due to chemical concentrations. Effects range median (ER-M) is a measurement where effects are frequently or always observed or predicted among species of biota.

²California State Water Resources Control Board. Sediment Quality Objectives.
<http://www.waterboards.ca.gov/water_issues/programs/bptcp/sediment.shtml>

³San Diego Regional Water Quality Control Board. Order R9-2013-0001 San Diego Regional Municipal Separate Storm Sewer System Permit. http://www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/index.shtml