

**PORT OF LOS ANGELES AND PORT OF LONG BEACH
WATER RESOURCES ACTION PLAN (WRAP)**

**2010 AMERICAN ASSOCIATION OF PORT AUTHORITIES
AWARDS COMPETITION
Comprehensive Environmental Management**



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Introduction

The Water Resources Action Plan (WRAP) is a comprehensive effort by the Port of Los Angeles (POLA) and Port of Long Beach (POLB) to target water and sediment pollution in San Pedro Bay. Adopted in 2009, the plan defines specific objectives, strategies, and schedules to reduce contaminants that remain in sediments from prior port uses and that flow into the harbor from port land and upstream urban sources outside of the harbor districts. The WRAP is a pioneering water quality initiative by both ports that uses a high-level, cooperative approach and inventive strategies to bring about cleaner water and sediment harbor-wide. The WRAP was developed with the participation and cooperation of the United States Environmental Protection Agency (EPA) and the Los Angeles Regional Water Quality Control Board (LARWQCB), as well as input from a stakeholder advisory group.

Goals and Objectives

The WRAP is designed to identify the ways in which the ports can exceed the existing water and sediment quality standards in anticipation of more stringent regulatory requirements in the future.

The WRAP has two major goals:

(1) To support the attainment of full beneficial uses of harbor waters and sediments by addressing the impacts of past, present, and future port operations; and

(2) To prevent port operations from degrading existing water and sediment quality

To that end, the WRAP identifies specific control measures for the four main sources of contamination: landside discharges, on-water discharges, sediments, and watershed discharges.

The WRAP control measures do not set numerical goals for pollution reduction; instead, the WRAP establishes the framework and mechanisms by which the ports will achieve the future targets set by the LARWQCB and the EPA.

Discussion

A. Background

The ports are the two busiest seaports in the United States and combined are the fifth busiest in the world, handling 40 percent of all waterborne containerized U.S. trade, worth more than \$300 billion per year. Economic forecasts suggest that the demand for container movement will more than double by the year 2020. Increased trade brings more ships and greater terminal use, which in turn, put more strain on natural resources, including water and sediment.

Water and sediment quality in San Pedro Bay has improved greatly over the last 40 years through increased monitoring, more aggressive regulation by state and federal agencies, better pollution source control, and dredging that has removed accumulated contaminants in harbor sediment. Today, the Los Angeles/Long Beach Harbor's dissolved oxygen concentrations – an indicator of good water quality – approach those of the nearby ocean. With the exception of copper, concentrations of dissolved metals do not exceed any regulatory criteria. Recent studies have found no instances of toxicity from harbor waters.

But challenges remain, particularly for sediment quality, which varies greatly across the harbor. The ports have identified several sediment “hotspots” with contamination levels above regulatory standards. Much of the sediment pollution in the harbors is “legacy contamination” left over from past port activities and watershed runoff. The ports sit at the mouth of two major rivers: the

Dominguez Channel and Los Angeles River. During the rainy season, the rivers bring pollution from upstream sources into the harbor, exacerbating sediment contamination.

Both ports have adopted overarching environmental policies committing them to initiate programs and take actions to improve water quality in the harbor. POLB operates under the Green Port Policy, a framework for environmentally friendly port operations with six basic program elements, including water quality and soil/sediment quality. POLA has an Environmental Management Policy to provide an introspective organized approach to environmental management and to incorporate environmental considerations into day-to-day operations. Both policies call for specific objectives, targets, and best management practices for natural resources, including water and sediment.

Guided by these policies and environmental regulations, the ports separately have developed and initiated programs to improve water and sediment quality. But these individual efforts can only do so much. Because water pollution knows no jurisdictional boundaries, the ports needed to collaborate on a large-scale, harbor-wide strategy to improve water and sediment quality. The recognition of this need led to the WRAP's development.

B. Objectives and Methodology

The WRAP aims to identify remaining water and sediment quality challenges and to develop strategies to exceed current regulatory requirements. The WRAP targets pollutants from four major sources:

- Landuse discharges: contaminants that enter the water from terminals; industrial facilities; roads and rail lines; and recreational facilities, including pollution from maintenance activities, cargo-handling areas, and construction sites

- On-water discharges: contaminants from ships, including fuel spills and discharges from kitchens, sinks, showers, and leaching of metals from ship hulls
- Sediments: contaminated sediments which serve as a repository for and potential source of water pollution
- Watershed discharges: stormwater and wastewater originating outside the harbors brought into the harbor through rivers and stormdrains

For each of these source categories, the WRAP identifies control measures to minimize pollution and a timeline for implementing each measure. Examples include:

- Enhance housekeeping Best Management Practices (BMPs) in maintenance, cargo-handling and repair facilities
- Expand street sweeping and litter reduction programs, including a new anti-litter campaign
- Develop a guidance manual for ships on allowable and prohibited discharges
- Develop a sediment management plan
- Participate in local and regional efforts to reduce upstream pollution

In all, there are 14 control measures with associated descriptions and schedules for each. By targeting the source categories rather than specific pollutants, the WRAP programs can address multiple pollutants simultaneously within a single strategy.

C. Award Criteria

1. Benefits to Environmental Quality

The WRAP comprehensively documents existing conditions in the harbor and systematically identifies potential sources of pollutants. Four general categories of pollutant sources (land, water, sediment, and watershed) were then addressed by creating a total of 14 control measures that target the most likely activities under the ports' control and influence that have the potential to pollute harbor waters. Many of these measures describe efforts already underway and include any necessary enhancements; several other measures commit the ports to develop and implement new strategies. Once fully implemented, the WRAP control measures will reduce pollutant loadings from historically contaminated sediments, tenant facility operations, vacant port properties, port-controlled parking lots and roads, vessel discharges, and wharf pilings and cathodic protection systems. All of these measures are designed to improve water and sediment quality with the goal of supporting the attainment of full beneficial uses of harbor waters and sediments by addressing the impacts of past, present and future port operations, and preventing port operations from degrading existing water and sediment quality.

2. Level of Independent Involvement and Effort

The WRAP is a forward-thinking effort by both ports to improve the San Pedro Bay water and sediment quality in advance of new regulatory requirements. This proactive approach enables the ports to get a head start on complying with anticipated stricter standards and lays the groundwork for a successful water improvement strategy. The WRAP was developed from start to finish by the ports themselves with cooperation and advice from the EPA and LARWCQB. In addition, the ports established a Plan Advisory Committee (PAC) including the public, environmental groups, the

U.S. Army Corps of Engineers, and the Los Angeles County Department of Public Works. The PAC met monthly to provide feedback on the WRAP's development.

3. Creativity of the Solution

In sharing a common harbor, the ports face similar water quality challenges, because pollution in one jurisdiction impacts neighboring areas. The ports, however, also have many unique water and sediment issues. POLA, for example, maintains a recreational marina and public beach, while POLB does not. Each port also grapples with its particular contaminant hotspots such as POLA's Fish Harbor, a result of cannery wastes; and POLB's West Basin, a result of 50 years of U.S. Navy activities. In addition, the ports had different strategies with regard to existing programs. POLB, for instance, has long had a port-wide stormwater management program, while POLA's stormwater management activities have been conducted through a municipal permit issued to the County/City of Los Angeles. Thus, any comprehensive plan needed to address harbor-wide water pollution in a consistent, effective way while giving each port the flexibility to target its unique issues.

The WRAP achieves this balance by providing a common framework that each port can tailor to its own situation. The plan identifies overarching strategies, and sets a timeline by which these strategies should be in place. Yet it leaves the implementation details to each port to avoid a potentially ineffective "one-size-fits-all" approach. Although the WRAP holds each port accountable to the larger goals of improving San Pedro Bay water and sediment quality, it provides enough flexibility for each port to accomplish these goals in distinct but cohesive ways. This creative approach ensures the WRAP's success as a meaningful pollution control plan.

4. Project Results

Development of the WRAP was a collaborative effort among the ports, their respective cities, and numerous stakeholders. The resulting plan garnered praise and support from regulatory agencies and community members. The Harbor Commissions of each port unanimously approved the WRAP in a rare joint meeting in August of 2009, and the EPA and LARWQCB endorsed the final plan.

Board approval and the guidance, structure, and schedules in the WRAP have already led to significant progress in meeting implementation goals of the control measures. Significant progress has been made on all 14 control measures, including:

- Vessel Discharge Guidance Manual: This document lists the most common discharges and maintenance activities that occur within the ports and states whether each discharge is allowed or prohibited. The document, which can be used by vessel operators, harbor patrol, and port employees, includes a quick reference table as well as details for each discharge and maintenance activity. The document includes applicable federal, state, and local regulations pertaining to each discharge as well as the required and recommended best management practices for allowable discharges and maintenance activities. The ports plan to distribute the manual in spring 2010.
- Sediment Management Plans: The ports are currently developing comprehensive sediment management plans for the sustainable management of both contaminated and non-contaminated sediments. The plans will establish each port's policy for removal, disposal, and management of sediments including legacy contaminant hot spots. These plans will be completed in 2010.
- Identification and deployment of housekeeping BMPs: The ports have identified ways to eliminate potential stormwater pollution sources through new housekeeping procedures and material storage solutions. These procedures include correcting hazardous materials

management, zero-discharge pavement cleaning, and regular facility sweeping. In addition, new structural innovations – such as catch basin filters and diversion systems – have been installed in numerous locations throughout the port complex to treat stormwater or otherwise prevent pollutants from entering the harbor.

- Design Guidance Manuals: The ports are actively developing design guidance manuals that govern how port facilities of the future will be built in order to ensure maximum water quality protection. These manuals will be completed in 2010.

5. Cost-Effectiveness

The WRAP framework provides an overall structure for efficiently managing many different existing and proposed port programs. The plan recognizes opportunities to expand and reorganize existing programs in order to make them more efficient and to identify new cost-effective solutions.

The implementation process begins with assessment and moves to straightforward lower cost solutions (such as housekeeping best practices) before recommending higher cost solutions like berms, treatment facilities, and stormwater infrastructure. The higher cost solutions are recommended only when further review has indicated more additional work should be done, attempting to keep expenses down while enhancing effectiveness. Furthermore, many of the control measures call for tenant and public education, creating guidance manuals, and adopting new best practices, which require few costs beyond staff time.

In addition, the WRAP's coordinated approach minimizes regulatory compliance costs for the shipping industry. Rather than taking a piecemeal approach to pollution management, the WRAP helps to identify the most cost-effective strategies, which can then be implemented across the San

Pedro Bay. This holistic approach is expected to curtail expenses while increasing the effectiveness of pollution management programs.

6. Transferability to the Port Industry

The ports developed the WRAP to reinforce and enhance their existing water and sediment quality programs and to develop new initiatives to further reduce pollution. Any AAPA member seaport can develop a comprehensive water resources plan similar to the WRAP. Since the plan aims to exceed regulatory requirements, modified versions of the programs and policies can be implemented based on a particular port's needs and budget capacity. The essence of the WRAP – to take a comprehensive, coordinated approach to water and sediment quality – can be replicated by any seaport.

Conclusion

The WRAP is a pioneering water quality initiative by the ports of Los Angeles and Long Beach that uses a high-level, cooperative approach and inventive strategies to bring about cleaner water harbor-wide. The plan was developed proactively to reduce water and sediment pollution in San Pedro Bay, using the most innovative, cost-effective, and efficient strategies possible. The WRAP is expected to have a significant positive benefit on San Pedro Bay water and sediment quality, and because it is highly flexible and adaptable, the WRAP serves as a model for comprehensive environmental management for ports across the country.