

EXECUTIVE SUMMARY

Introduction

The Port of Los Angeles and the Port of Long Beach (Ports) have as their goals for the Water Resources Action Plan (WRAP) 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. The Ports, their cities, the US Environmental Protection Agency (EPA), and the Los Angeles Regional Water Quality Control Board (LA-RWQCB) have cooperated in the preparation of this WRAP for the harbors of San Pedro Bay.

The WRAP has two main driving forces: 1) the Ports' need to achieve their broad mission to protect and improve water and sediment quality, and 2) the imminent promulgation by the LA-RWQCB and the EPA of Total Maximum Daily Loads (TMDLs) for harbor waters, and the associated Clean Water Act (CWA) permits. The WRAP's purpose is to put in place the programs and mechanisms for the Ports to achieve the goals and targets that will be established in the relevant TMDLs and to comply with the Industrial Activities, Construction Activities, and Municipal Separate Storm Sewer System (MS4) permits issued to the Ports and their respective cities and tenants. Throughout the process of implementing the WRAP the Ports will be guided by the basic principle of promoting science-based studies and methods in the integration of regulatory requirements with water and sediment management programs.

Both Ports have formally adopted environmental policies (Port of Los Angeles' [POLA] Environmental Management Policy and Port of Long Beach's [POLB] Green Port Policy) committing them to implement programs and take actions that will protect and improve the quality of the harbor environment with respect to water resources. Both policies include provisions aimed at protecting and improving water and sediment quality, and the WRAP is a direct outcome of those policies.

Water Quality and Sediment Background

A number of pathways that carry pollutants into and out of the harbor complex directly affect water and sediment quality in the Ports. The major pathways are:

- **Landside Runoff:** Stormwater, dry-weather flows, and groundwater inputs into harbor waters from port lands and adjacent non-port lands;

- Aerial Deposition: Debris and fine particulates moved by wind from sources both inside and outside of the Ports;
- Direct Discharge: Vessel discharges of various types, hull leaching, jettisoning of debris into harbor waters, leaching from pilings and derelict vessels, and sediment resuspension from vessel activities and natural processes;
- Regional Influences: River, stream, and storm drain inputs from outside the Ports, as well as ocean water moving in and out of the Ports.

Each of these pathways presents unique challenges for managing water and sediment resources, particularly in view of the complex regulatory and jurisdictional issues in the harbor area. In preparing the WRAP, the Ports have taken into account the pollutant pathways, historical pollution, stakeholders efforts to date, and current water quality and sediment conditions.

Geographic Scope of the WRAP: The WRAP addresses water and sediment quality within the boundaries of the harbor districts. That boundary is appropriate because recent modeling has shown that, with the exception of the portion of the Long Beach Harbor District east of Pier H, the waters of the harbors are largely separate, hydrodynamically, from the rest of San Pedro Bay; harbor waters and port activities appear to have very little influence on other portions of San Pedro Bay. The exception to this geographic scope is that the Ports, as owners of land outside their harbor districts, recognize their obligation to ensure that activities on those properties comply with relevant stormwater permits.

Regulations and Total Maximum Daily Loads: Water-related activities in the harbor complex are controlled by a complex network of local, state, federal, and international laws and regulations. The principal laws governing water and sediment quality in Southern California are the federal CWA and the corresponding California law, the Porter-Cologne Water Quality Act. These two laws establish policies, programs, and standards for the protection and improvement of water and sediment quality. In particular, Section 303(d) of the CWA directs regulatory agencies to develop a list of water bodies that are impaired as a result of pollutants in water and sediments, and then develop TMDLs. The Los Angeles/Long Beach Harbor is included on the State of California's 303(d) list for a number of pollutants, requiring that TMDLs be developed by the LA-RWQCB and EPA.

The WRAP has been developed with the recognition that the goal of TMDLs and related permits will be to attain the water quality standards (there are no adopted sediment quality standards) promulgated by the state and local water quality agencies. The

TMDLs will be focused on addressing the existing water quality impairments set forth in the 303(d) listings of various areas of the harbors.

Current Water Quality Conditions: Today, dissolved oxygen concentrations in most of Los Angeles/Long Beach Harbor approach those of the nearby ocean; with the exception of copper, concentrations of dissolved metals do not exceed any regulatory criteria (copper concentrations above the California Toxic Rule [CTR] criteria were detected in samples from two locations); dissolved organics such as pesticides and polychlorinated biphenyls (PCB) are rarely detected and, with the exception of tributyltin (TBT), do not exceed regulatory criteria; and a 2002-2003 LA-RWQCB study found no instances of toxicity from harbor waters. Exceedances of the bacteria criteria occur in one area of the harbor complex (Cabrillo Beach). The listings under Section 303(d) of the CWA for the harbors are not based on concentrations of dissolved pollutants, but rather on localized areas of sediment contamination and on the presence of sediment toxicity, benthic community effects, and elevated concentrations of pollutants in fish tissue.

Current Sediment Conditions: The overall quality of sediments within the Outer Los Angeles/Long Beach Harbor varies widely. Sediment data for the two Ports clearly identifies localized areas of sediment contamination “hotspots,” which appear to be driving the 303d listings and creation of TMDLs for the Harbor. Sediments with contaminant concentrations above relevant TMDL listing criteria are often localized in back channels, along wharf faces, and near storm water outfalls. Much of the sediment pollution in the harbors is so-called “legacy contamination” left over from past port activities and watershed inputs.

A comprehensive review of all sediment data for the harbors indicates that in most areas of the harbors contaminant concentrations are below regulatory limits. While copper, lead, zinc, mercury, silver, and various organics occur at elevated concentrations in localized hotspots within Los Angeles/Long Beach Harbor, they are otherwise not present in combinations of concentrations and number of samples that would indicate a harbor-wide concern. Of the organic compounds on the 303(d) list, only chlordane, di-chloro-diphenyl-trichloroethane (DDT), and PCBs are widespread at concentrations above their numeric targets, chlordane near storm drain outfalls and in the Consolidated Slip, and DDTs and PCBs at a number of areas throughout the harbors. Certain PAHs are elevated in localized areas that are often associated with storm drain runoff (e.g., Consolidated Slip, Fish Harbor, and dead-end slips). Furthermore, recent data indicate that impaired benthic communities appear to be largely confined to localized areas in back channels, along wharf faces in the Inner Harbor, and in Consolidated Slip, where the physical and chemical environment may be adversely affecting benthic communities. Sediment

toxicity has been observed in Consolidated Slip, Los Angeles/Long Beach Inner and Outer Harbors, and Fish Harbor. There are still areas of sediment contamination in both Ports that need some form of remediation or focused management, however.

The Ports have a number of programs underway to reduce water and sediment pollution in the harbors. Some of those programs implement permits whereas others implement port initiatives undertaken to achieve their environmental policies. Programs include permit implementation programs, a variety of internal management programs, and participation in local and regional task forces, initiatives, and committees aimed at addressing regional issues such as contaminated sediment and watershed management.

Implementation Strategies

The Ports have available to them several types of strategies to implement the control measures developed in the WRAP. These include specific water-resource-related projects and initiatives undertaken by the Ports; incentive programs to encourage and support tenant actions; and requirements that the Ports, as landlords and harbor administrators, are able to impose on users of harbor facilities through leases and tariffs. The Ports intend to apply all of these strategies, in various combinations, to the control measures described in this plan in order to meet the Ports' goals. Because the two Ports are separate entities, each subject to its own political and organizational regimes, implementation of some elements of the WRAP is likely to differ between the two Ports.

Programs and Initiatives

The WRAP control measures have been developed without numerical goals for pollution reduction; instead, this WRAP establishes the framework and mechanisms by which the Ports will achieve the goals and targets that the LA-RWQCB and the EPA will set out in the TMDLs and associated permits. Once TMDLs have been established and translated into National Pollutant Discharge Elimination System (NPDES) permits, the Ports expect to be able to focus the WRAP on compliance with those permits. The control measures have been formulated under the assumption that the Ports and their cities will soon receive new industrial and municipal permits that will be substantially modified from those now in force; the WRAP summarizes the expected elements in those permits. Furthermore, most of the control measures address sources, rather than specific pollutants, since a given measure is likely to be effective for more than one pollutant.

Four basic types of sources are addressed by the WRAP's control measures:

- Land Use Discharges: Land-based uses such as cargo and passenger terminals, industrial facilities, roads and rail lines, and shops, restaurants, fishing piers, beaches, and marinas. These uses include cargo handling areas, maintenance and fueling areas; various landscaping and area maintenance activities; roads, parking lots, and other public access areas; construction sites; railroad facilities; commercial fishery facilities; auto repair/dismantling businesses; visitor-serving areas such as restaurants and boat launches; and port-owned properties outside the harbor districts.
- On-Water Discharges: Cargo and passenger vessels, harborcraft, fishing vessels, and in-water structures.
- Sediments: Contaminated sediments, which serve as a repository for and a potential source of contaminants into the water.
- Watershed Discharges: Inputs of stormwater and wastewater originating outside the harbors (and beyond the jurisdiction of the Ports), and conveyed into the harbors by the Dominguez Channel, the Los Angeles River, and storm drains.

Control measures consist of both improvements on current control measures and the addition of new measures.

Land Use Control Measures: Landside sources are currently addressed through the various stormwater and other pollution control programs of the two Ports and their respective city agencies. Nevertheless, the Ports have identified eight control measures (Table ES-1) for certain categories of landside activities that encompass both the existing programs and new practices. These control measures need to be implemented in order to improve the Ports' ability to control pollutant discharges from land uses in the harbor districts.

Table ES-1. Landside Sources Control Measures

CONTROL MEASURE	DESCRIPTION	SCHEDULE
LU-1: Enhance housekeeping Best Management Practices (BMPs) in maintenance and fueling areas, general cargo handling areas, certain dry-bulk cargo handling areas, automobile dismantling and boat repair facilities, oil production facilities, and	Increase the scope of housekeeping BMP application, and improve and add BMPs; apply BMPs already in use more uniformly to facilities port-wide, and institute new BMPs as needed. Review individual facility Stormwater Pollution Prevention Plans (SWPPPs) and recent inspection/audit and annual reports in the normal course of program management to identify needed improvements in terms of existing and	POLB: identify new measures by end of 2009. POLA: Initiate inspection strategy by end of 2009, identify new measures by end of 2010.

Table ES-1. Landside Sources Control Measures

CONTROL MEASURE	DESCRIPTION	SCHEDULE
building maintenance and landscaping areas.	new housekeeping BMPs.	
LU-2: Develop a port-wide guidance manual for design of new and redeveloped facilities, including design criteria and operational BMPs.	Develop a guidance manual, in coordination with agencies and city departments, to ensure that port-specific conditions are reflected in SUSMP design guidance for measures instituted on port property.	Both Ports: Complete the guidance manual by mid 2010.
LU-3: Evaluate the need for structural BMPs for key discharges and targeted pollutants at existing facilities and install where necessary to ensure compliance.	Where LU-1 proves inadequate in high-risk areas, evaluate the need for new or additional structural BMPs (e.g., berms, separators, containment, valves, in-line hydrodynamic treatment units, diversion to sewer, stormwater recycling, and drain capping), and install those deemed necessary and appropriate.	POLB: Ongoing in Storm Water Program. POLA: Initiate inspection strategy by end of 2009, identify new measures by the end of 2010.
LU-4: Continue and expand upon existing stormwater/dust control programs for vacant/undeveloped property.	Inventory vacant and undeveloped areas within both ports to determine areas of highest priority for runoff and pollutant control measures. For those areas deemed highest priority, install temporary measures pending long-term solutions.	POLB: Continue existing program POLA: Implement new program by end of 2010.
LU-5: Enhance and expand litter control programs and implement relevant elements of those programs in specific sources.	Review all facilities to determine where the scope of existing litter-related housekeeping and structural BMP application needs to be increased and where additional BMPs (e.g., fences, stormceptors, public education, enforcement, new equipment) are necessary.	Both Ports mid-to-late-2010.
LU-6: Enhance and expand street and public parking area sweeping/cleaning programs.	Evaluate sweeping/cleaning activities and inspect all sites to assess debris levels and problem areas (e.g., dry bulk and recycled metals terminals access streets, truck queuing lanes, parking lots at restaurants and fishing piers). Evaluate existing street sweeping and cleaning equipment. Revise sweeping/cleaning schedules and equipment as needed.	POLB: Program recommendations by end of 2009. POLA: Program recommendations by mid-2010.
LU-7: Evaluate existing construction permit compliance procedures and enhance as necessary.	Evaluate recent inspection reports and reporting protocols, review upcoming revisions to the General Construction Permit, and formulate the necessary program enhancements (e.g., revised permit structure, inspection frequency, and construction specifications).	Implementation following General Construction Activities Permit issuance (TBD by LA-RWQCB).
LU-8: Evaluate port-owned properties outside the harbor districts and ensure permit compliance as necessary.	Develop a management program that includes procedures for ensuring that remote site facilities found to be deficient in their compliance work with their local agencies to achieve compliance.	Program implementation by the end of 2010.

On-Water Control Measures: Although stormwater control efforts naturally focus on landside sources, a comprehensive approach to managing water quality in the Ports must consider potentially polluting on-water activities as well. Oceangoing vessels, harborcraft, and pleasure craft are potential sources of a variety of discharges, in-water structures such as docks, piers, and cathodic protection devices can leach metals, and bottom paints on vessel hulls are designed to do so.

Although most on-water sources fall largely under state and federal jurisdiction, the Ports have identified three WRAP control measures that could help to control discharges from on-water activities (Table ES-2). These measures would complement and build upon recently-enacted federal and state permits.

Table ES-2. On-Water Sources Control Measures

CONTROL MEASURE	DESCRIPTION	SCHEDULE
OW-1: Develop guidance manual for on-water activities (e.g., allowable and prohibited vessel maintenance activities and discharges).	Develop manuals that will be distributed to vessel operators (including cargo vessels, harbor craft, and recreational vessels) as guidance for allowable and prohibited on-water activities.	Guidance manuals completed by the end of 2009.
OW-2: Develop port policy and standards for maintenance, in-kind replacement, and eventual phasing out of exposed treated pilings from in-water applications.	Develop plans for phasing out exposed treated pilings by establishing BMPs for current piling management practices (wrapping, storage, installation, and disposal) and identifying feasible alternatives to the use of treated wood pilings.	Plans completed by the end of 2010.
OW-3: Develop BMPs and Port standards for zinc-based cathodic protection of port structures and vessels.	Identify the feasibility of alternative anti-corrosion technology (e.g., other metals or induced-current systems) and develop guidance for applying those alternatives to port practices.	Guidance material completed by the end of 2010.

Sediment Control Measures: The legacy of historical inputs of contamination remains in the form of sediment contamination, especially in older portions of the harbors. Some of the pollutants were produced by activities inside the harbors, but much of the pollution came through storm drains and streams, from areas outside the Ports' jurisdiction. Many former areas of legacy contaminants have already been cleaned up by port development projects or individual port and agency remediation projects. Nevertheless, a number of areas of legacy contamination remain, including portions of Long Beach West Basin and the Consolidated Slip in Los Angeles. Additional areas of sediment contamination are associated with major storm drain outfalls, currents, storms, and vessel activities.

The WRAP sediment control measures (Table ES-3) have been developed in recognition of the legacy of contamination; ongoing contamination through storm drains, streams, and in-harbor activities; and the existing guidance available to the Ports concerning sediment management. That guidance is largely set forth in the Los Angeles Region Contaminated Sediment Task Force (CSTF) Strategy, and includes inter-agency coordination, engagement of non-governmental stakeholders, use of BMPs for dredging and disposal, beneficial re-use of sediments, and an established hierarchy of disposal options, including the principle that aquatic disposal (e.g., confined aquatic disposal, ocean disposal) is the last resort.

Table ES-3. Sediment Control Measures

CONTROL MEASURE	DESCRIPTION	SCHEDULE
<p>S-1: Develop sediment management policy/guidance establishing priorities for removal, disposal, and management of sediments with a clear decision-making framework.</p>	<p>Develop sediment management policy and guidance that will apply the CSTF Long-Term Management Strategy to the port situation. Policy will include identification of data gaps and priority areas, and short-term and long-term management strategies for future projects.</p>	<p>Draft guidance completed by mid 2010, adoption by Boards end of 2010.</p>
<p>S-2: Develop a sediment management policy establishing priorities for the management of areas of legacy contaminated sediments and hotspots.</p>	<p>Complete remediation of IR Site 7, continue participation in Consolidated Slip Restoration Task Force. Work with regulatory agencies and stakeholders to develop scientifically-based TMDLs; develop implementation plan to manage hotspots and comply with TMDLs. Any remedial process will ultimately be driven by the regulatory agencies and may include other responsible parties.</p>	<p>IR Site 7 remediation complete by end of 2010. Participation in other efforts ongoing, pending TMDLs.</p>

Watershed Strategies: The Ports are considered to be part of the Dominguez watershed, although the Los Angeles River, which is a separate watershed, does influence the eastern side of Long Beach Harbor. The Ports are at the seaward end of the watershed, and are thus influenced by upstream discharges. Factors outside the control of the Ports that can affect harbor water and sediment quality include direct discharge from adjacent land uses, aerial deposition, conveyance of pollutants from nearby water bodies and storm water outfalls, and resuspension of, and flux from, harbor sediments. Given the reality that the Ports have no jurisdiction or control over sources outside the harbor districts, other than on properties that they actually own (addressed by Control Measure LU-8), and are unable to control the influx of pollutants to the harbors from those outside sources, Control Measure WS-1 (Table ES-4) for watershed sources emphasizes cooperative activities such as data gathering and participation in regional water quality and source

control efforts, particularly through the ongoing TMDL effort. In addition, the measure commits the Ports to use all legal means available to urge the agencies and upstream stakeholders to abate discharges that could reach the harbors.

Watershed actions to be undertaken by the Ports under the WRAP include comprehensive characterization of pollutant loading from rivers, streams, and municipal storm drains entering the harbor, additional development and employment of the WRAP hydrodynamic model of the harbor system, participation in regional aerial deposition study efforts, and completion of the TMDL development process. All of these activities will be undertaken as part of watershed working groups and stakeholder groups.

Table ES-4. Watershed Control Measure

CONTROL MEASURE	DESCRIPTION	SCHEDULE
<p>WS-1: Employ all available means to support efforts to reduce upstream pollutant loadings that adversely affect harbor water and sediment quality.</p>	<p>Participate in local and regional efforts to characterize pollutant inputs to the harbors from outside sources; participate in watershed planning efforts; encourage the LA-RWQCB and EPA to use their authority to address upstream discharges.</p>	<p>Ongoing.</p>

Costs

The control measures described in this WRAP consist largely of plan formulation and the expansion and reorganization of activities that the Ports are already engaged in. Accordingly, the cost of implementation of those control measures will be predominantly from staff and consultant time, although several control measures will likely involve capital costs at the implementation phase. In addition, other entities, including port tenants and users as well as agencies and municipalities outside the Ports, will incur costs to implement the WRAP control measures.