

## **V. HARBOR DEPTHS, CHANNEL DESIGN AND PROPOSED CONSTRUCTION AND DREDGING**

**A. DISCUSSION:** For the most part, projects that involve dredging and construction require a comprehensive design and review process that can occur years before actual site operations commence. In order to identify and minimize navigational safety and coordinated vessel movement issues well ahead of time, the Operations/Navigation Safety Subcommittee will keep apprised of these types of projects (for up to three years).

The Subcommittee will facilitate timely assessment of navigational safety concerns during the concept stages so that appropriate modifications, if any, can be made. Additionally, the Subcommittee will work with the Coast Guard to ensure navigational risks are appropriately addressed through project modification and/or operational mitigation measures. The Subcommittee will review all projects for impacts to navigational safety and will:

1. Collect more information if necessary
2. Brief the full committee on “impacting” projects
3. Recommend follow-up action such as:
  - a. Further subcommittee review
  - b. Postpone action to later date (wait until project concept solidifies).

### **B. HARBOR DEPTHS:**

1. Following are the current procedures and frequency of checking harbor and berth depths at the Port of Los Angeles (POLA) and the Port of Long Beach (POLB):
  - a. Procedures: POLA/POLB check harbor and berth depths with lead line sounding and electronic sounding equipment.
    - i. For lead line sounding, one lowers a weighted chain marked in one-foot increments into the water until it hits bottom. The number of marks counted on the chain at the water line indicates the depth, which is then tide-corrected to Mean Lower Low Water (MLLW).
    - ii. For electronic sounding equipment, one records digitally and graphically the time it takes a sound wave to travel from an instrument near the surface to the bottom and back. This information is then tide-corrected to MLLW.
    - iii. Both ports currently have an automated sounding process using the latest positioning technology and a Geographic Information System (GIS). Once the harbor and berth depth soundings are complete, both ports forward data (sounding charts) to the respective Port Pilots and Terminal Operators. Both Ports make their

respective depth sounding data available to NOAA. Dangers to Navigation found during the survey are reported to USCG and then broadcasted via the Local Notice to Mariners.

- iv. When depths less than charted depths are found within the port complex, the data may be provided to the Office of Coast Survey for application to NOAA Charts. Once received by Coast Survey, the data are reviewed to ensure they meet charting standards and are appropriate for chart updates. Ideally, hydrographic survey data would meet the standards outlines in the *National Ocean Survey (NOS) Hydrographic Surveys Specifications and Deliverables*.

Information pertaining to NOS Specs and Deliverables is located at:

<https://nauticalcharts.noaa.gov/publications/standards-and-requirements.html>

The email and regular mail addresses for data submission to Coast Survey are:

[ocs.ndb@noaa.gov](mailto:ocs.ndb@noaa.gov)

Department of Commerce, NOAA  
Nautical Data Branch N/CS26  
1315 East West Hwy  
Silver Spring, MD 20910

The Office of Coast Survey is responsible for the hydrographic data received and reviewed to ensure that it meets (*NOS) Hydrographic Surveys Specifications and Deliverables plotted on NOAA charts*.

- b. Frequency: Historically, reduced water depth due to silt settlement only minimally affects POLA and POLB. Therefore, the committee considers the current frequency of sounding checks adequate. With minor variations, both ports check depth with similar frequency usually at the request from pilots, tenants, the Dredge Committee, or as required by the Ports' capital programs. This typically results in POLA and POLB checking the available water depth and performing soundings at least at one to three year intervals for terminals. POLA and POLB check certain wharves with known shoaling problems more often, and check as available wharves that accommodate vessels needing lesser drafts. Divers inspect under-wharf slope biannually and immediately advise of situations such as embankment sloughing under the wharves or out-of-place riprap. In POLA, cruise terminals are surveyed, dived, and sounded monthly and oil terminal berths are sounded annually. Container and drybulk berths are sounded every three years. All other berths (including out-of-service berths) are sounded at least every five years. POLA continually inspects backland behind the wharves for settlement that may also indicate sloughing. Approximately annual fathometer soundings, taken parallel to the wharf and about 12' outboard of the pier-head line, verify the existing water depth. If POLA finds irregularities, it orders additional soundings to confirm the available water depth.

POLA and POLB also receive sounding requests from port tenants, pilots, properties/operations staff, engineering division staff, executive management and the Coast Guard.

The Corps performs soundings at Weapons Support Facility Seal Beach as requested. The Corps may sound annually, but severe weather can drive sounding requirements, as changes in depth appear to result from tidal slough action in the National Wildlife Refuge aboard the Weapons Support Facility Seal Beach. The Corps completed its last dredging in 2010. The controlling depth is -39 feet at MLLW (May, 2012).

2. Findings: The Committee finds the current procedures and frequency of checking harbor and berth depths are adequate and no changes are needed.

**C. CHANNEL DESIGN PLANS:** POLA and POLB, deep-water constructed ports, do not have siltation problems like natural river ports. The only sediments deposited in the ports are carried by the Los Angeles River, Dominguez Channel, and several smaller local storm drains. Due to the dry local climate, these channels carry significant quantities of water only on rare occasions during the winter, and silt settles out near the inlet mouth. The ports need only dredge occasionally to maintain berth side design water depths.

The Harbors usually have very localized shoaling problems. They occur mainly in the immediate vicinity of the pier-head lines, when propeller or bow thruster action causes localized sloughing of the under-wharf embankments. Soft bottom conditions mitigate the effect of shoaling and ongoing maintenance dredging restores design water depth.

Expanding commercial facilities and increasing ship sizes often reduce maneuvering room near marinas and other facilities. This reduces the mariner's margin of error, and can contribute to hazardous situations, damage claims and undesirable maneuvering constraints from wake and prop wash. Although options may be limited, those designing new berths and terminals should plan for future comparable marina spaces and similar facilities. Since this can create short-term misunderstandings, developers should designate specific areas for commercial and recreational activities in a manner that minimizes potential conflicts and dangers. This long-term benefit to property and safety should be considered an integral element of any significant design.

1. **PORT OF LONG BEACH:** All 65 deep-water berths lay within three miles of the open sea, and are reached via the Main Channel with depths of minus 76 feet (-23.2m) at Mean-Lower-Low-Water (MLLW). Dredging outside the Long Beach Breakwater Entrance Channel has deepened that area to minus 76 feet (-23.2m) at MLLW.

The Port is currently engaged in a capital development program (CDP) that includes but is not limited to dredging, terminal redevelopment, transportation, and public safety projects. Major components of the CDP include capital dredging in the Inner Harbor Turning Basin and in-water fill within the East Basin. The CDP includes the Middle Harbor Redevelopment Program, the replacement of the Gerald Desmond Bridge spanning the Back Channel, and several rail infrastructure projects. Though not a Port project, the State

of California through Caltrans is currently engaged in the replacement of the Commodore Schuyler Heim Bridge (SR-47) spanning the Cerritos Channel. It is being converted from a lift bridge to a fixed bridge. *See*, Chapter IX.B., “Bridges.”

Southern California Edison will raise the 66kV powerlines over the Cerritos Channel to a height of 234 feet at Mean High Water. Pending regulatory and environmental approvals, this project should begin with test pile driving in September 2018 with new wires and towers completed by December 2019. Overall completion, including the removal of the current towers should be completed by October 2020.

In addition to the CDP, the Port has a program for maintenance dredging. Both CDP dredge projects and the maintenance dredging program are conducted under the oversight of the Port’s Dredge Committee. The Dredge Committee is comprised of representatives from the Engineering and Planning Bureaus, Trade Division, and Jacobsen Pilots. The Dredge Committee is responsible for receiving requests as well as reviewing and prioritizing maintenance dredging needs, proposing prioritization to Port management, and executing the maintenance dredging program. The Dredge Committee also conducts planning efforts to identify, scope, and prioritize capital dredging needs. Capital dredging projects are managed by the Port’s Program Management Division with support from the Engineering Bureau. Construction of capital projects and maintenance dredging are managed by the Port’s Construction Management Division. By centralizing all dredging requests and planning for dredging through the Dredge Committee, the Port is able to plan, track, and execute dredging in accordance with permits issued by the U.S. Army Corps of Engineers.

Major components of the Port’s CDP and maintenance dredging program are described in the paragraphs that follow. The construction schedule for these and all other Port projects are updated monthly and can be found on the Port’s website at:

[http://www.polb.com/economics/contractors/future\\_work/default.asp](http://www.polb.com/economics/contractors/future_work/default.asp)

Note that construction schedules for the projects shown in this schedule are, in some cases conceptual, because the California Environmental Quality Act (CEQA) process is currently underway. Other schedules are more certain because the CEQA process has been concluded and a project has been approved by the Board of Harbor Commissioners.

a) Major Transportation Programs/Projects

The replacement of both the Commodore Heim and Gerald Desmond Bridges spanning the Cerritos and Back Channels, respectively are underway. The new Commodore Heim Bridge is a fixed span. The new replacement for the Gerald Desmond Bridge will provide for an increased vertical clearance to allow larger ships to pass through the Back Channel and into Long Beach Inner Harbor. The existing Gerald Desmond Bridge is scheduled to be demolished and removed. *See*, Chapter IX.B., “Bridges.”

b) Major Terminal Redevelopment Programs/Projects

The Middle Harbor Terminal Redevelopment consists of combining Piers D, E, and F to form a modern contiguous 311-acre container terminal. This program includes new truck gates, buildings, wharf structures, rail mounted gantry cranes (RMG), container and intermodal rail yards, dredging, landfill, paving and striping, and utility infrastructure. The project includes filling of Slip 1 at Pier E and part of the East Basin, wharf and dike reconstruction at Pier E, as well as dredging to widen and deepen Slip 3 at Pier E and Pier D. Dredging within Slip 3 has been completed to a depth of minus 55 feet MLLW, Slip 1 has been filled, and Phases 1 and 2 of the new terminal have been constructed and placed into operation. The final Phase, Phase 3, construction started in February 2018. Work underway includes the demolition of the wharf at Pier F, filling the last portion of the east Basin, and the construction of the last segment of the wharf, the container yard and intermodal rail yard facilities including a new truck gate and administration building. Phase 3 of the terminal redevelopment program will be completed towards the end of 2020.

c) Capital and Maintenance Dredging

The Port plans to demolish and remove the intake forebay of the NRG power plant located on Terminal Island in 2018; scheduled to be complete by July 2019. The forebay is located on the west side of the Back Channel north of the Gerald Desmond Bridge and south of the Inner Harbor Turning Basin. To date, a portion of the forebay has been demolished and the remainder of the submerged structure marked by buoys.

The Port is in the middle of a multi-year Deep Draft Navigation Study with the U.S. Army Corps of Engineers. The Study schedule is under evaluation and an extension is needed to complete. The Study is expected to result in a plan for the deepening of some navigation channels.

The Port will continue to dredge throughout the Harbor District to maintain berth and channel depths. Maintenance dredging maintains permitted depths and eliminates minor hazards caused by sediment deposition or vessel prop wash anomalies occurring on the bottom.

d) Public Safety

The Port is currently conducting a master planning effort for proposed public safety operational and support facilities. Two replacement fire stations are being designed for Fire Station 15 and Fire Station 20 at Pier F and Pier D respectively and a protected boat basin to accommodate Port Security, Police Department, and Fire Department vessels is being planned at Pier F.

2. **PORT OF LOS ANGELES:** All 27 deep-water terminals lay within five miles of the Los Angeles Pilot Operating Area boundary, and reached via the Los Angeles Main Channel, with a project depth of minus 53 feet (16.15M) at Mean-Lower-Low-Water (MLLW). The

Angeles Deep Water Approach Channel from Los Angeles Buoy #1 to Buoy #10 has a project depth of minus 81 feet (24.68M) at Mean-Lower-Low-Water.

The Port is currently engaged in a capital development program (CDP) that includes but is not limited to public use waterfront redevelopment, dredging, terminal redevelopment, transportation, and public safety projects. Some major components of the CDP is the demolishing of Ports O' Call Village to make way for the San Pedro Public Market and development of the Wilmington Water Front Promenade along the north shore of Slip 5.

a) Major Transportation Programs/Projects

Caltrans is repainting the under deck portion of the Vincent Thomas Bridge, over the Los Angeles Harbor Main Channel. The project entails repainting the entire under deck portion of the bridge, from the west channel margin light to the east channel margin light. The entire project will take 2.5 years to complete. A 100-foot long under deck temporary platform will initially be erected just east of the west channel margin light. Pipe scaffolding will be erected and the platform shrink-wrapped. Once a 100-foot section is completed, the platform will be moved 100 feet to the east to continue the project. The platform will temporarily reduce the vertical clearance of the bridge by 6 feet.

b) Major Terminal Redevelopment Programs/Projects

The Port of Los Angeles Construction Division Proposed Project Outlook – 2018 to 2021

- i. Berth 148-149 Wharf Repair
- ii. Berth 214-220 Wharf Improvements
- iii. Berth 227-232 Wharf Improvements
- iv. Berth 177-178 Wharf Restoration
- v. Berth 150-151 MOTEMS Project (Marine Oil Terminal Engineering Maintenance Standards)
- vi. Berth 164 MOTEMS Project
- vii. Berth 167-169 MOTEMS Project
- viii. Berth 238-239 MOTEMS Project

c.) Capital and Maintenance Dredging

The Port will arrange for maintenance dredging as needed to maintain project control depths for the harbor district channels and depths alongside the wharves.

d.) Public Safety

As one of few police forces in the nation dedicated exclusively to 24-hour port activities, the Los Angeles Port Police are responsible for patrol and surveillance of the Port of Los Angeles and neighboring Harbor Area communities. As California peace

officers, the Port Police enforce federal, state and local public safety statutes as well as environmental and maritime safety regulations. Highly regarded among specialized law enforcement agencies, the primary goal of the Port Police is to maintain the free flow of commerce and produce a safe, secure environment that promotes uninterrupted Port operations.

**F. U.S. ARMY CORPS OF ENGINEERS:** The Corps of Engineers maintains the Federal Channels in Los Angeles/Long Beach Harbor. The channels and project depths are:

**Los Angeles Harbor:**

<u>Federal Channels in the POLA</u>	<u>Current Depth</u>
Main Channel	-53 feet
Turning Basin	-53 feet
West Basin	-53 feet
East Basin	-53 feet
North Channel (Pier 300/400)	-53 feet
Pier 300 Turning Basin	-81 feet
Approach and Entrance Channels	-81 feet

**Long Beach Harbor:**

<u>Federal Channels in the POLB</u>	<u>Current Depth</u>	<u>Current Width</u>
Main Channel	-76 feet	360 – 1500 feet
Back Channel	-52 feet	220 feet
Inner Harbor (Turning Basin)	-52 feet	1190 feet
Cerritos Channel	-50 feet	325 feet
Channel 2	-37 to -55 feet	150 – 250 feet
Channel 3	-36 to -45 feet	150 – 200 feet

Some of the channels have been dredged to depths deeper than the Federal project depth by the Port and are maintained by the Port.