

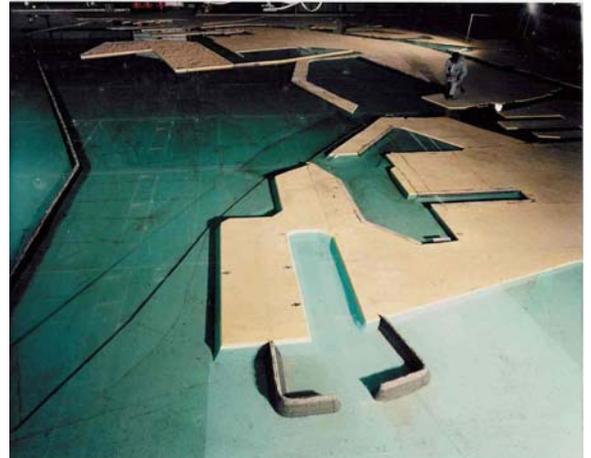


**US Army Corps
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Engineer Research and
Development Center

Los Angeles and Long Beach Harbors Model Study

Description

A physical model of the Los Angeles-Long Beach Harbors complex was completed in 1973. It has a 1:100 vertical scale and a 1:400 horizontal scale and reproduces the entire harbor area, the shoreline from Point Fermin to Huntington Beach and underwater contours out to -300 ft with a total model area of 44,000 sq ft. It is the largest wave action model in the United States. Waves are generated by a 210-ft-long, computer-controlled wave generator that can generate waves of varying heights and periods along a curved wave front.



Issue

The Ports of Los Angeles (POLA) and Long Beach (POLB) have been

Los Angeles and Long Beach Harbors physical model

developing plans for harbor expansion. These plans will be constructed in phases, leading up to a master plan development targeted for the year 2020. The harbors have a history of surge due to long-period waves that create excessive ship motion in certain areas. Consequently, the ports and the Corps plan to ensure optimization of proposed expansions to minimize ship motions in the new basins, as well as preventing adverse effects in existing harbors areas.

Products

The physical model recently has been used to (a) collect data for the POLA's Pier 400 expansion project, (b) study proposed improvements to the POLB's Pier J and Navy Basin facilities, and (c) investigate effects of proposed main channel deepening and pier expansions within the Los Angeles harbor. Recently, the model was used to assist the POLB in determining the effects of proposed modifications to several marine terminals.

Supporting Technology

In addition to the physical model, extensive field data have been acquired and numerical models have been developed to assist in studies of harbor oscillation, ship motion, harbor circulation, and water quality.

Benefits

The model has shown that it accurately predicts harbor oscillation patterns and has been applied to several projects. It will continue to be operated as a planning and design tool as expansion of the harbors continue.

Point of Contact

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Partners

U.S. Army Engineer District, Los Angeles (SPL), Port of Los Angeles, CA, and Port of Long Beach, CA.