



**US Army Corps
of Engineers®**

Engineer Research and
Development Center

Coastal Harbors Modeling Facility

Description

The Coastal Harbors Modeling Facility is used to aid in the planning of harbor development and in the design and layout of breakwaters, absorbers, etc.. The goal is to optimize harbor protection and verify acceptable project performance. Design of small-craft harbors is very difficult due to the complexity of wave interaction with the complicated geometry of most harbors. Additional complications caused by nearby or adjacent rivers, and/or harbor oscillation



General view of St. Paul Harbor, St. Paul Island, Alaska model

problems caused by long-period wave energy make analytical methods inadequate for final design. Many small-boat harbor projects can be examined in a thorough and efficient manner using the dedicated small-scale boat harbor physical model.

Specifications

The facility consists of a 400 ft long by 160 ft wide, 1.5 ft deep concrete wave basin. Model waves can be generated by three 80-ft long unidirectional wave generators creating monochromatic or irregular waves. The generator is mounted on retractable casters which enables it to be positioned to generate waves from different directions. This facility includes an automated data acquisition and control system, capacitance-type wave gauges, a model circulation system, coal tracer materials and video equipment.

Benefits

For many complex coastal engineering problems, particularly those concerning short-period wave effects small-scale three-dimensional physical models can significantly reduce project costs by optimizing functional design to achieve wave protection and navigation goals.

Application

The facility has been used to investigate wave, current, shoaling and sedimentation conditions for existing conditions and proposed harbor modifications for numerous projects. Previous studies include support for the U.S. Army Engineer Chicago, Detroit, Los Angeles, Portland, Honolulu, and Alaska District.

Point of Contact

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