



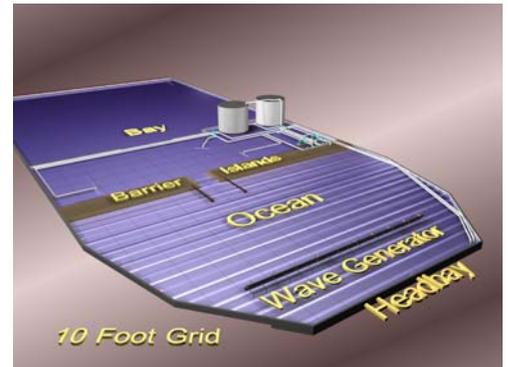
**US Army Corps  
of Engineers®**

Engineer Research and  
Development Center

# Coastal Inlet Model Facility

## Purpose

The Coastal Inlet Model Facility, as part of the Coastal Inlets Research Program (CIRP), is an idealized inlet dedicated to the study of coastal inlets and equipped to represent the most significant physical processes at and around inlets. An inlet is a region connecting two or more large bodies of water by a relatively short and narrow channel. The water bodies may be an ocean and lagoon, a large lake and a bay, or a river entering a sea or lake. Many processes at inlets can be examined in a thorough and efficient manner in a dedicated inlet physical model. A 1:50 undistorted scale was assumed to determine reasonable inlet dimensions, however other scales can easily be assumed to accommodate the study of specific processes because of the simplified bathymetry in the model. The basin at this time contains an inlet with fairly steep beach slopes so that additional features (such as an ebb shoal) can easily be added. Also the bathymetry can be remolded in the inlet entrance area to the more complex bathymetry of an actual inlet, either in fixed-bed (concrete) or movable-bed (sand). Ebb and flood shoal areas can also be modified to represent more complex bathymetries.



**Drawing of Coastal Inlet Model Facility**

## Specifications

The facility consists of a 150 ft (46 m) wide by 325 ft (99 m) long concrete basin with 2 ft (0.6 m) high walls. It is connected to a large sump (volume of  $1.98 \times 10^6$  liters (523,000 gal)) for water exchange so that tides may be produced in the facility's ocean to drive tidal currents into and out of the inlet bay. Steady-state flood and ebb currents through the inlet may also be created. An 80-ft-long unidirectional wave generator located in the ocean produces either irregular or monochromatic waves. Incident wave direction can be varied for specific experiments by moving the generator to different locations. Wave height, water level, tidal currents and wave-generated currents are all measured with state-of-the-art instrumentation. A ceiling mounted web camera can be used on all studies and is remotely accessible and configurable. In addition, the web camera can be zoomed in to a particular location and video recordings can be made.

## Benefits

Coastal inlet project features and processes may be easily focused on and examined in detail with respect to tidal currents, wave-generated currents and sediment pathways.

## Application

Used to develop understanding of inlet inner-bank erosion, inlet equilibrium area, wave-current interaction in the navigation channel, sediment pathway alteration with jetty spurs and jetty weirs, and wave diffraction-refraction effects at coastal inlets.

## Point of Contact

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