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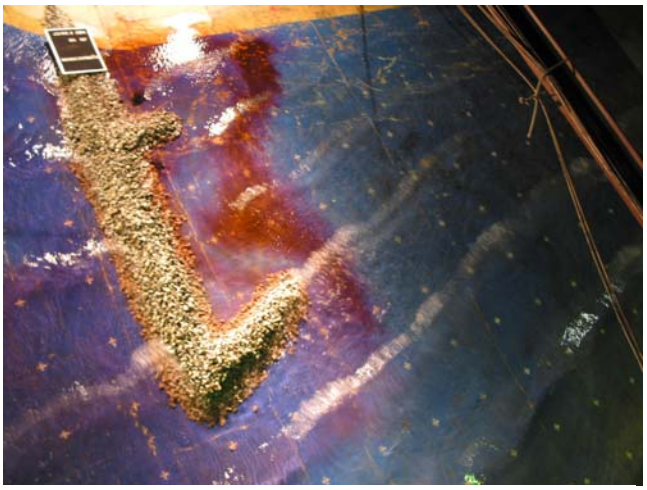
Jetty Spurs at Coastal Inlets for Reduction of Navigation Channel Shoaling Study

Description

A three-dimensional physical model study, conducted to provide information on the effect of a jetty spur on the beachside circulation near a coastal inlet jetty and design considerations relating to alteration of water and sediment circulation near the beach side of jetties.

Issue

Channel shoaling can occur due to movement of beach sediments around the tips of jetties. Jetty spurs may be used to potentially reduce this shoaling by altering the sediment pathway. As part of the Coastal Inlets Research Program, a pilot study of spurs was initiated in the Coastal Inlet Model facility. The large experimental basin, with its idealized inlet and smooth offshore contours, can facilitate simulation of short-period waves, tides and tidal currents. A scale of 1:50 is applied to this generic inlet configuration. Twin parallel jetties were placed at the inlet entrance, with many different spur configurations examined. Also, submerged versions were constructed by reducing the crest elevation to mean low water (0.0-m) while experiments were conducted at +1.5-m high-water elevation. Wave height, wave period, and tidal currents were varied to produce different surf and alongshore-current conditions. Experiments included measurement of wave height and currents in the region on the seaside of the jetty with dye and acoustic-Doppler current meter, and examination of sediment pathways with lightweight sediment tracer. Initial results were encouraging in the ability of the spurs to divert currents and sediment from the channel. Additional configurations are now being examined.



Dye movement around jetty spur in idealized inlet model

Products

Initial CHETN, ERDC/CHL CHETN-IV-61, December 2003

Supporting Technology

Physical model data were used in the calibration of numerical coastal inlet models.

Benefits

Reduction of sedimentation in navigation channels.

Sponsors

Coastal Inlet Research Program, US Army Corps of Engineers

Point of Contact

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