Coastal Inlets Research Program

CIRP

ERDC

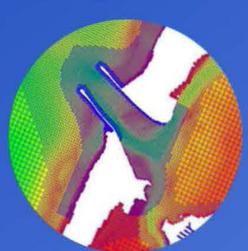
U.S. Army
Engineer Research and
Development Center
Coastal and Hydraulics Laboratory

Our Mission

Reduce O&M costs at coastal navigation projects

Develop tools to support O&M practice

Transfer technology and products



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Visit the CIRP Website:
http://cirp.usace.army.mil

CIRP Wiki:
http://cirp.usace.army.mil/wiki/Main

CIRP WebTools
Tools and Capabilities

advancing inlet science & engineering

As the research organization for the U.S. Army Corps of Engineers, the U.S. Army Engineer Research and Development Center (ERDC) helps solve our nation's most challenging problems in support of the Warfighter, military installations and the Corps' civil works mission. Our vision is to become the world's premier public engineering and environmental sciences research and development organization.

CIRP

CIRP Web Tools

Coastal Inlets Research Program

tools and capabilities • making our world better

AISAP: AIS Analysis Package

What Does It Do:
Accesses and analyzes large amounts of archived spatial-temporal AIS data - archived vessel movement data from USCG for coastal and inland waters.

Typical Applications:
Display vessel track lines; analyze dwell times; calculate travel times; create heat map graphics for waterway traffic; analyze marine accidents in forensic studies.

Limitations:
Archived AIS data extends from 2013; inland waterways coverage still expanding; retrieved query data may require post-processing.

Info:
http://ais-portal.usace.army.mil

POCs:
Kenneth "Ned" Mitchell, Brandan Scully, and Patricia DiJoseph

CPT: Channel Portfolio Tool

What Does It Do:
Web-based application that relates navigable depths to cargo most vulnerable to shoaling.

Typical Applications:
Commercial traffic channel depth utilization information; commodity and tonnage flow maps; dredging work package formulation; shoaling impact analysis; reach-level rankings for tonnage and trips.

Limitations:
2-year time lag for commercial shipment data; availability of controlling channel depth information dependent upon eHydro uploads or manual input.

Info:
https://cpt.usace.army.mil

POCs:
Kenneth "Ned" Mitchell and Brandan Scully

CSAT: Channel Shoaling Analysis Tool

What Does It Do:
CSAT + Dredging History: Calculate infilling rates as function of time and depth

Typical Applications:
Shoaling rates calculated for navigation channels

Limitations:
Average shoaling rate based on available hydrographic survey data uploaded through eHydro

Info:
https://cpt.usace.army.mil

POCs:
Lauren Dunkin, Kenneth "Ned" Mitchell, and Brandan Scully

CSMART: Coastal Structure Management and Ranking Tool

What Does It Do:
Web-based application that prioritizes coastal structures according to user-specified criteria and weightings on metrics such as condition rating, commercial tonnage, fish landings, and cruise and ferry passengers.

Typical Applications:
Compare and prioritize coastal jetty and breakwater structures based on user-specified weighting criteria; dynamically re-prioritize lists based on new criteria inputs.

Limitations:
Dependent upon user-specified prioritization criteria, limited to coastal infrastructure included in the CSMART database.

Info:
https://cpt.usace.army.mil/Silverlight/CSMART

POCs:
Kenneth "Ned" Mitchell and Brandan Scully

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DOC: Depth of Closure Database

What Does It Do:
Provides estimates of depth of closure for all of the coast lines of the US including the Great Lakes using the USACE Wave Information (WIS) wave hindcast data.

Typical Applications:
Any project that requires placement of sediment on the beach or in the nearshore.

Limitations:
Estimations based on empirical relationships.

Info:
http://cirp.usace.army.mil/products/depth-of-closure.php
Supported by CIRP and RSM Programs

POCs:
Katie Brutsché and Brian McFall

SMT: Sediment Mobility Tool

What Does It Do:
Preliminary tool to make educated decisions regarding sediment mobility in the nearshore using readily-available data. Estimates frequency of sediment mobility, On/Offshore migration direction, and axis of wave dominated migration.

Typical Applications:
Placement of sediment in the nearshore in the form of a mound or berm.

Limitations:
This is a preliminary tool and not an exact predictor.

Info:
http://cirp.usace.army.mil/products/other.php

Supported by CIRP and RSM Programs

POCs:
Brian McFall and Katie Brutsché

WaveNet, TideNet

What Does It Do:
Metocean data (wind, wave, and tide) access, processing, statistical analysis of data, and generation of input data for wave and circulation models.

Typical Applications:
Corps projects in deepwater and nearshore requiring meteorological and oceanographic data.

Limitations:
Accesses publicly available data sources; available from ACE-IT computers.

Info:
http://cirp.usace.army.mil/products/metocean.php

POCs:
Zeki Demirbilek and Lihwa Lin