

Established in 1983, Taylor Engineering, Inc. provides specialized technical services in water resources and coastal engineering and the environmental sciences through five operational groups:

- Coastal Engineering
- Environmental Sciences
- GIS
- Hydrology and Hydraulics
- Waterfront Engineering

Within these service areas, specific expertise includes

- Flood risk analysis and floodplain management
- Coastal engineering, hydraulics, planning, and management
- Shore protection, including coastal structures and beach nourishment
- Navigation, including dredging and dredged material management
- Marine structure planning, permitting, and design
- GIS development and programming
- Disaster assessment and emergency response
- Sediment and water quality monitoring and modeling
- Ecosystem restoration
- Environmental impact studies
- Port engineering and marina design
- Stormwater management

Taylor Engineering has completed projects throughout the United States, Caribbean Basin, and South America for public and private sector clients.

# COASTAL *Hydraulics*

*Cover: Ponce DeLeon Inlet access channel feasibility study considered improved navigational safety, reduced structural maintenance requirements of the north jetty, and decreased inlet interior dredging maintenance needs.*

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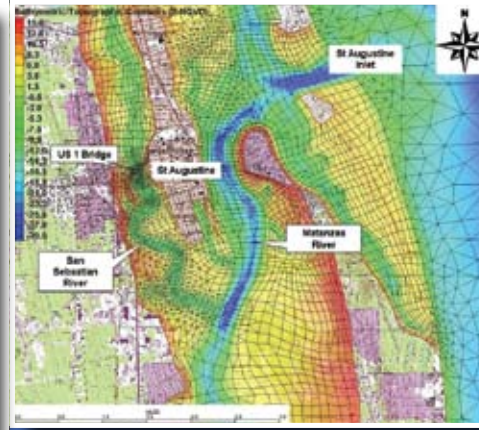


TAYLOR ENGINEERING, INC.

Consider a few of the various structures built in coastal environments: jetties that protect navigation channels through tidal inlets; seawalls and bulkheads that protect the businesses, condominiums, and private residences that dot the coastal landscape; marinas and harbors that support recreational, commercial, and military fleets; and bridges that span tidal waterways. To withstand the tremendous forces experienced along the coast, these structures must meet design criteria that account for waves, currents, and scour induced by tides, winds and storm surges.



*Accurate scour estimates provide the data needed to design safer bridges and piers.*



*Hydrodynamic models provide water level elevations and current velocities during storms to predict flood zones.*

# COASTAL

# Hydraulics

Accounting for these forces to ensure reliable structural designs falls to coastal engineers with expertise in the application and interpretation of hydrodynamic models. Since its inception, we have applied a number of such models to study

- Bridge scour
- Coastal flooding
- Effects from proposed coastal structures
- Inlet hydraulics
- Sedimentation
- Thermal plumes
- Water quality and flushing in canals, marinas, and estuaries

Both a user and creator of hydrodynamic modeling programs, we offer a unique perspective to specific model development and analysis. Based on a project's complexity, we have applied one-, two-, and three-dimensional models, including finite difference and finite element solution schemes. Given the wealth of experience gained from model application in many coastal environments, we have established a record of excellence in applying and interpreting coastal hydraulic models to support the permitting, design, and evaluation of various types of coastal structures.



*For FEMA, an ADCIRC model simulates storm surge along the SC coast to help protect lives and livelihoods.*