

GenCade

A Regional Shoreline Change Model

Regional Sediment Management & Coastal Inlets Research Programs
U.S. Army Engineer Research & Development Center • Coastal & Hydraulics Laboratory



Cascade + GENESIS = GenCade

We combined the best of both worlds!

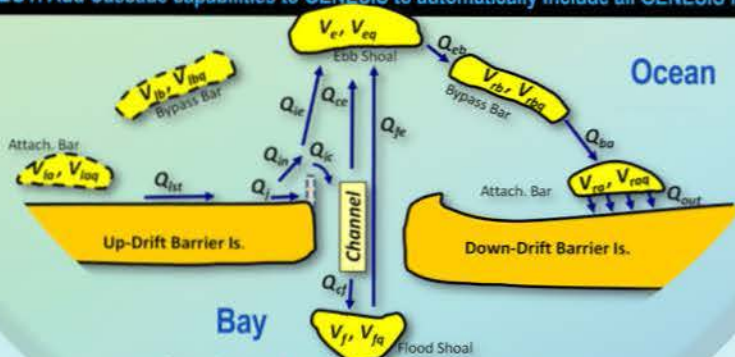
Cascade (top to bottom approach)

- Planning tool (RSM Support)
- Time scales: months to centuries
- Multiple inlets, shoals, and barrier islands; cumulative impacts; retains curvature of regional geomorphology
- Fast
- Typical grid resolution ~ 500 m
- Variable grid option speeds calculations

GENESIS (bottom to top approach)

- Engineering design tool
- Can represent engineering activities and coastal structures
- Mature technology – big payback by updating
- Typical grid resolution ~ 25 m

STRATEGY: Add Cascade capabilities to GENESIS to automatically include all GENESIS features



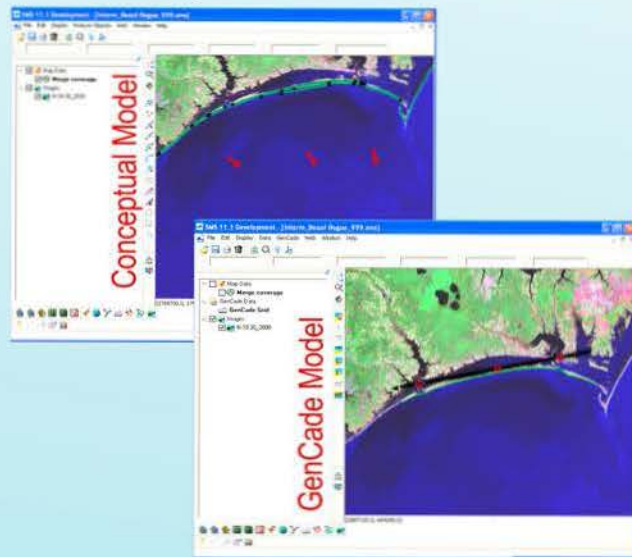
GenCade facilitates communication between the updrift island, inlet shoals and channel, and downdrift beaches

GenCade Conceptual Processes: Coastal Sediment Dynamics



The Conceptual Model

Easily and rapidly develop GenCade grids and setup files with the Conceptual Model in SMS



Application to Regional Sediment Management Studies



Application to Long Island, NY, including 3 inlets and 4 adjacent barrier islands

Application to St. Johns County, FL



Summary

- Regional shoreline and inlet shoal evolution model
- Easy to develop grids and setup files
- Available in SMS



Technical Ref and User's Guide, Draft Apr 12, Scheduled Publication Sept 2012

Regional design of beach stabilization structures at Sargent Beach, TX