

# Process-Based Model of Barrier Island Breaching



Moriches Inlet, NY

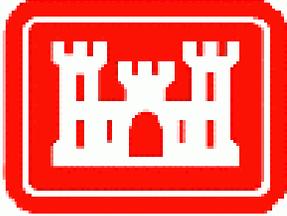
Tidal Currents

Longshore Transport

Navigation Channel

Stranded Jetty

Waves



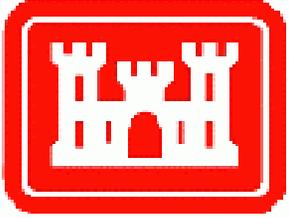
# Process-Based Breaching Model



- Breaches cause loss of property or access to property



- Breaches can undermine jetties and capture flow to destabilize maintained inlets

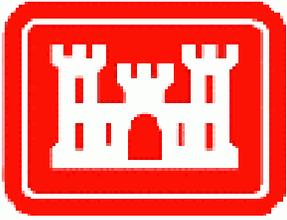


# Problem Statement



- **Where will a breach occur?**
- **Under what conditions will a breach occur?**
- **What will happen if a breach does occur?**

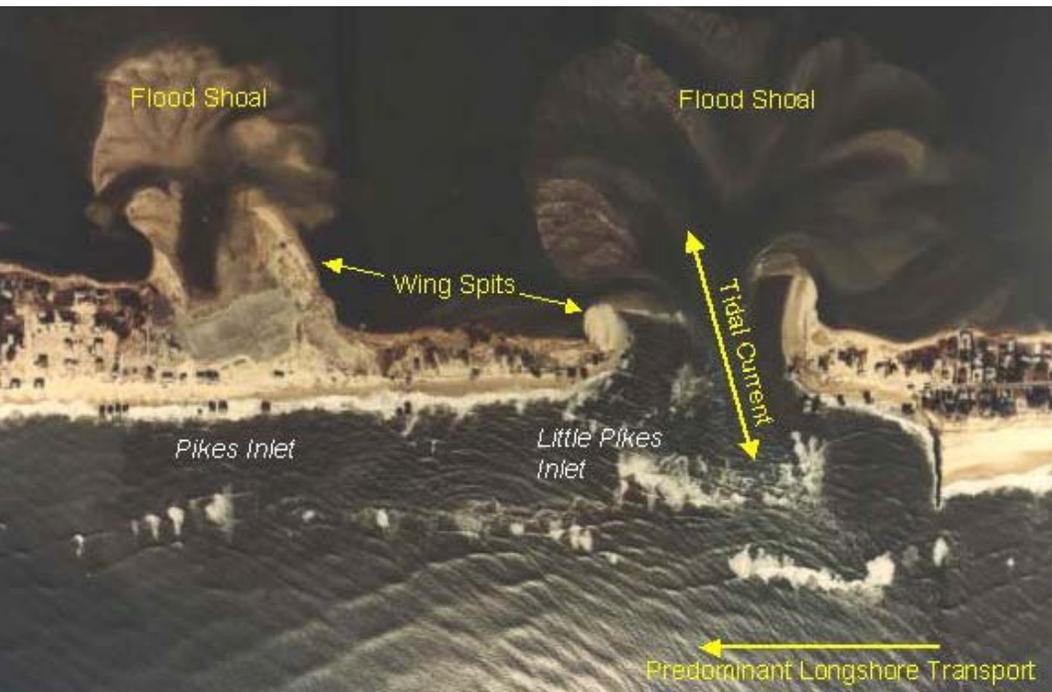




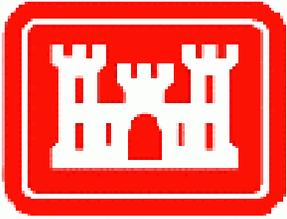
# Approach



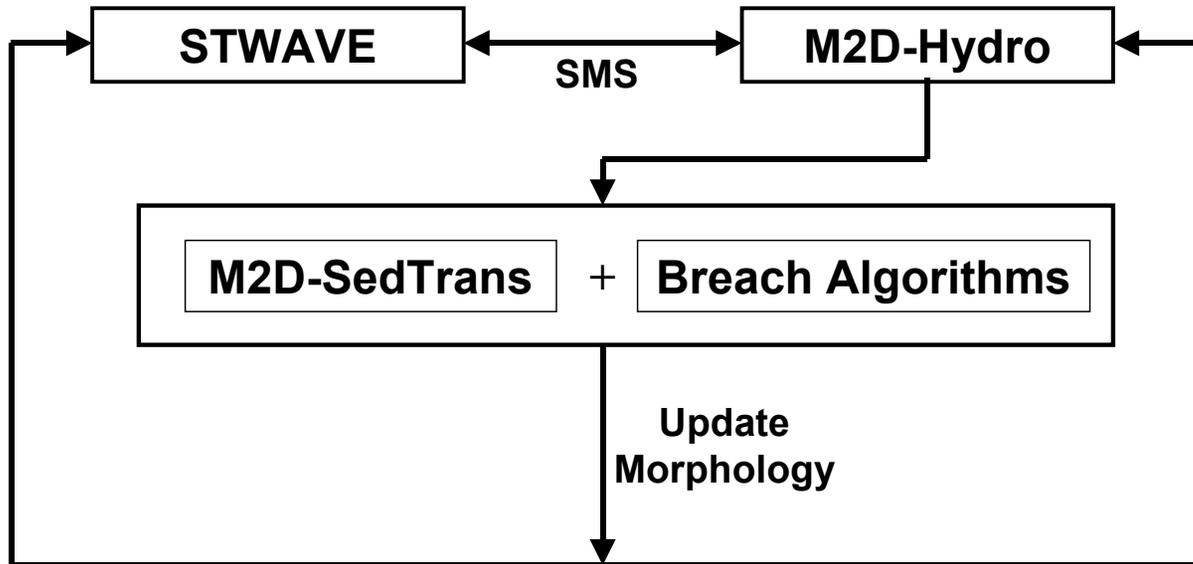
Processes that must be simulated include:



- Tidal flow M2D/STWAVE
- Waves
- Shoal formation
- Longshore sediment transport M2D/STWAVE + Breach Algorithms
- Overwash
- Dune erosion
- Bank erosion Breach Algorithms
- Spit formation



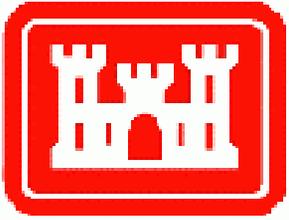
# Approach



M2D/STWAVE Models

Breach Algorithms

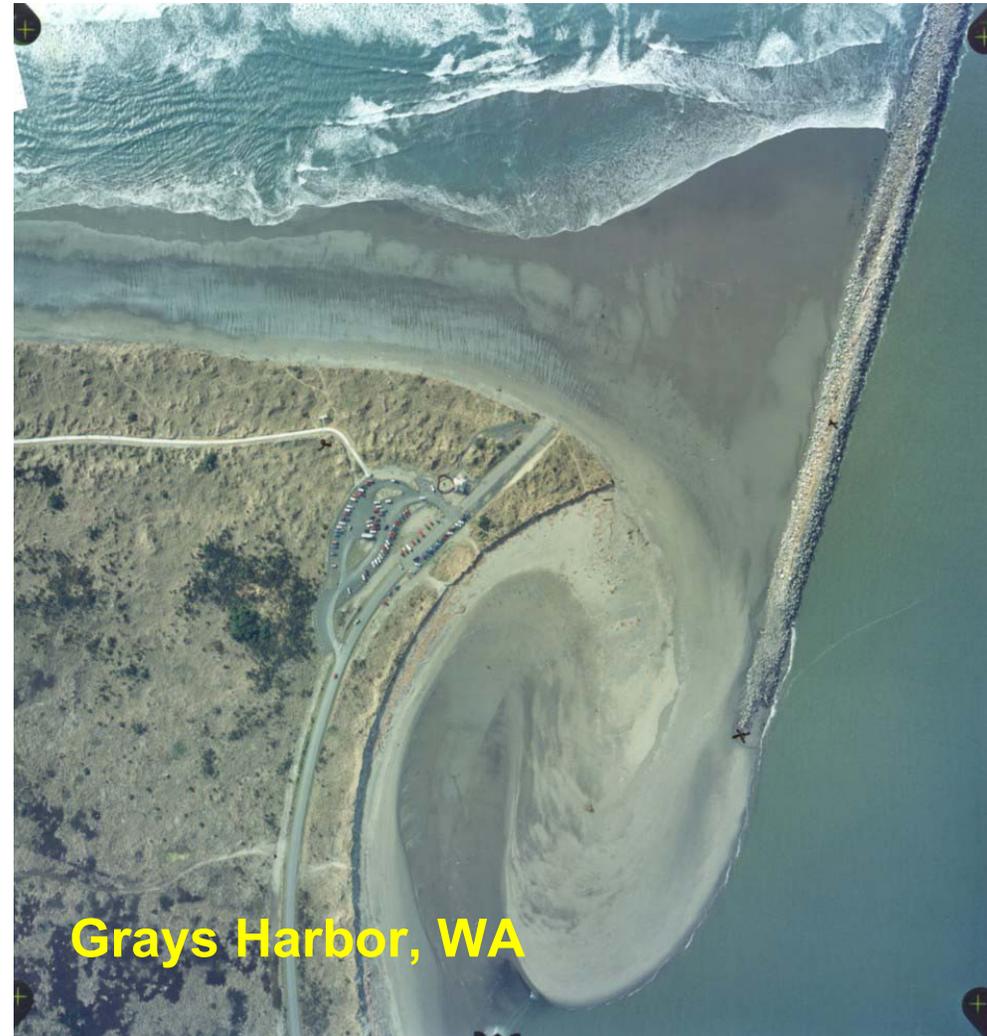
- Simple hydrodynamics
- Morphologic constraints
- Sediment transport



# Tech Transfer



- **M2D with Breach Algorithms in SMS Interface**
- **CHETNs**
- **Journal Articles**
- **Technical Report**



**Grays Harbor, WA**