

Process Based Modeling for Inlet Management

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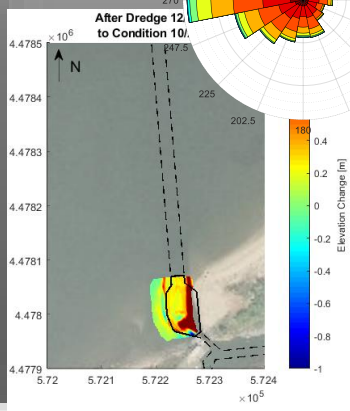
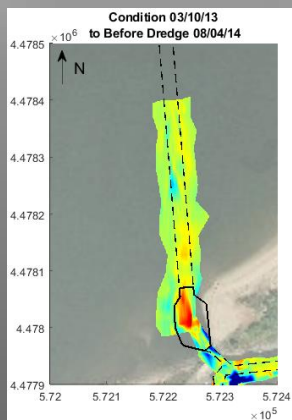
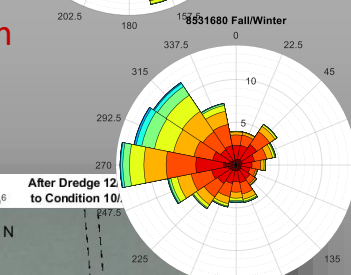
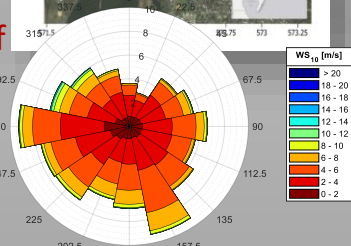
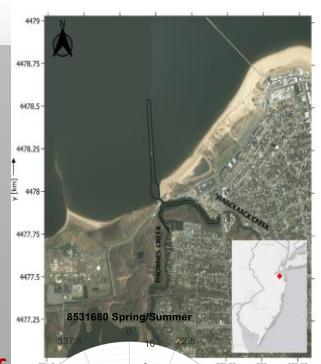


I. Location

- Western Raritan Bay
- Small Craft Harbor Inlet serving recreation and commercial boaters

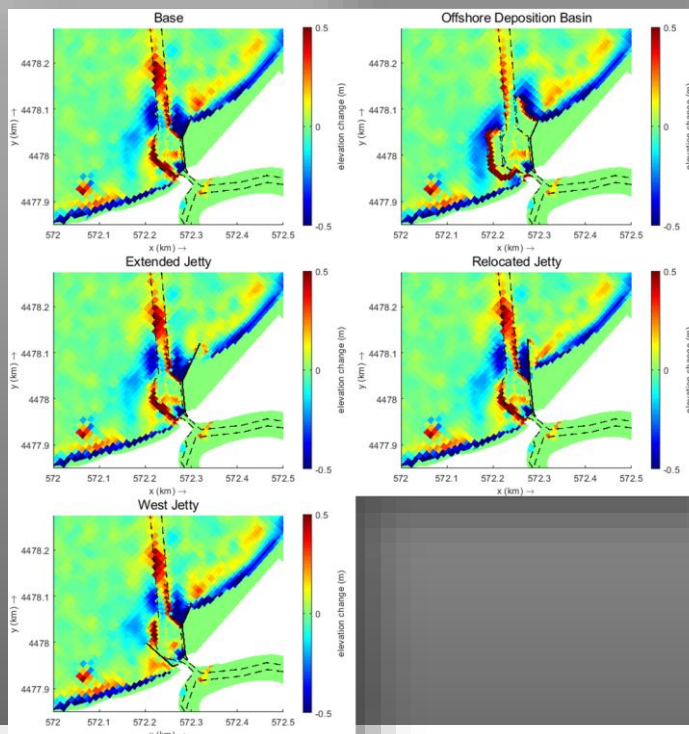
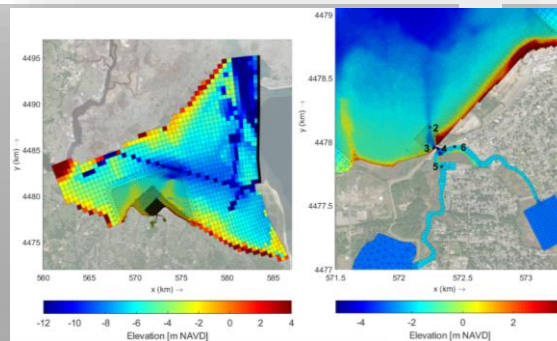
II. The Problem

- Shoaling (shallowing) of the channel
- Requires annual maintenance dredging
- Reversal in direction of sediment transport with weather patterns



III. The Solution

- “Do nothing”
- Add Structure(s)
- Modified Dredging Templates
- Modify Existing Structure



Design Alternative	Annual Volume in Channel (m ³)
Base (“Do Nothing”)	1,630
Offshore Deposition Basins	480
Extended Jetty	1,520
Relocated Jetty	1,400
West Jetty	1,210

IV. Conclusions

- Process Based Modeling allows quantification of dominant sediment transport vectors
- Soft solution (Offshore Deposition Basins) are more effective at decreasing dredge frequency
- Structural solutions only address one wave direction
- Altering limits and quantities of dredging material will increase frequency from annual to 2 to 3 years
- Potential savings are limited to reduced mobilization costs