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FIELD SURVEY PROGRAM AND NUMERICAL MODELING STUDY AT OREGON INLET *COASTAL MODELING SYSTEM*

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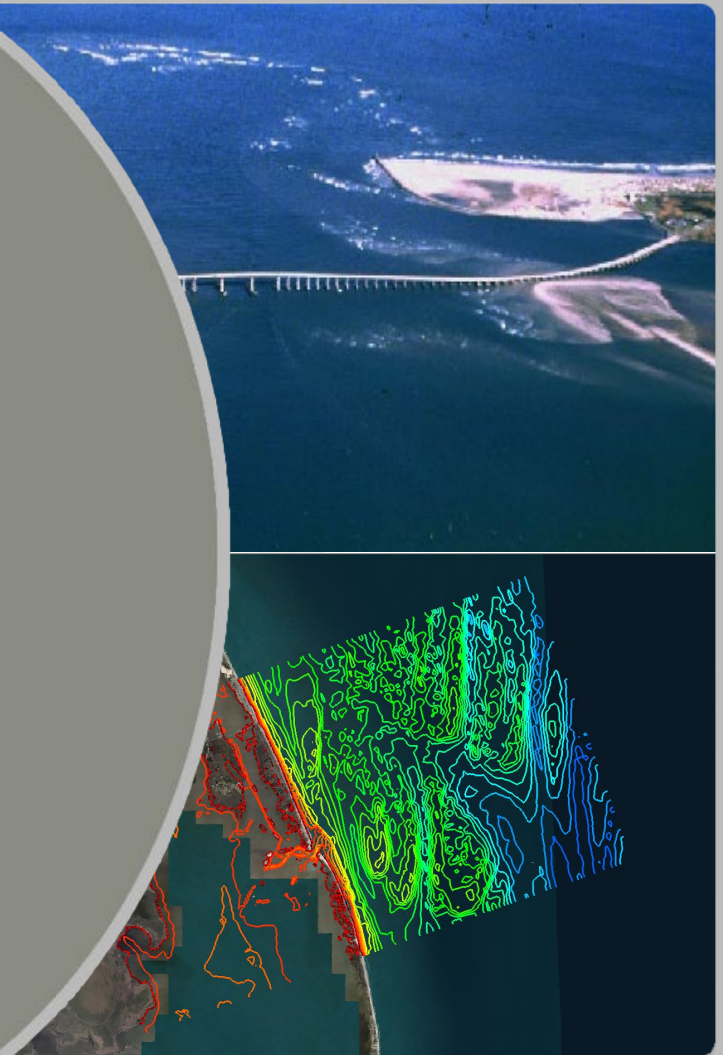
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BLUF



- Oregon Inlet: very dynamic inlet, significant morphology changes over time. Formation and evolution of flood- and ebb-tidal shoals present an ideal case for research on inlet navigation, shoreline change, coastal sediment management.
- A comprehensive field program was launched and the CMS model will be tested/validated at the inlet system.
- Coordinate and extend current FRF datasets for nearshore process investigation using CMS/C2SHORE, including further validation of remotely sensed data.

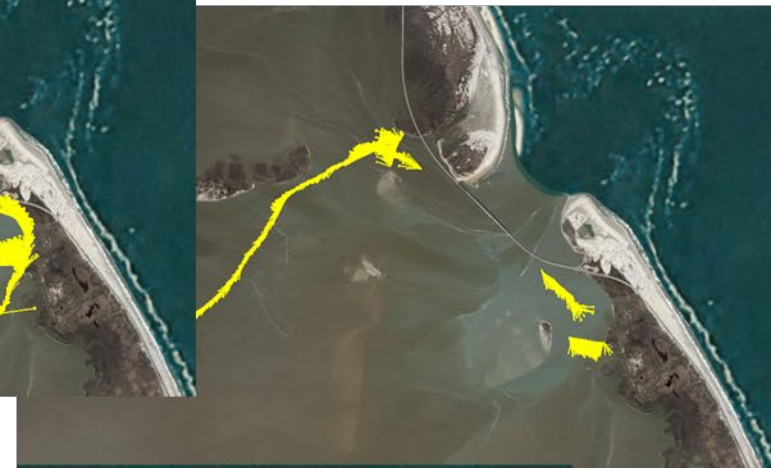


Field Survey - Transects

- Boat-mounted ADCP
- Flood and ebb tidal currents (> 2.0 m/s)
- April 17-18, 2019



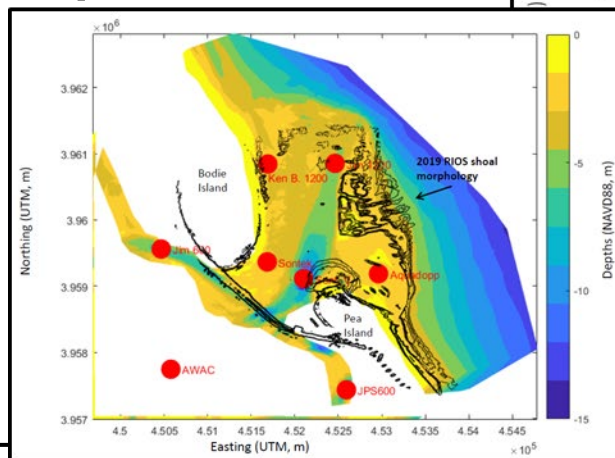
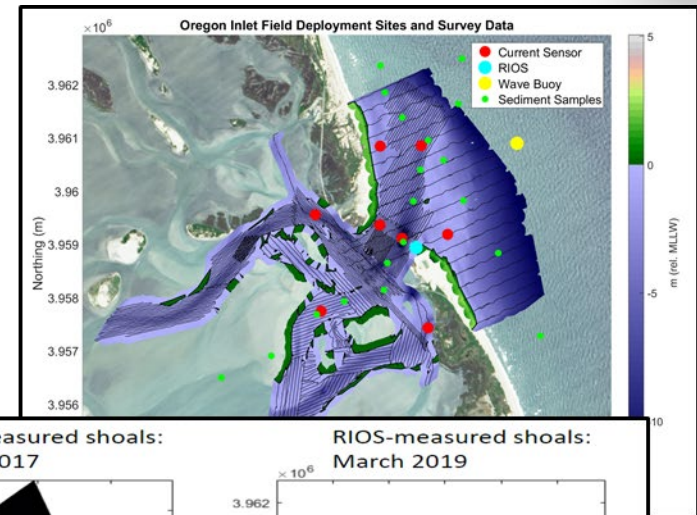
April 18, 2019



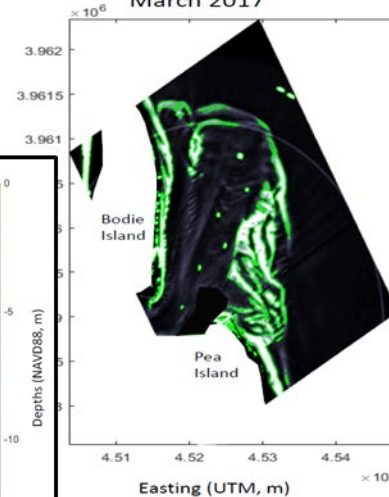
Field Survey - Bathymetry



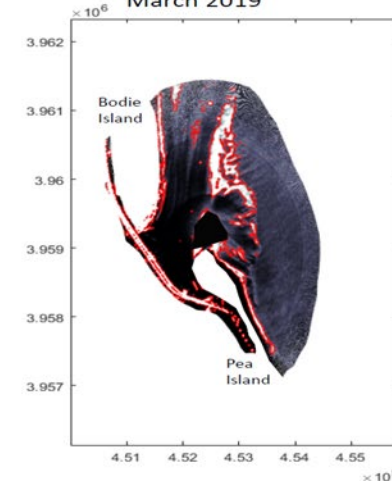
- Continuous measurements of inlet channels and shoals using Radar Inlet Observing System (RIOS)
- Hydrographic surveys (morphologic change)
- Coastal Lidar and Radar Imaging System (CLARIS) surveys
- March – April, 2019



RIOS-measured shoals:
March 2017



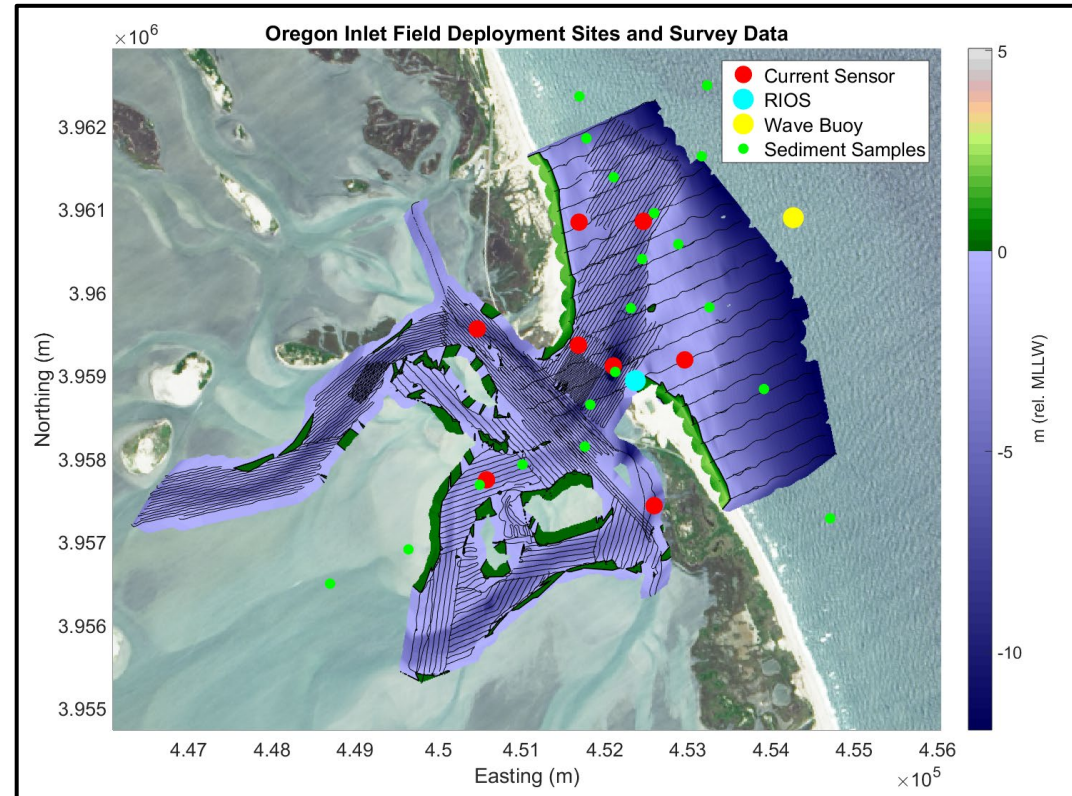
RIOS-measured shoals:
March 2019



Field Survey – Hydrodynamics, Waves, Sediment

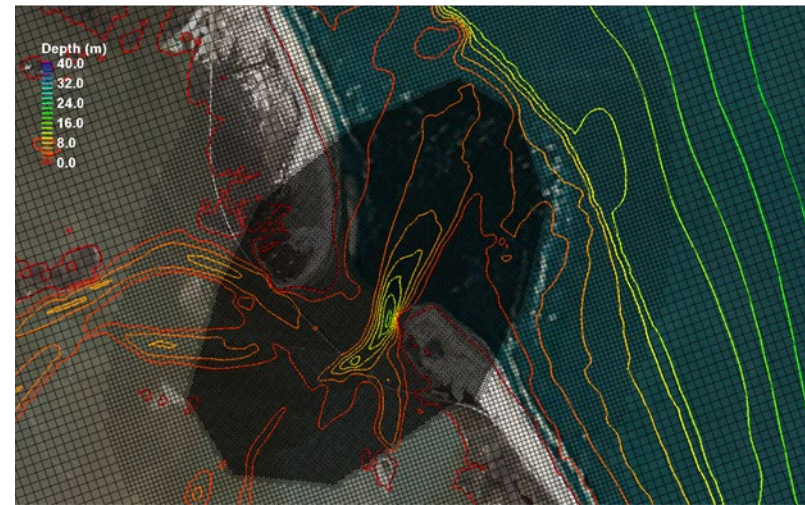
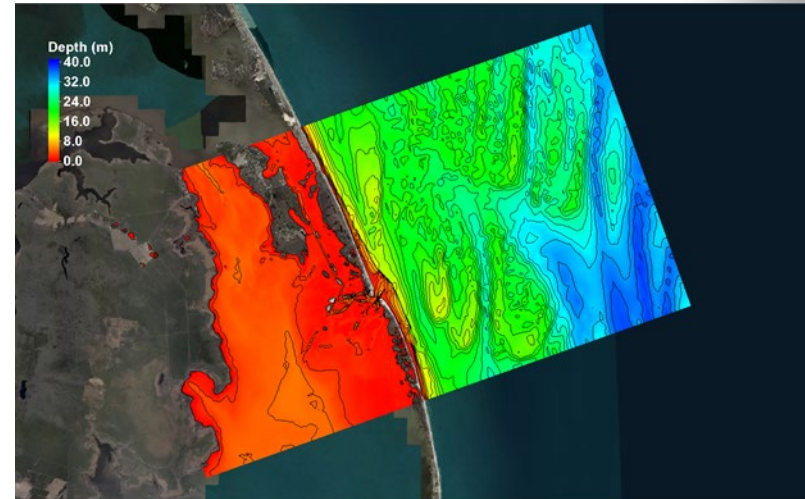


- Water surface elevation (pressure sensors) and current (ADCP) through the inlet and into the back bay
- Wave height, frequency and direction (buoy) offshore of the ebb-delta
- Surface sediment distribution across the inlet to include ebb and flood tidal deltas and associated channels (sediment samples)



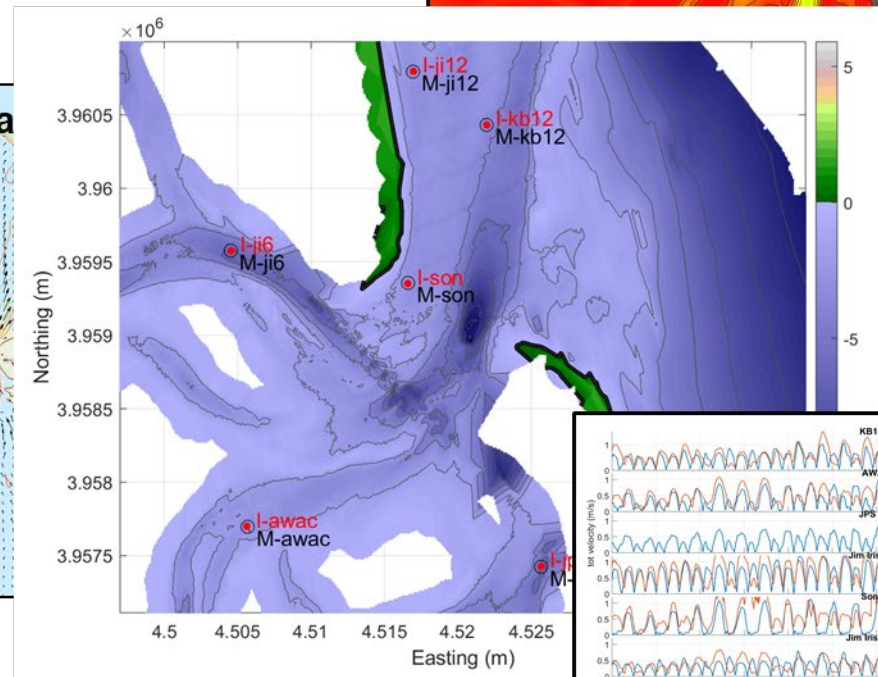
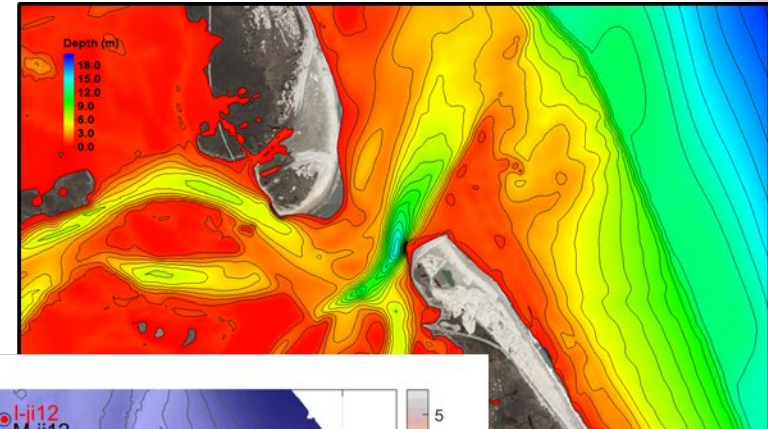
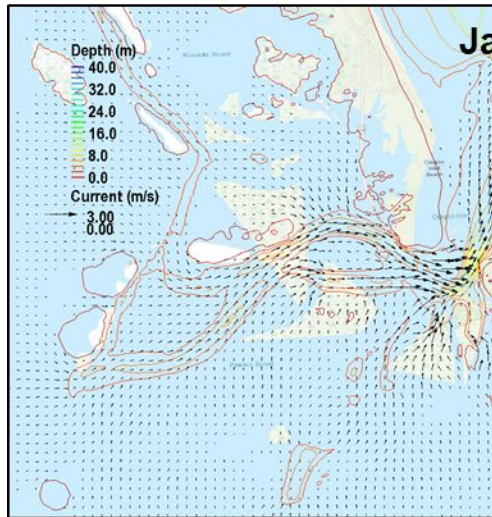
Numerical Models (CMS, Delft-3D)

- Numerical modeling efforts of waves, hydrodynamics and sediment transport
- Measured data to drive and validate numerical models
- Improve our current understanding of hydrodynamics and sediment transport processes in and around the inlet

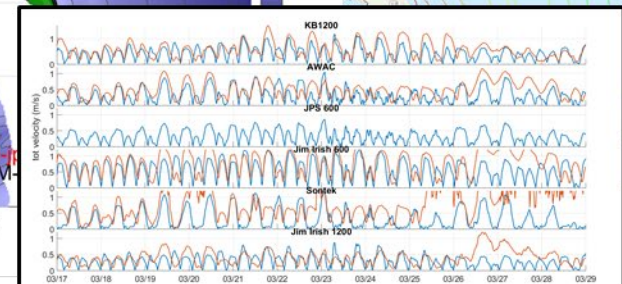


Model Setup and Preliminary Results

- Morphology changes around the inlet
- Strong tidal current through the inlet channel (> 2.0 m/s)



January 21, 2019 12:00





Summary

FY19

- Completion of the field investigation, data deliveries and analysis
- Initial model setup (bathymetric and model forcing data collection and grid generation)

FY20

- Data analysis/interpretation and model calibration/validation
- Understand evolution of ebb/flood shoals, inlet shoreline migration
- TR

