# FY18 RSM IPR
# NWP, West Sand Island Shore Stabilization
Austin Hudson, Rod Moritz, Jim Crain, Jarod Norton

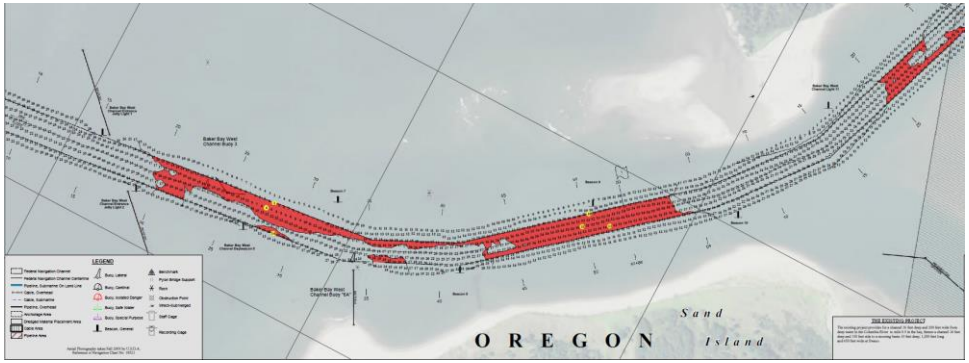
**BLUF:** Pile dikes in the Baker Bay West (Ilwaco) Federal Navigation Channel (FNC) are severely degraded and shoreline of West Sand Island (WSI) is a rapidly eroding. NWP exploring beneficially using dredged material from the FNC to restore shore connections.

## Challenge/Objectives

- Rapid erosion of West Sand Island
- Emergency dredging of FNC in FY12 and FY17
- Pile dikes critical to navigation and island protection
- WSI has very unique habitat
- Beneficial use of dredged material

## Approach

- Evaluate historical shoreline
- Analyze existing data and dredge volumes
- Acoustic Doppler Current Profiler (ADCP) Deployment




# FY18 RSM IPR
# NWP, West Sand Island Shore Stabilization
# Austin Hudson, Rod Moritz, Jim Crain, Jarod Norton

## NWP PDT Members

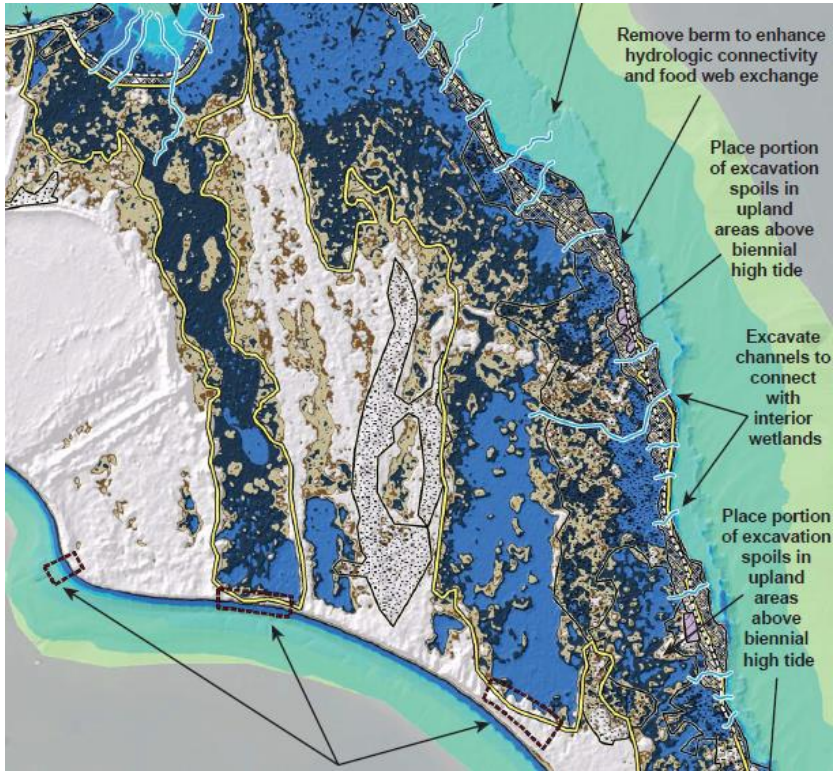
- Austin Hudson, Hydraulic Engineer
- Rod Moritz, Hydraulic Engineer
- Jim Crain, Hydraulic Engineer
- John Hayes, Geographer/GIS
- Kate Wells, Biologist
- Jarod Norton, Project Manager/Biologist
- James Holm, Sediment Quality

## Leveraging/Collaborative Opportunities

- Modeling/analysis
  - Sand Island Pile Dike Repair
  - Baker Bay West Pile Dike EDR
  - 2013 ONR RIVET II Data
- CREST habitat creation project
- Existing data
  - O&M Dredging
  - Baker Bay ADCP deployments

## Stakeholders/Partners

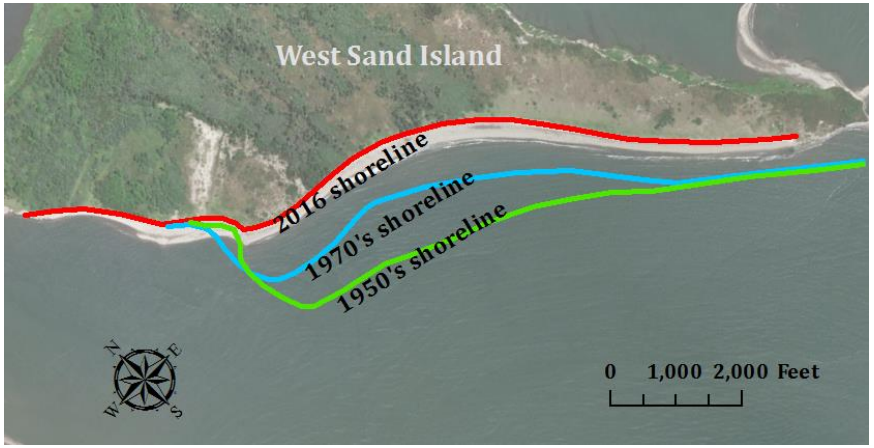
- CREST; Madeline Ishikawa, Justin Saydell
- Guy Glenn, Port of Ilwaco
- USCG – Cape Disappointment
- CMOP



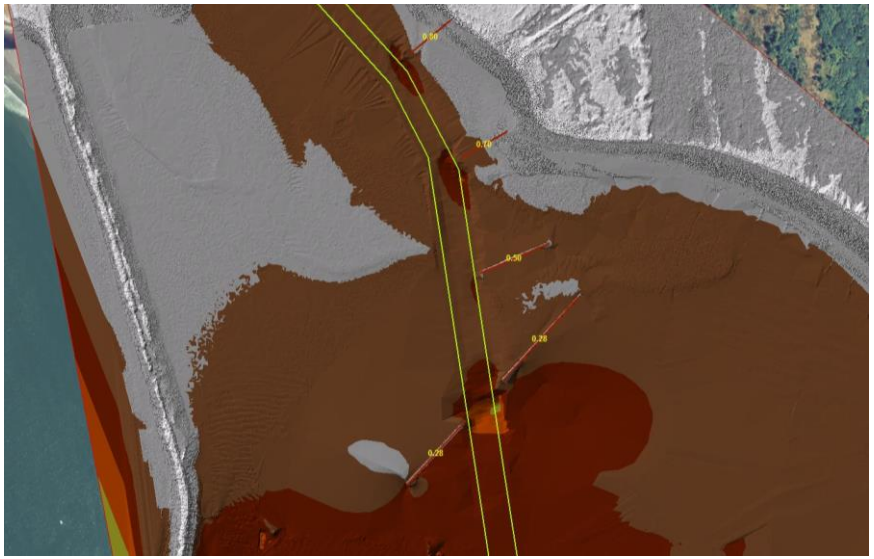
# FY18 RSM IPR
# NWP, West Sand Island Shore Stabilization
Austin Hudson, Rod Moritz, Jim Crain, Jarod Norton

## Accomplishments/Deliverables

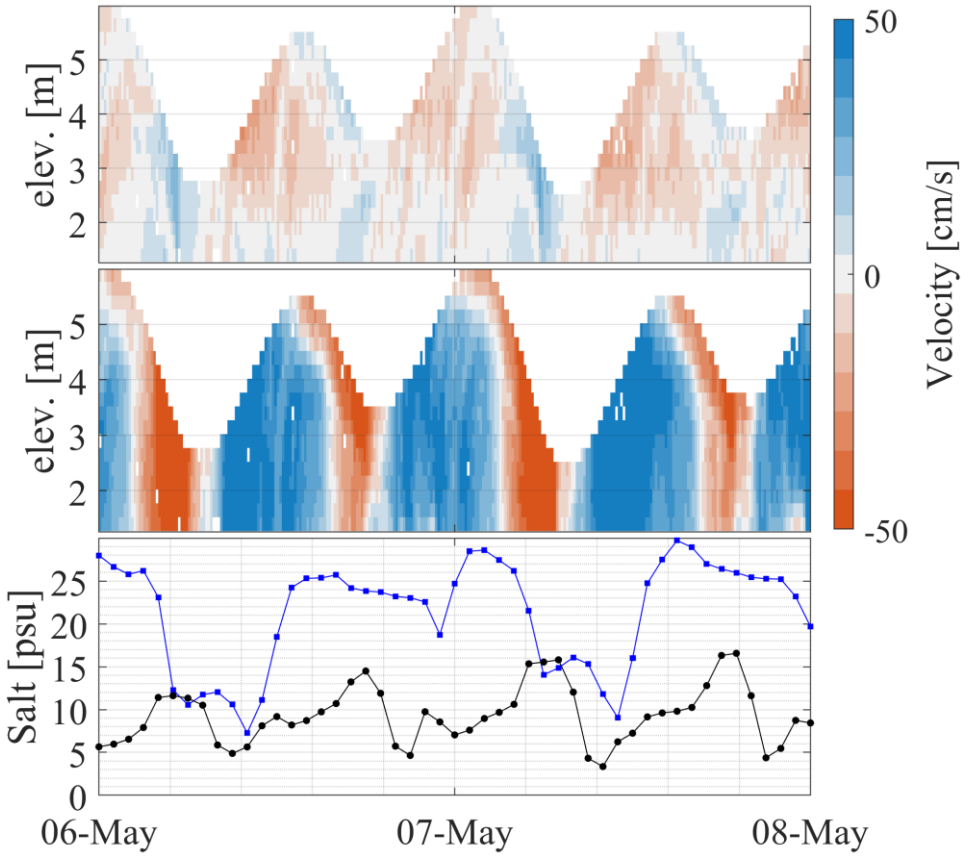
- GIS track shoreline with historical imagery
- AdH Modeling
- 30% Baker Bay West Pile Dike EDR
- ADCP Deployment
  - 3 deployments, 15 days
  - 1 fixed cross-channel facing, 2 mobile





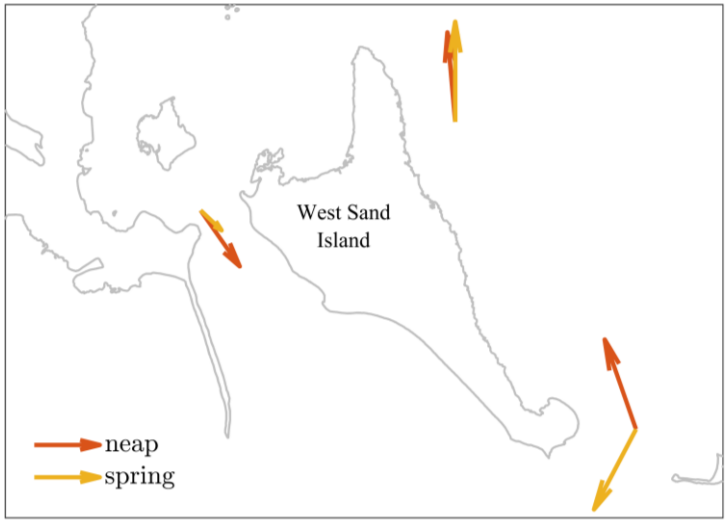


# FY18 RSM IPR
# NWP, West Sand Island Shore Stabilization
Austin Hudson, Rod Moritz, Jim Crain, Jarod Norton




## Accomplishments/Deliverables

- ADCP data
  - Flood dominant flow
  - Asymmetry drives sediment transport
  - Plan to collect more data closer to project site.



**FY18 RSM IPR**
**NWP, West Sand Island Shore Stabilization**
**Austin Hudson, Rod Moritz, Jim Crain, Jarod Norton**

- **Challenges:**
  - Coordination/permitting with resource agencies
  - Life without pile dikes?
  - Advice?

- **Lessons Learned:**
  - TO for collecting oceanographic data.
  - Role of tidal asymmetry in sediment transport.
  - Details matter.

- **Path Forward**
  - Alternative analysis for shoreline placement (JAN 2019).
  - Focus on the good stuff.

**Benefits:**

- Shallow water habitat.
- Protecting coastal plains on West Sand Island.
- Reduce emergency dredging in Baker Bay West Channel.
    - Safe/reliable access for USCG.
- FNC
- Placement capacity in LCR
- Refinement of LCR AdH model.