RSM FY16 IPR

Portland District, South Jetty Nearshore Site Monitoring

Rod Moritz, Wendy Briner, Jarod Norton

BLUF: Use of the nearshore sites reduces dredging costs, keeps material in the littoral cell, protects the jetty roots, and increases habitat opportunities for local benthic communities.

Description/Challenge

- Protecting a public investment (Jetty).
- Beneficial Use of dredged material by keeping it in the littoral cell.
- Prevent "wasting" sediment to the DWS.
- Distribution of material.

Goals/Issues to Address

Implementing the Portland District RSM plan through placement in the South Jetty Nearshore Site.

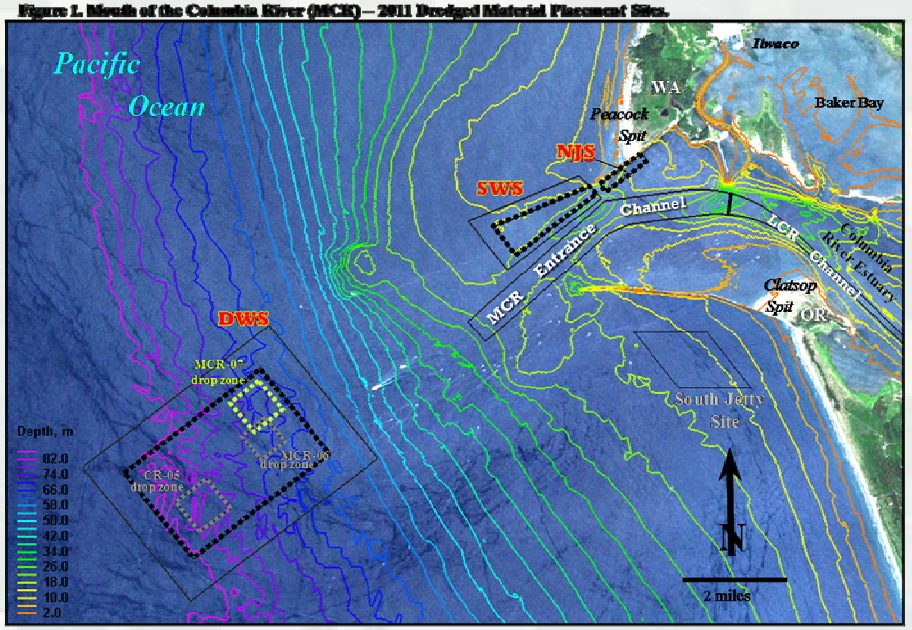
Keep sediment in the littoral cell.

Protect South Jetty Root.

Lower Maintenance Dredging Costs/Cycle Time.

Increased Habitat Opportunities for Benthics.

Figure 1. Mouth of the Columbia River (MCR) – 2011 Dredged Material Placement Sites.



DWS: Deep Water Site, 102 MPRSA **SWS:** Shallow Water Site, 102 MPRSA **NJS:** North Jetty Site, 404 CWA
MCR-07-DWS: sub-region within DWS, first used in 2007, to be used as DWS disp zone for 2011 dredging season.
MPRSA: Marine Protection, Research, & Sanctuary Act
CWA: Clean Water Act

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Approach

Benthic Surveys

Design, construct, and test a benthic video sled to enable quantification of macrofaunal abundances and distributions.

Conduct benthic surveys at control and dredge material deposition sites spanning the operations period.

Analysis will include extracting organism abundance data from digital video logs and testing for significance in a BACI statistical design.

Crab Mortality and Motility

- Deploy acoustic receiver moorings at control and impact sites.
- Catch, tag, release and monitor crab movements during and after dredge material deposition events.
- Analysis of crab positions.

Models, Tools, Databases, etc Used

Sediment Profile Imaging Photography (SPI)

ADCP Deployment

Acoustic telemetry will be used to evaluate survival of Dungeness crabs

CamPods

MBARI/ERDC Benthic Algorithm

Benefits

- Keep sediment in the littoral cell
- Slowing the erosion of Clatsop Spit
    - Maintain Jetty Foundation/Root
- Reduced costs to the dredging program
- Increased habitat opportunities
- Spreading disposal between a network of sites
- Reducing the likelihood of mounding in the SWS

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District PDT Members

Rod Moritz, Coastal Engineer
Wendy Briner, Sediment Quality
Mike Ott, Chief Waterways Maintenance
Jarod Norton, MCR/RSM Project Manager

Leveraging/Collaborative Opportunities

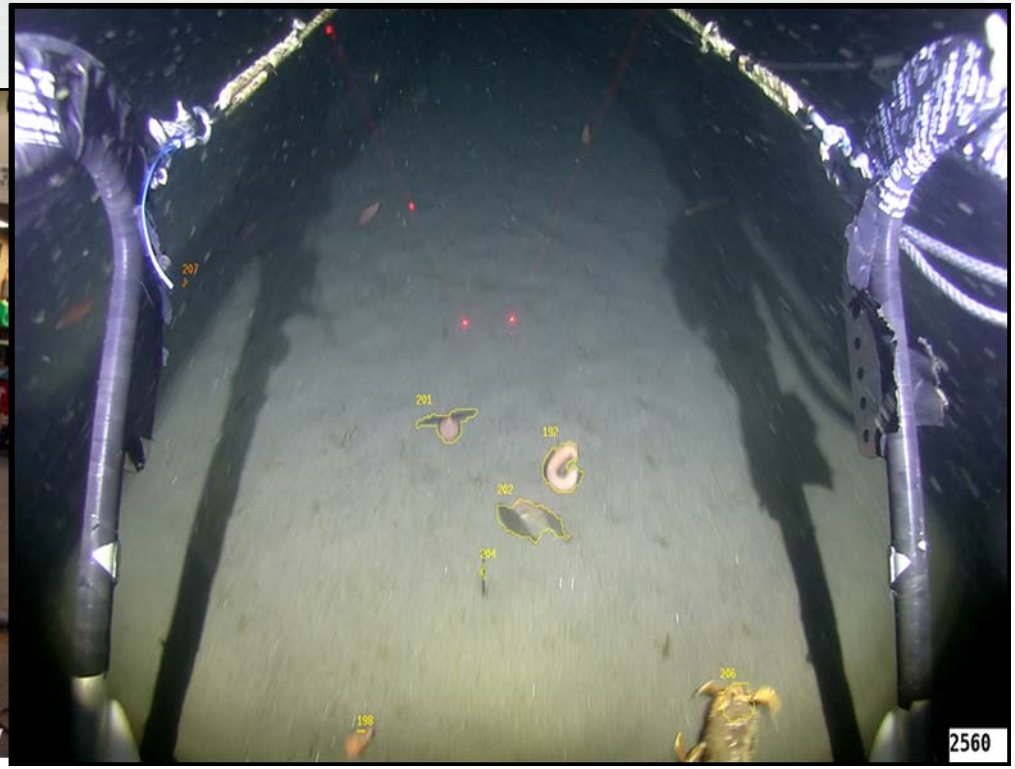
funding, data, tools, models, etc

WDFW, vessel time
CRCFA, funds for crab tags
EPA funds for additional site monitoring

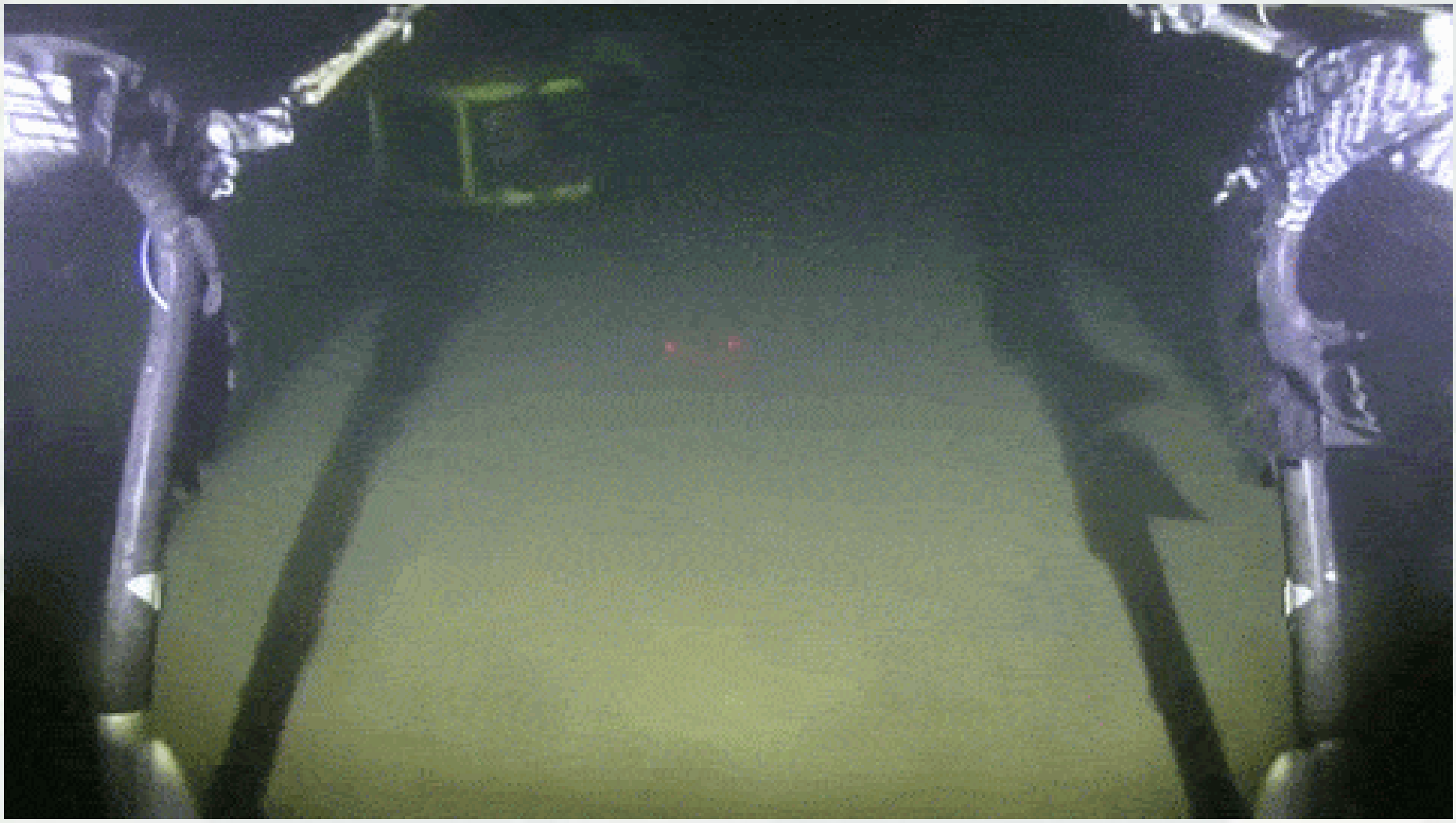
Milestones/Deliverables

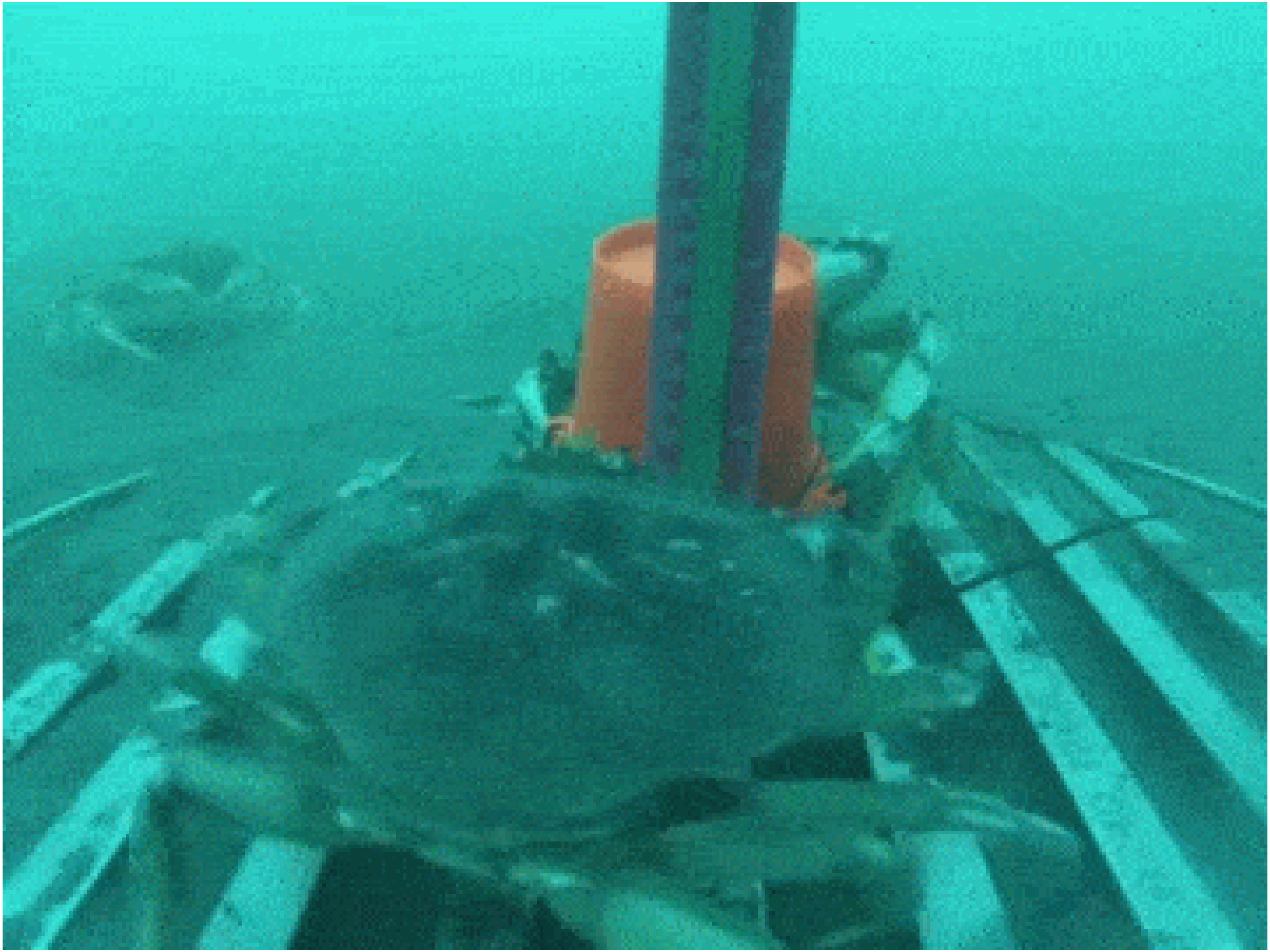
- Operational placement began in 2014
- Placement events in 2012 and 2013.
- Use of monitoring information to develop a network of nearshore sites .
- Stakeholder buy-in through collaboration.

Marine Water Video/Information Sled under construction at NOAA Research Facility



Benthic Video Sled

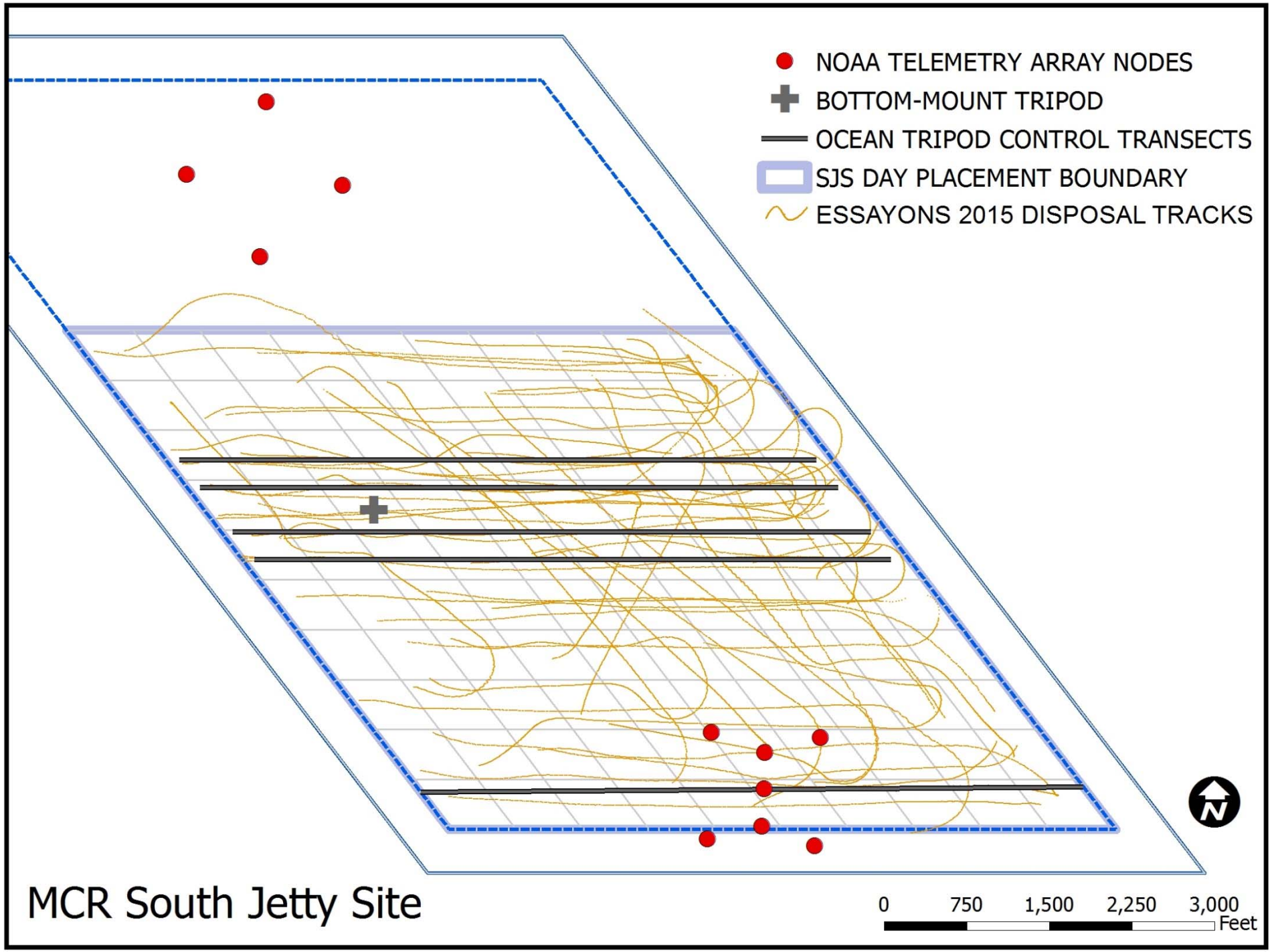




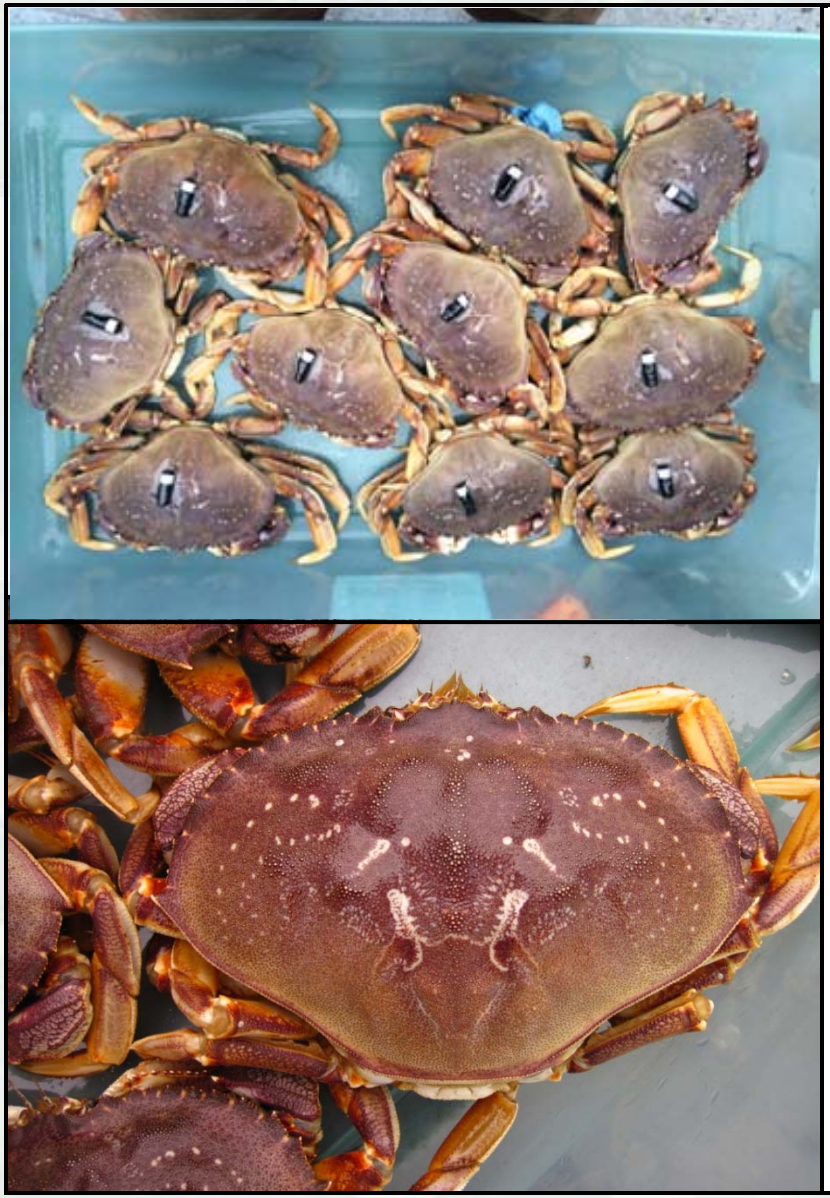
ADCP Data Collection

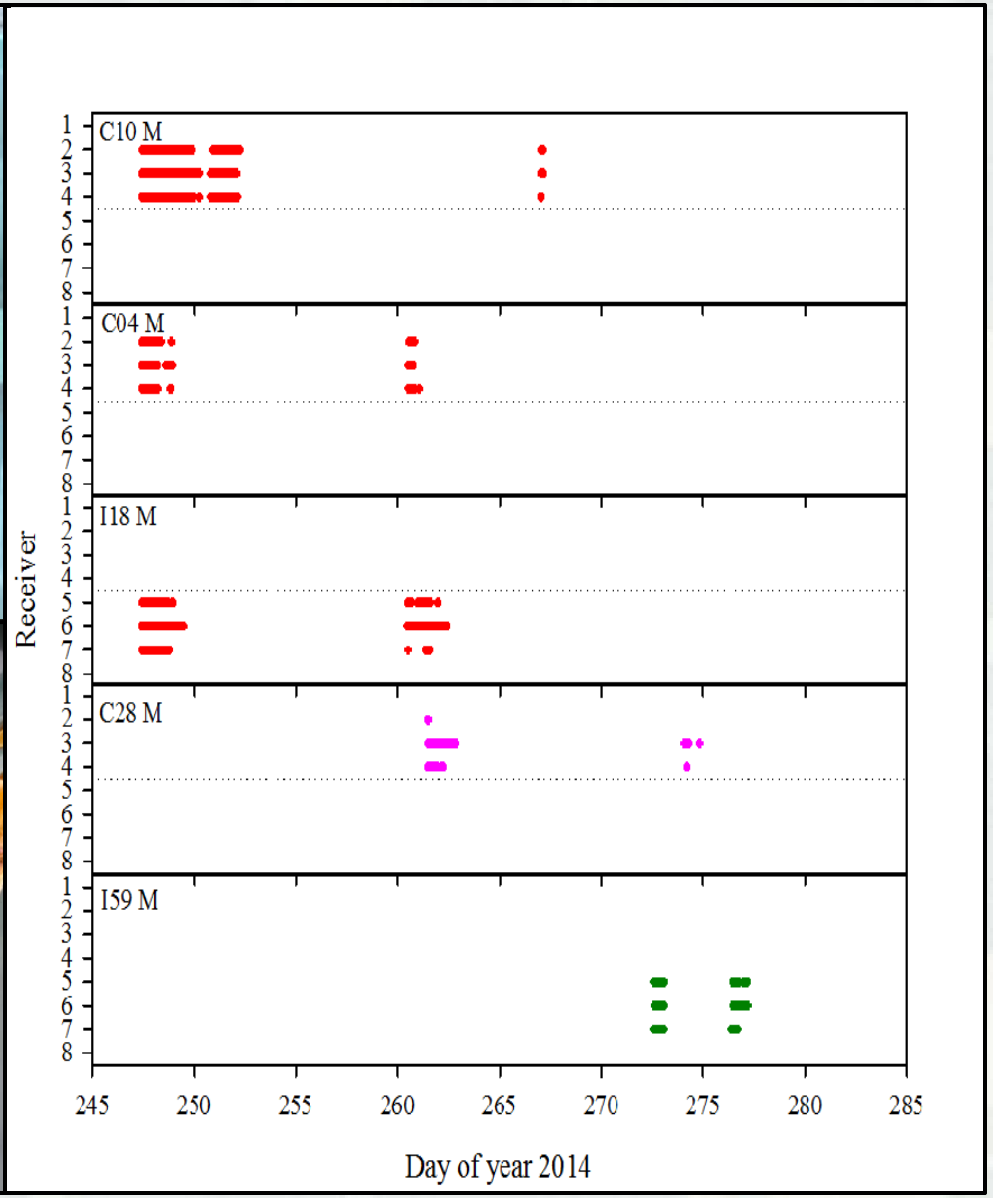
Data collection includes:

- Measured currents through the water column
- Directional waves
- Suspended sediments
- Bottom current regime
- The intent of the data collection is to measure dredge material plume velocities and suspended sediments
- Infer impacts to benthic communities based on lab results


NOAA TELEMETRY ARRAY NODES
BOTTOM-MOUNT TRIPOD
OCEAN TRIPOD CONTROL TRANSECTS
SJS DAY PLACEMENT BOUNDARY
ESSAYONS 2015 DISPOSAL TRACKS
MCR South Jetty Site
0
750
1,500
2,250
3,000
Feet

Acoustic Crab Tags





(Preliminary data courtesy of NOAA)

Mouth of the Columbia River RSM Stakeholders

1) National Oceanic and Atmospheric Administration (NOAA)
2) Environmental Protection Agency (EPA)
3) Oregon Governor's Office
4) Washington Governor's Office
5) WA Department of Ecology (WDOE)
6) Columbia River Crab Fishers Association (CRCFA)
7) Washington Department of Natural Resources (WDNR)
8) Oregon Dept. of Land Conservation and Development (ODLCD)
9) Oregon Sea Grant
10) Portland State University
11) Oregon State University
12) Oregon Health Sciences University
13) National Policy Consensus Center
14) Oregon Department of Environmental Quality (ODEQ)
15) Port of Astoria
16) Port of Ilwaco
17) Port of Chinook
18) Pacific County, WA
19) Clatsop County, OR
20) Oregon Department of State Lands (ODSL)
21) US Fish and Wildlife Service (USFWS)
22) Oregon Department of Fish and Wildlife (ODFW)
23) Washington Department of Fish & Wildlife (WDFW)
24) Lower Columbia Solutions Group (LCSG)
25) Institute for Natural Resources
26) Center for Public Service

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What is working? Ups? Success?

- Stakeholder engagement is going very well, a lot of participation and trust within the group.
- Thin-layer placement is working, validates lab results.
- Innovation is working, laying the ground for future sites by doing things that haven't been done before.

What is not working? Downs? Issues?

- Need to keep the momentum in the group.
- Funding limitations.
- Agreement on the location of new placement sites within the group.

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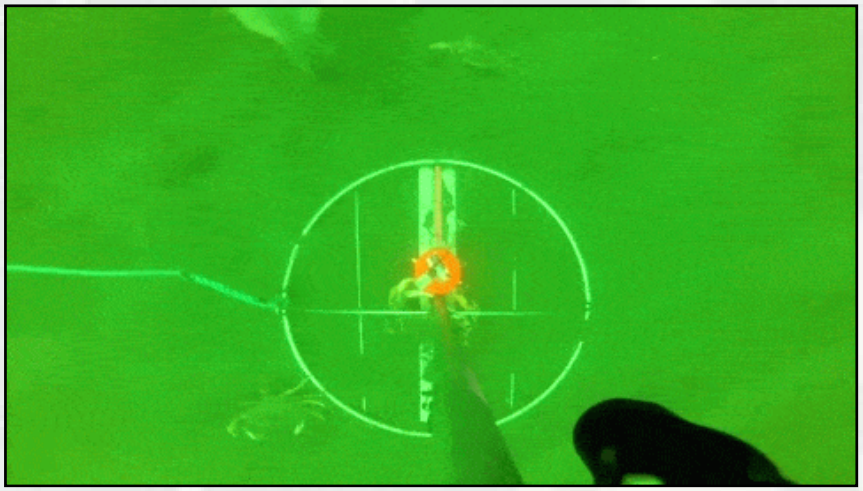
Value to the Nation Cost savings

- Value added
  - Value to the dredging program, nearshore sites are closer than DWS, lower cost of dredging/increased production
  - Protection of the jetty system
  - Innovative monitoring
  - Streamlining ability to designate future placement sites
- Leveraging resources from fed and non-fed partners
- Improved benthic communities
- Improved partnerships, happy stakeholders
- Permitting and compliance requirements improved by including state agencies in the stakeholder working group.
- Capacity of placement site saved in DWS and other nearshore sites, distribution of material between sites lowers the likelihood of mounding.
- Other
  - Passive tag detections in the array.