Monitoring Dredging Intensity Using Variable Grid Analysis of Dredge Quality Management Data

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	PO = Physical Oceanography FE = Fate & Effect BIO = Biology PS = Protected Species SE = Social & Economic OT = Other		

Headquarters

BOEM — BUREAU OF OCEAN ENERGY MANAGEMENT

BOEM Information Need:

Project-specific and cumulative dredging-intensity (measured as duration in location) within borrow area
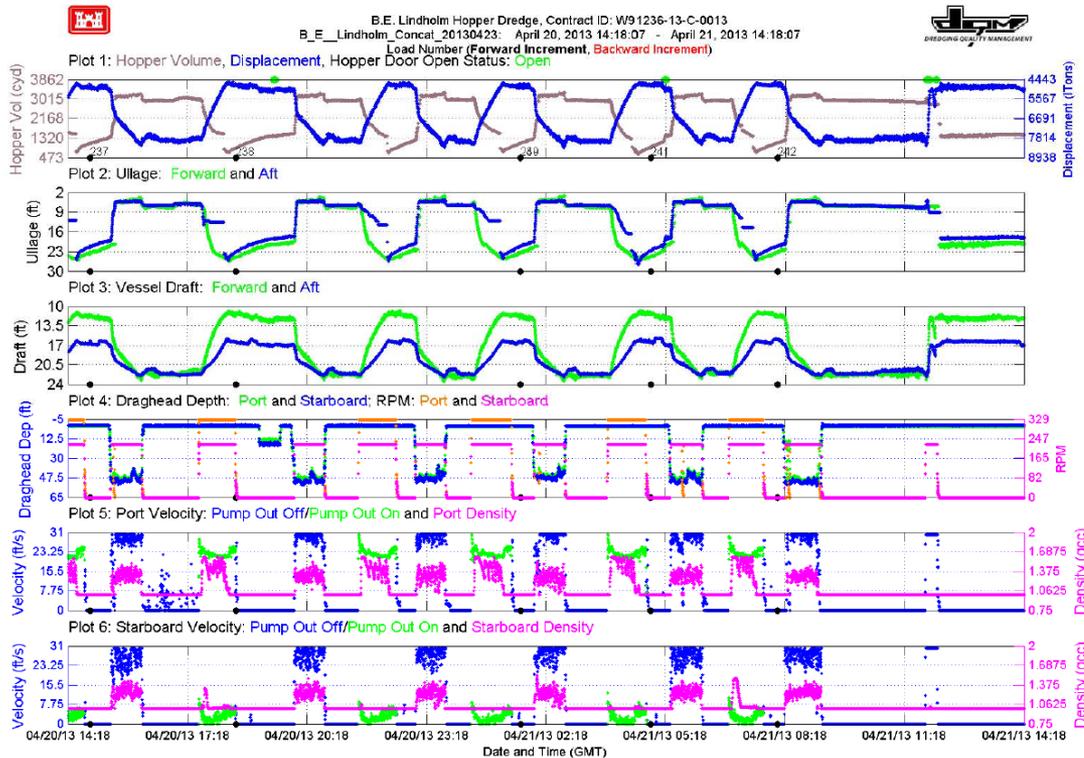
Date Information is Required:

Ongoing need for current and future projects

Headquarters

Tentative Ranking: 9

Background:

DQM are collected real-time to track dredge location/operation.

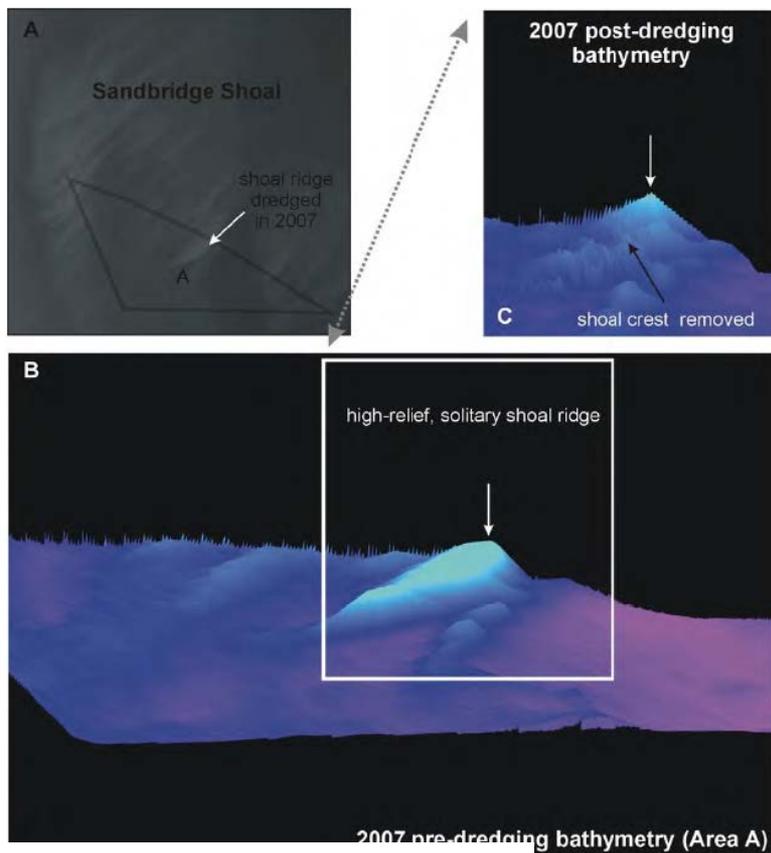
*Dredge Tracklines
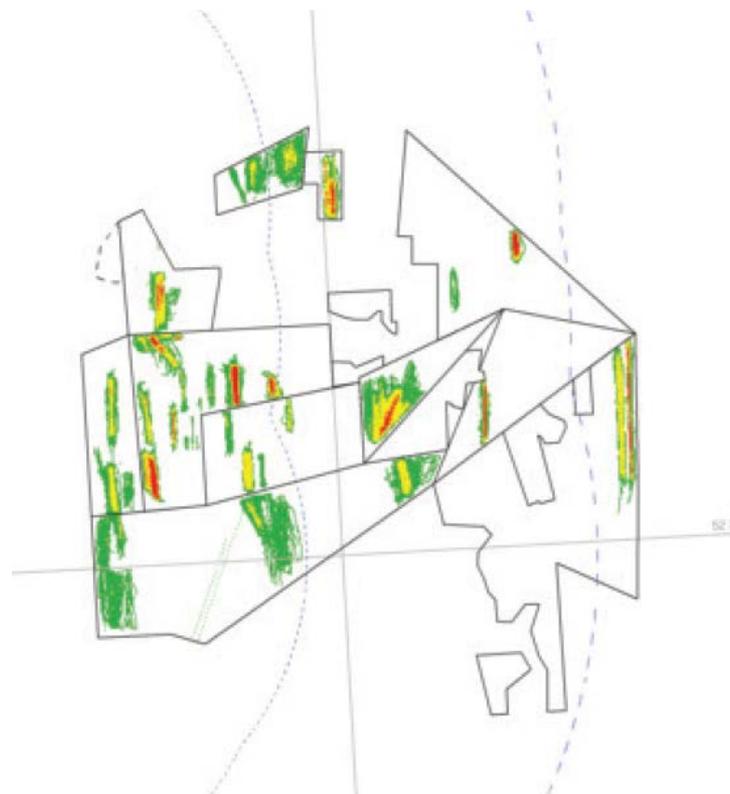(Sandbridge Beach, VA; April 21, 2013)*

Headquarters

Tentative Ranking: 9

Background:

Dredging intensity data are complementary to volumetric change data.

Pre- and post-dredging elevation models (Sandbridge Shoal 2007)

Post-dredging Dredging Intensity offshore UK (Relative Scale, Red is Maximum)

Headquarters

Tentative Ranking: 9

Background:

A) Relationship with Previous Work/Efforts

Coordinate with The Crown Estate (UK)

B) Relationship with Concurrent/Future Efforts

Coordinate with USACE Mobile District DQM Center. Explore cost-sharing and leveraging opportunities.

Headquarters   **Tentative Ranking: 9**

Study's Objectives:

Quantify dredging intensity to improve project characterization, effects analyses, mitigation measures, and resource management.

Develop the methods to translate point time/location data into a grid representing the total time spent dredging in a particular area.

Headquarters   **Tentative Ranking: 9**

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Study's Methods:

Develop GIS framework to determine "total time dredging or transiting in a defined location" (unit time/unit area), converting random point location data into a defined grid.

Perform geostatistical analyses to ensure statistical validity and quality of time exposure data.

Test and validate gridding approaches using structured and unstructured grids. Develop interpolation procedures necessary to address gaps in time series data.

Develop suitable workflow model for use in GIS software.

Headquarters   **Tentative Ranking: 9**