



Using Satellite Imagery to Analyze Environmental Impacts from Dredging

ERDC Dredging Operations Technical Support Program (DOTS)

U.S. ARMY CORPS OF ENGINEERS

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Response Summary:

A review and analysis of the 2015 article in the Remote Sensing Environment Journal by Barnes, et al: *Sediment plumes induced by the Port of Miami dredging: Analysis and interpretation using Landsat and MODIS data about measuring sediment plumes using satellite imagery at the Port of Miami* and other related articles was conducted. Barnes makes an attempt to measure the spread and effect of dredging sediment plumes using satellite imagery and other related data. Barnes does a good job of addressing the many different phenomenon that affect dredging sediment plumes, but many are not fully resolved. The quantity of data points and the lack of resolution (time domain) results in findings that cannot fully describe the subject. Other data and analysis such as computer modelling and further field data would be needed to make the findings actionable.

Period of Performance:

February 4, 2020 to August 4, 2020

Benefits of the Response to the USACE Dredging/Navigation Program:

Corals are dying off the coast of Florida and the Jacksonville District been criticized for the navigation dredging program being a cause of coral death due to localized sedimentation, specifically the deepening project at the Port of Miami. Barnes has attempted to use a new type of analysis to measure dredge plume extent and effects. The review of this article shows that Barnes methods have potential, but lack data resolution and quantity, and validation from other field measurements in order to draw conclusions in such a dynamic environment. This analysis provides a path forward to further investigate the effect of dredging plumes on the local environment.

Deliverable:

Comments of the Barnes article and suggestions for further investigation have been communicated to the district.



Providing environmental and engineering technical support to the U.S. Army Corps of Engineers
Operations and Maintenance navigation and dredging missions

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