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OCS Scientific Committee Meeting
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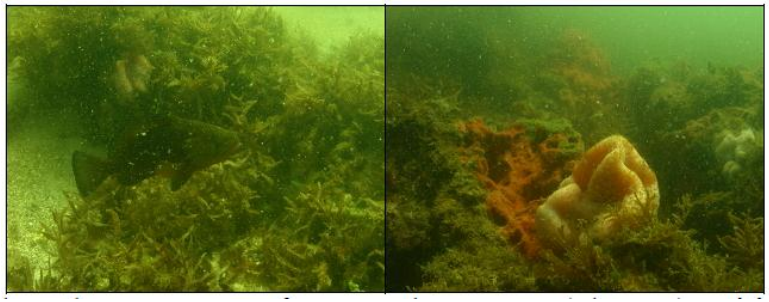
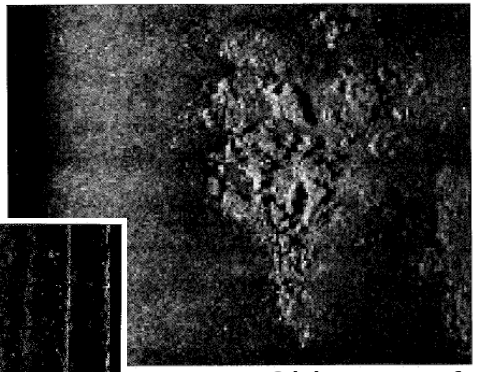
Effectiveness of Exclusion Zones to Protect Archaeological and Benthic Resources from Indirect Dredging Impacts

Information Need:

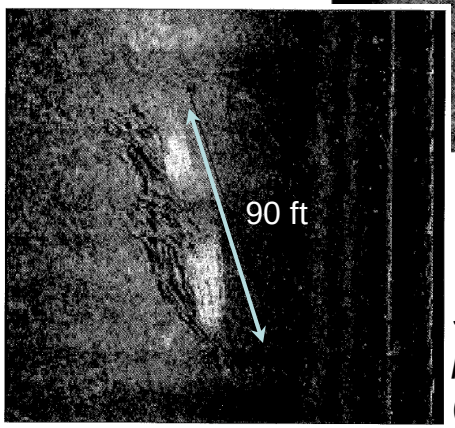
Improve understanding of long-term indirect effects from dredging activities due altered physical processes and determine efficacy of exclusion mitigations protecting sensitive cultural and biological resources on the OCS



Hardbottom (offshore FL)



Sidescan of hardbottom (offshore NC)



Sidescan of potential shipwreck (offshore NC)

Date Information is Required:

Ongoing

Tentative Ranking: 10

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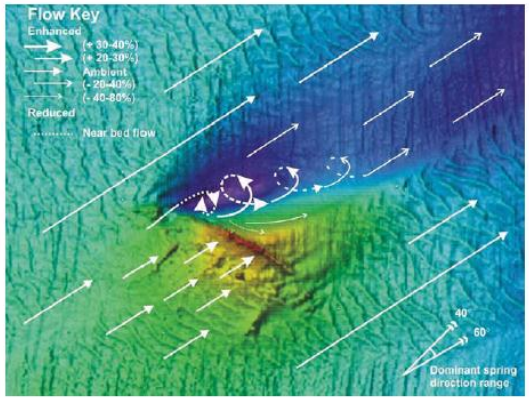
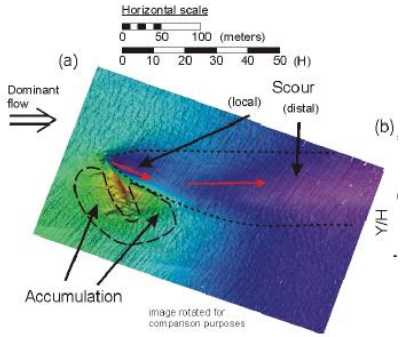
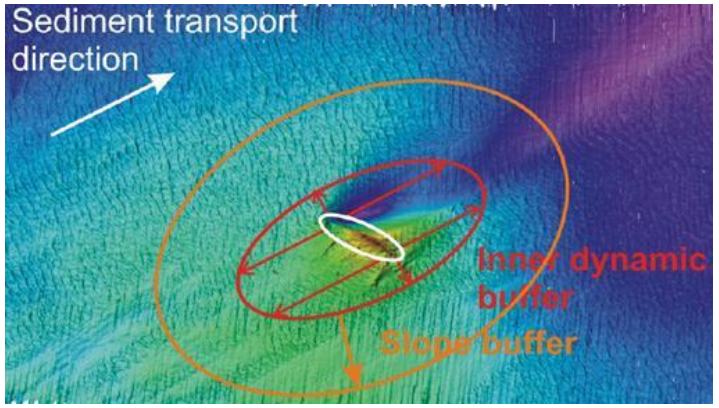
Background:

- Direct impacts to possible cultural resources and known sensitive benthic resources are generally avoided by operational exclusion zones. Indirect effect pathways to affect site formation and resource condition include 1) short-term dredge plume dynamics and 2) long-term flow, sediment transport, and morphology changes.
- Past studies (Michel et al. 2004, Dix et al. 2007) provide conservative empirical approaches to determine exclusion areas and avoid effects.







Tentative Ranking: 10

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Study's Objectives:

Improve understanding of if, when, and how changed physical processes resulting from sand extraction affect adjacent sensitive resources over varying space and time scales

Validate exclusion zones to account for potential impacts related to altered bottom morphodynamics

Tentative Ranking: 10

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Methods:

- Identify appropriate borrow area(s), where there are known archaeological resources and/or benthic habitats, for a before-after controlled impact analysis.
- Previously attempts to find such a location, where both resources co-exist, proved difficult. If a suitable study area cannot be found, a flume/wave tank experiment study may be a reasonable substitute. Or study could focus on one resource alone.
- Possible methods include bottom boundary layer observations, repeat high-resolution bathymetric and side-scan sonar surveys, underwater camera and video observations, and sediment tracer studies.

Tentative Ranking: 10