



Public Perception of Beneficial Use of Dredged Material in Mississippi: A Case Study

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Presented By Rick Coupe, PE

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Problem: Coastal Marsh Loss

- The loss of Mississippi coastal marsh is ongoing as a result of several processes
 - Erosion
 - Development
 - Relative Sea Level Rise
 - Saltwater Intrusion
- Impacts due to the loss of coastal marsh
 - Loss of valuable habitat for variety of species
 - Reduced economic value of fisheries
 - Reduced overall health of coastal zone
 - Flooding, storm surge, and coastal resiliency

Coastal Marsh Loss in Mississippi



Photo Courtesy of Grand Bay NERR; Jonathan Pitchford, PhD

Potential Solution: Beneficial Use (BU) of Dredged Material

- BU can be used for marsh restoration or creation
- Goal is to raise elevation for establishment of marsh vegetation
- Practiced in Gulf of Mexico region since 1980s



Round Island Restoration



Heron Bay Marsh Creation

BU in Mississippi

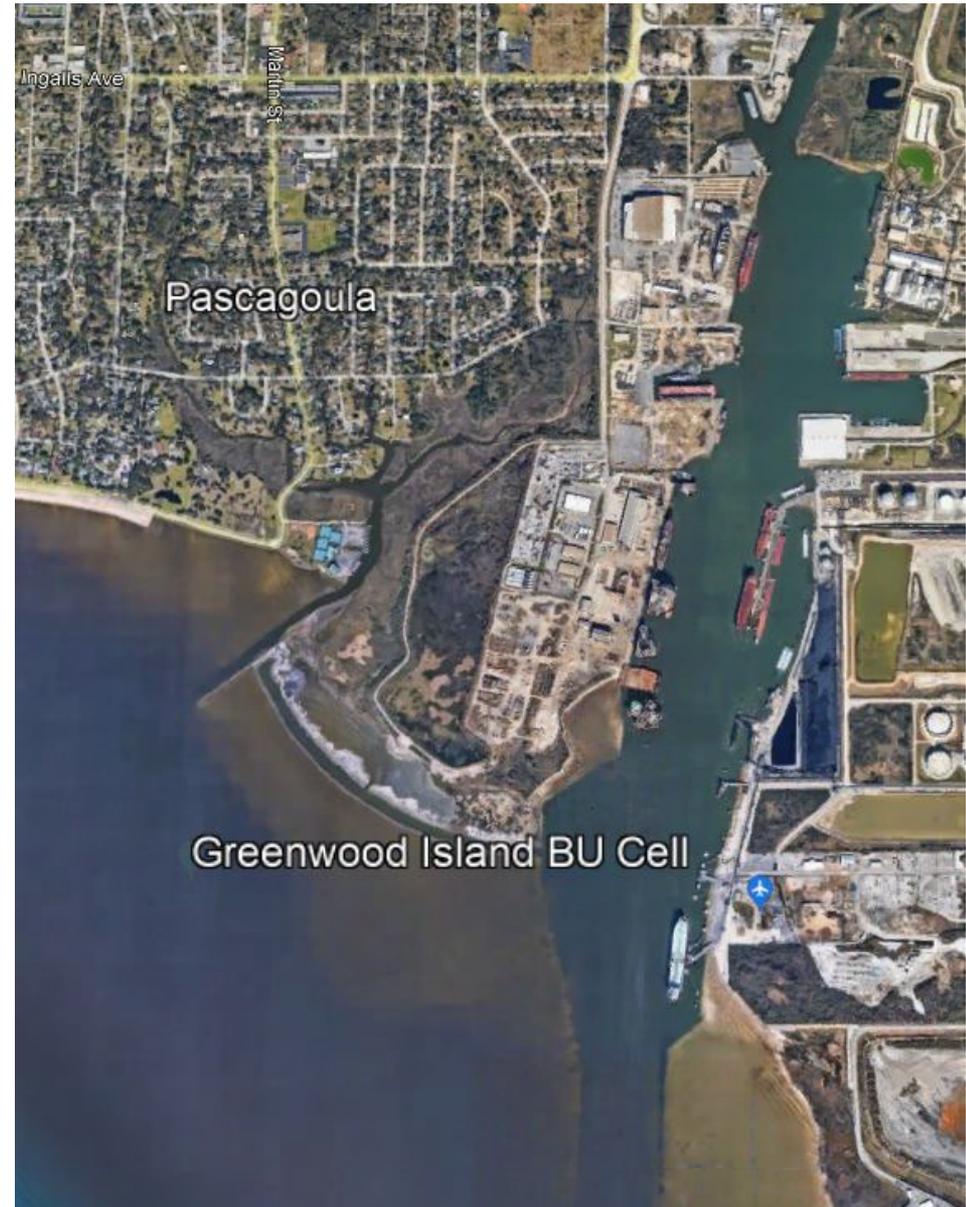
- Legally mandated approach in Mississippi since 2010
- All dredging projects in MS larger than 2,500 CY required to participate in BU program if material is suitable and site available
- Industry and agency professionals familiar with the practice, but what about public stakeholders?

Deer Island Restoration



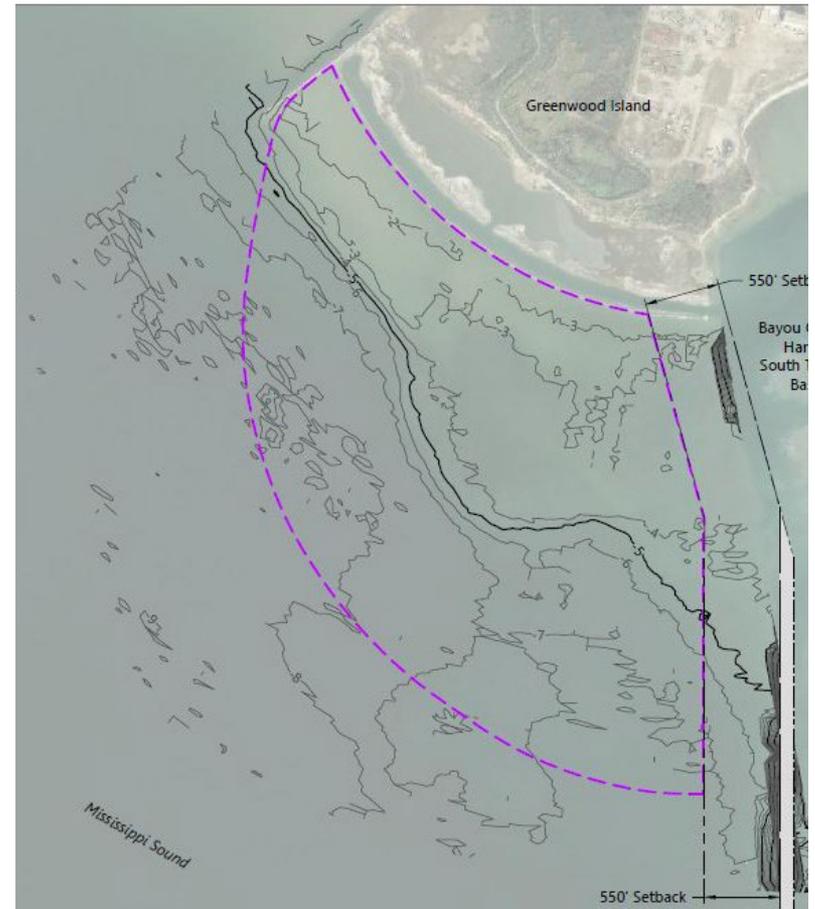
BU Case Study: Greenwood Island BU Expansion

- Existing BU site constructed in 2009 in Pascagoula, MS
- Situated in transition zone between industrial and residential land use
- Primarily used by industrial facilities in Bayou Casotte
- Existing site reaching capacity
- Expansion chosen as best alternative



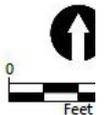
BU Case Study: Greenwood Island Expansion

- ~250-acre expansion selected for design
- Design based on coastal modeling, capacity requirements, and constructability
- Dike designed with USACE R-250 underlayer and R-2200 armor layer
- Began community outreach during preliminary design phase in 2017
- Addressed city officials and other stakeholders
- Adjacent property owners include industrial and recreational facilities



Hydrographic survey provided by DIMCO, Inc. dated August 15 and 16, 2018; aerial image
Microsoft Corporation ©2018 DigitalGlobe ©CNES (2018) Distribution Airbus DS
TAL DATUM: Mississippi State Plane East, North American Datum (NAD83), U.S. Survey Feet
DATUM: Mean Lower Low Water (MLLW)

- Toe of Existing Existing Bayou Casotte Channel
- 550' Setback from Existing Channel Toe
- ▒ Proposed Channel Widening Area
- Proposed +250 Acre Beneficial Use Area





- Conceptual design parameters presented to public
- Included description of alternatives, justification for expansion selection, costs, conceptual drawings, and artist's rendering of views from adjacent properties at final project (pictured above)
- Several questions and comments received and answered
- Design was modified as a result of community meetings to not impact sailing events held by local yacht club and other recreational boating

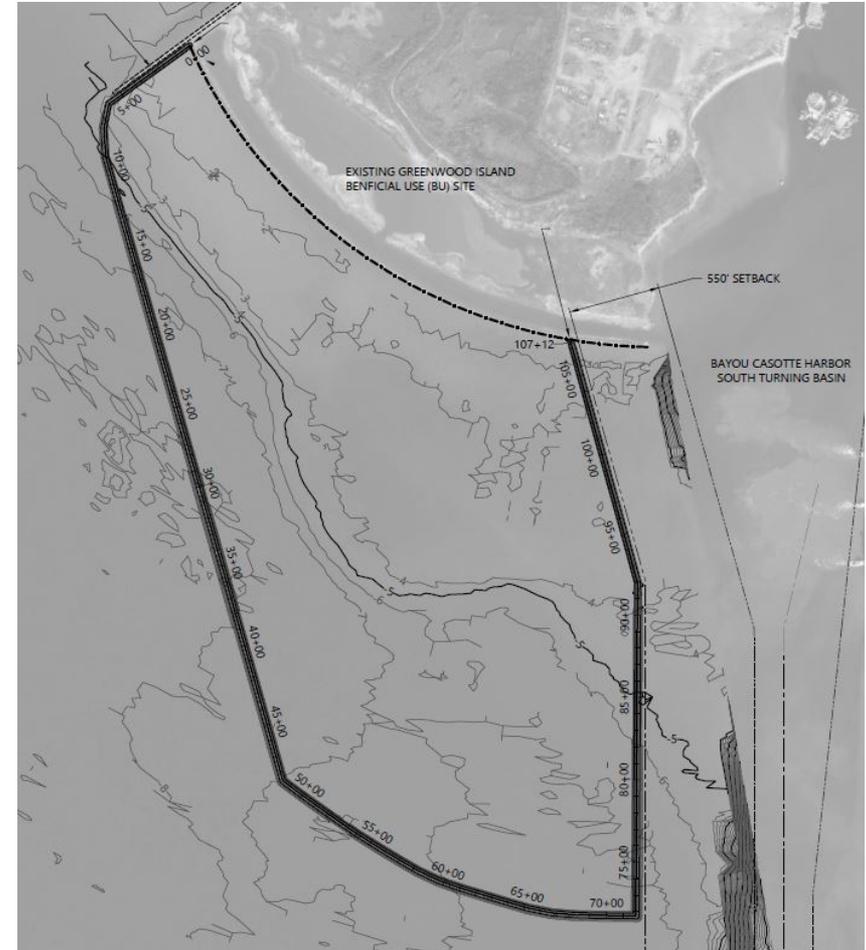
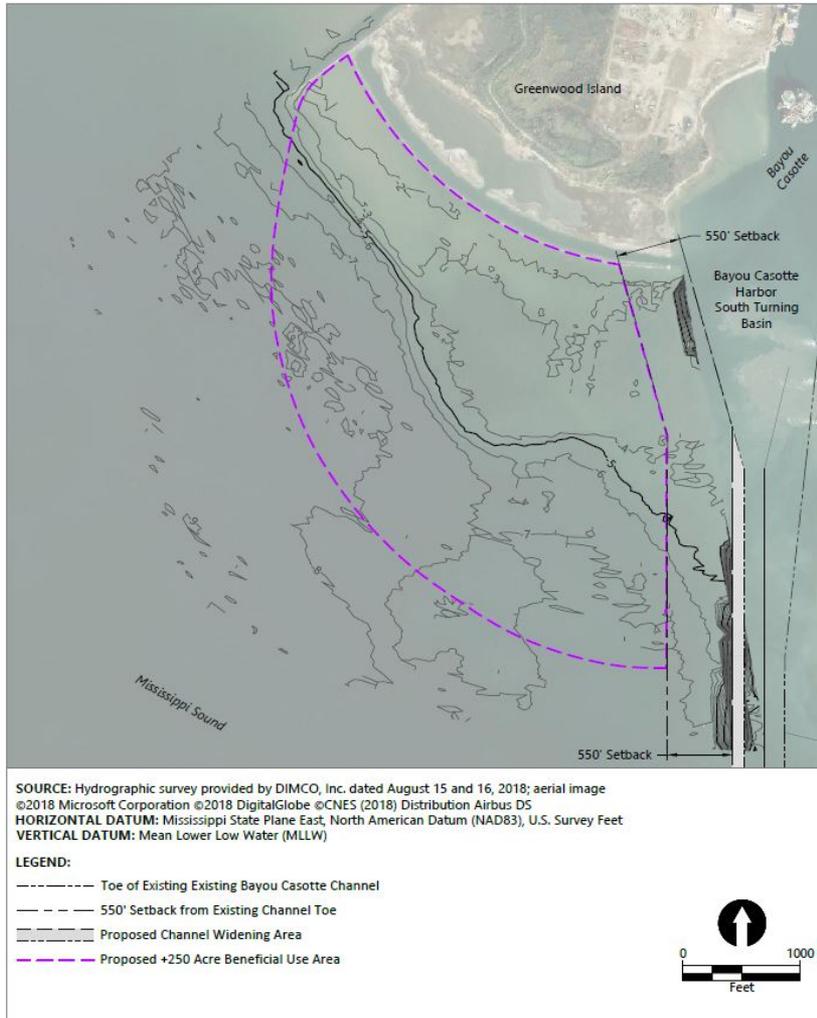
BU Case Study: Greenwood Island Expansion

- Post-community outreach, design team felt positive about moving forward with design
 - Felt that community concerns had been adequately collected and addressed
 - City and County officials were “on board” with the project
- Project entered 18-month “dormant” period while awaiting inclusion in Mississippi’s RESTORE Act program for funding to complete the design
- City leadership changed during this period
- Public engagement was still pursued but at a reduced scale

BU Case Study: Greenwood Island Expansion

- During “dormant” period, new concerns about the project developed
- As a result, new issues were raised when project work resumed in late 2019
 - Aesthetics and appearance of final site
 - Quality and source of dredged material to be used
 - Lack of understanding of end benefits of BU
- Eventually a compromise was reached as a result of continued and consistent community engagement
- Site was redesigned to address concerns over views from adjacent properties

Greenwood Island BU Cell Redesign



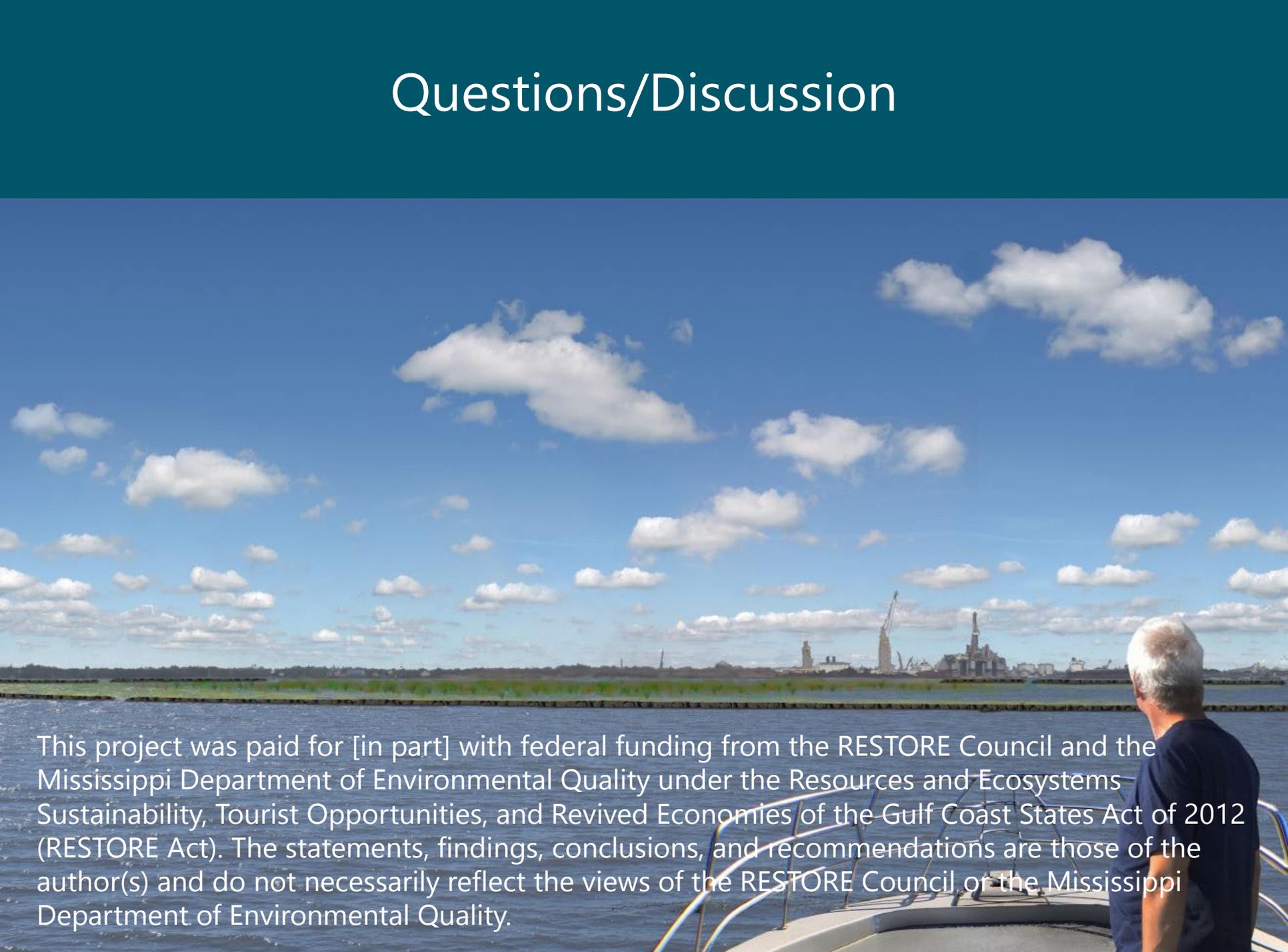
Greenwood Island BU Cell Redesign

- Redesigned the containment dike alignment to reduce visibility from adjacent properties to NW
- Required additional field work; fortunately, not additional geotechnical sampling
- Redesign could have been costly if not managed well and resolved during initial phases of design
- Resulted in a reduction of 33 acres of BU and ~400-500K CY of neat line site placement capacity
- Smaller BU cell will result in faster capacity exhaustion
- Final design completed in May 2021, final permits received in October 2021

Lessons Learned?

- Every project needs in-depth understanding of local resource usage and long-term expectations
- Community engagement is key
- However, engagement with established or obvious “contact points” (elected officials, city/county employees, etc.) may not be enough
- Continued education and engagement to promote BU and help public understand the BU process
- Emphasize end benefits and reframe “spoil” mentality
- Highlight successful BU projects
- Ensure stakeholders feel included in discussions/decisions

Questions/Discussion

A photograph showing a man with white hair, seen from the back, standing on the deck of a boat. He is looking across a large body of water towards a distant industrial facility, likely a refinery or chemical plant, with several tall distillation columns and structures. The sky is bright blue with scattered white clouds. The water in the foreground is dark blue with some ripples.

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