Stewards of the Sand
BOEM’s Marine Minerals Program

Preparedness, Resilience, and Response

Paul O. Knorr,
Leighann Brandt, Jeffrey Reidenauer,
Lora Turner, and Jeff Waldner
GSA Annual Meeting
Seattle, WA
October 22, 2017
Department of the Interior

SECRETARY

DEPUTY SECRETARY

ASSISTANT SECRETARY
Policy, Management and Budget and Chief Financial Officer
Director, Office of Civil Rights
Chief Information Officer
Director, Office of Small and Disadvantaged Business Utilization

ASSISTANT SECRETARY
Fish, Wildlife and Parks
National Park Service
U.S. Fish and Wildlife Service

ASSISTANT SECRETARY
Indian Affairs
Bureau of Indian Affairs
Bureau of Indian Education

ASSISTANT SECRETARY
Land and Minerals Management
Bureau of Land Management
Office of Surface Mining, Reclamation and Enforcement
Bureau of Ocean Energy Management
Bureau of Safety and Environmental Enforcement

ASSISTANT SECRETARY
Water and Science
U.S. Geological Survey
Bureau of Reclamation

ASSISTANT SECRETARY
Insular Areas
Office of Insular Affairs

SOLICITOR

INSPECTOR GENERAL

SPECIAL TRUSTEE FOR AMERICAN INDIANS
30 CFR 583 (October, 2017); **Negotiated Noncompetitive Agreements** for the Use of Sand, Gravel, and/or Shell Resources on the Outer Continental Shelf ("OCS")

- Codifies existing procedures
- Ensure predictability and continuity of the marine minerals program
- Clarify expectations and requirements for an agreement to use sand, gravel and shell resources
Increased requests

**Agreements Executed**

**Million Cubic Yds Conveyed**
Annual OCS sand leasing (recent)

15,000,000 yds$^3$
11,500,000 m$^3$

11 Empire State Buildings

1,700,000 Trucks
Cooperative Agreements with States

Delaware
Florida
Georgia
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
New York
North Carolina
Rhode Island
South Carolina
Virginia

Louisiana
California
Texas
...and more...
Rugosity quantifies the pattern of elevation change

<table>
<thead>
<tr>
<th>Grid Size (m)</th>
<th>Permitted</th>
<th>Proven</th>
<th>Potential</th>
<th>Shelf</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0.24±0.006</td>
<td>0.124±0.004</td>
<td>0.111±0.002</td>
<td>0.049±0.003</td>
</tr>
<tr>
<td>10</td>
<td>0.04±0.002</td>
<td>0.02±0.001</td>
<td>0.003±0.0001</td>
<td>0.005±0.0005</td>
</tr>
</tbody>
</table>

**Figure 4.** Neighborhood grid (3 x 3 cells) used for rugosity analysis.

**Sand Reserve Estimate, East Florida Shelf**

- Sand, 2 m thickness, Gm³ — 3
- Sand, 2 m thickness, bcy — 4
- Gm³ billion cubic meters; bcy billion cubic yards

*Searching for sand in Florida: Exploiting sea floor morphology as a reconnaissance tool, Knorr, P.O., Shore & Beach 85(3)*

https://www.researchgate.net/publication/319490822_Searching_for_Sand_in_Florida_Exploiting_Sea_floor_Morphology_as_a_Reconnaissance_Tool
Larger channels may contain significant volumes of sand: $5\, \text{m} \times 100\, \text{m} \times 1000\, \text{m} = \sim 650,000\, \text{cy}$
Loss of fine sediment during dredging operations (BOEM-ERDC)

Sea Turtle Entrainment Risk; browser-based decision analysis tool
Managing dredge impacts by optimizing the use of sand resources
Past, present, and future initiatives

• Hurricane Sandy cooperative agreements
• BOEM-Corps of Engineers MOU
• Competing uses for sand
• Competing needs for sand
• Post-storm cooperative agreements
• National sand inventory
• Competitive mineral leasing
• New marine minerals research
Conclusion

Paul O. Knorr, Ph.D.

Bureau of Ocean Energy Management
Marine Minerals Branch
45600 Woodland Road VAM-LD
Sterling, VA 20166

paul.knorr@boem.gov