THE NORTH GALVESTON JETTY SAND SEARCH INVESTIGATION: ARCHAEOLOGY

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Texas Shorelines – Bays to Beaches
Port Aransas, Texas
Archaeology of the North Galveston Jetty Sand Search: A Case Study
Cultural Resource Concerns Relevant to Sediment Sources in Texas Waters

- Legal requirements
- Potential for historic shipwrecks
- Archaeological requirements
- Implications of discovering a wreck
Legal Requirements

• Federal Law:
  + Section 106 of the National Historic Preservation Act (Public Law 89-665; 16 U.S.C. 470)
    • National Register of Historic Places
    • Advisory Council on Historic Preservation
      – Final decision concerning NRHP eligible properties
    • State Historic Preservation Officer (SHPO)
      – Acts on behalf of ACHP in each state
      – Part of the Texas Historical Commission

• State Law:
  + Antiquities Code of Texas (Texas Natural Resource Code, Title 9, Chapter 191)
  + The Texas Administrative Code, Title 13, Part 2, Chapters 26 and 28
Potential for historic shipwrecks in the North Jetty Sand Source
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## Causes of Shipwrecks during the Age of Sail

*(estimated from U.S. Life-Saving Service statistics, 1876-1914; reported in Gearhart et al. 1990)*

<table>
<thead>
<tr>
<th>Type of Loss</th>
<th>% of Losses</th>
<th>Estimated Percent of Losses Due to Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weather</td>
<td>Human Error</td>
</tr>
<tr>
<td>Stranding</td>
<td>63.7</td>
<td>43.3</td>
</tr>
<tr>
<td>Foundering</td>
<td>5.8</td>
<td>2.3</td>
</tr>
<tr>
<td>Collision</td>
<td>6.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Other*</td>
<td>24.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>54.9</td>
</tr>
</tbody>
</table>

*Other types of Loss include burned, abandonment at sea, and all others
**Other Causes include fire, leaks, submerged rocks, darkness, misc. and unknown
Archaeological Requirements

- Section 106 Consultation
  - SHPO (THC) may respond to public notice
  - Lead federal agency or permit applicant may request SHPO consult
- If archaeological survey is required:
  - Texas Antiquities Permit is needed before work begins
    - Required on all state-owned lands, including water bottoms
    - Antiquities Permit Application Requires signature of Principal Investigating archaeologist, Project Sponsor and Project Owner (Deputy Commissioner of GLO)
    - GLO won’t sign until “Authorization to Conduct Underwater Archeology” is executed with GLO by firm employing Principal Investigator
Archaeological Survey Methods

+ Survey methods are mandated by Texas Administrative Code, Title 13, Part 2, Chapter 28
  • Side-scan Sonar, Magnetometer and Bathymetry
  • Transect interval 20 meters out to 3 nm & 30 m from 3 to 9 nm
+ Avoid and Preserve in Place When Possible
  • Avoid by 50 m out to 3 nm; 150 m from 3 to 9 nm
+ Probing from Surface and/or Diver Assessment only warranted if avoidance is not desired
Summary of The North Jetty Archaeological Survey
Summary of Survey Results
Side-Scan Sonar Survey
Magnetometer Survey

April 1, 2016
Close-Order Magnetometer Survey
Example of a Verified Shipwreck Anomaly, Site 41CL92, Wooden Hull
Induced Magnetic Anomalies for Various Inclinations of Earth’s Magnetic Field

Debris vs. Wreck Anomalies

Magnetometer Interpretation
Target Selection Considerations

In saltwater on Texas Coast:

1. Exposed Shipwrecks
   • metal hulls
   • appears on both sonar and mag
   • sonar target likely will look like a “shipwreck”

2. Partially Exposed Shipwrecks
   • machine-powered with wooden hull
   • appears on both sonar and mag
   • sonar target might resemble debris

3. Buried Shipwrecks
   • likely unpowered with wooden hull
   • likely older on average than metal hulls
   • no sonar target
   • mag expected to resemble verified wreck anomalies
Exposed Wrecks Confirmed by Sonar at North Jetty
North Jetty magnetic anomalies over sonar-confirmed wrecks
Partially Exposed Wrecks?
Sonar image of *New York*, mostly buried. The steam chest and cylinder (brackets) were among the only things exposed when the site was discovered.
North Jetty magnetic anomalies over possible buried wrecks
Implications of Shipwrecks for Offshore Sediment Sources

- Economically desirable sand sources tend to have elevated potential for historic shipwrecks.
- Most sediment sources will have a legal requirement to consider cultural resources.
- Geophysical survey is able to find all likely wreck candidates, so they can be avoided.
- If wrecks are missed, damage to dredges can result in claims and delays.
- Artifacts pumped onto beaches could raise public concern.
References