## **CASE STUDY:** Ocean Data as a Service

How Terradepth & T&T Survey Helped Gulf Copper and the Battleship Texas Foundation Avoid a Full Day of Downtime by Surveying Under the Docked Ship

# CHALLENGE

When Gulf Copper dry docked the Battleship Texas, the vessel's 30-foot draft required dredging the dry dock hole to 60 feet. However, constant heavy ship traffic from the adjacent Port of Galveston led to silting, raising concerns about maintaining adequate depth for a safe undocking.

Surveying ports is inherently complex due to ship movement and docked vessels, making traditional survey methods logistically challenging. In this case, conventional approaches would have required moving the dry dock—an operation that carried a ~\$50,000 cost, potential downtime for the 60-person restoration team, and increased risk of damage to the vessel.

"Gulf Copper was not only able to maintain uninterrupted project repair but also achieved substantial savings in avoiding moving the dry dock."

David Casale, Project Manager, Gulf Copper.







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### **SOLUTION** - Surveying under the Dry Dock

Terradepth and T&T Survey developed an innovative solution to survey the area without moving the Battleship Texas—by surveying underneath it. This was made possible by:

- Compact AUVs Terradepth's highly maneuverable autonomous underwater vehicles (AUVs) navigated beneath the ship without risk of collision with the vessel or port structures.
- Advanced Navigation Planning Meticulous mission planning ensured safe maneuvering under the ship while avoiding the seafloor and surrounding infrastructure.
- Real-time Monitoring: The operations team monitored the operation closely, allowing for continuous adjustments.
- High-Resolution Imaging Equipped with cutting-edge sonar and imaging systems, the AUVs captured detailed sediment buildup data to assess depth conditions.
- Safety Protocols: Terradepth's AUVs have advanced collision avoidance systems to enhance safety, ensuring the protection of the Battleship Texas.

#### **RESULT** - Gulf Copper's ~60-Person Team could Continue Restoration Work without disruption.

Terradepth and T&T Survey's innovative approach to underwater surveying in the Galveston port yielded exceptional results:

- Prevented 1-day downtime for the ~60 person Gulf Copper restoration team: By eliminating the relocation of the historic battleship, Terradepth allowed maintenance to continue without impacting the large project team for a full day.
- Eliminated ship moving cost: This never-performed approach allowed the ship to stay in dock.
- Ongoing persistent geophysical data: By utilizing AUVs to persistently capture data, it allows for a baseline of information and then subsequent recurring surveys can be performed to not only see the delta change but begin to formulate higher probability on timing for future dredging needs.





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### CONCLUSION

Terradepth's innovative use of smaller AUVs to navigate under ships in the Port of Galveston dramatically reduced cost and also played a pivotal role in the continued preservation of the historic Battleship Texas.

"Planning and executing missions like these is not easy. Many thanks go to our partners at T&T and Gulf Copper for supporting and driving this effort forward. This mission underscores the power of innovative technology and forward-thinking solutions in addressing complex challenges, benefiting both historic preservation efforts and the efficiency of port operations, we are honored to contribute to the development of new, more environmentally friendly ways of surveying."

Joe Wolfel, CEO of Terradepth



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