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AN NV5 COMPANY

Offshore Sand Resource Investigation

Hydrographic & High Resolution Geophysical Services for Borrow Site Assessments

Sand is at the root of all successful beach restoration projects. However, delineating depositional environments, identifying modern and paleo-geomorphologies, assessing cultural resources, and understanding all the marine spatial planning issues at play can be perhaps the most challenging task facing coastal engineers and practitioners today.

What We Do

Founded in 2001, our team of marine geologists, hydrographic surveyors and GIS professionals strive to provide the highest quality data in even the most challenging environmental conditions. From nearshore shoals to miles offshore, we acquire data using modern acoustic and geophysical sensors on board customized research vessels, while delivering detailed and actionable data on potential sediment borrow areas using a systematic and cost-effective approach based on decades of experience.

Advanced Sand Search Tool

ASST uses a series of highly-customized decision support tools applied to a GIS database that incorporates rigorously designed schema, enabling practitioners to identify and differentiate potential sand reserves.

To learn more, reach out to us!

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Customized & Developed Approach

Our High Resolution Geophysical (HRG) approach includes the use of multibeam echosounder sonar, side-scan sonar, magnetometer/gradiometer, parametric sub-bottom profilers for shallow depth penetration, and single channel ultra-high resolution seismic solutions for deeper investigations.

Custom Vessels

Geodynamics owns and operates a fleet of survey vessels to support multi-sensor HRG surveys within coastal, nearshore, and deep offshore waters. We choose the right vessel platform for each mission to collect accurate data safely, efficiently, and cost-effectively.

Planning

Geodynamics offers unique end-to-end services for sediment resource assessment projects – we understand State and federal coverage requirements and can assist with developing and articulating sensor types and parameters, overall survey boundaries, line spacing, and other planning and logistical components of a successful HRG survey.

Permitting & Reporting

We have institutional knowledge and expertise in preparing and securing BOEM permits for investigations in federal waters and a deep understanding of the requisite reporting requirements as well. With numerous cultural resources projects in our portfolio, we can also manage Marine Archeological Resource Assessments and incorporate these findings into final deliverables.

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Projects

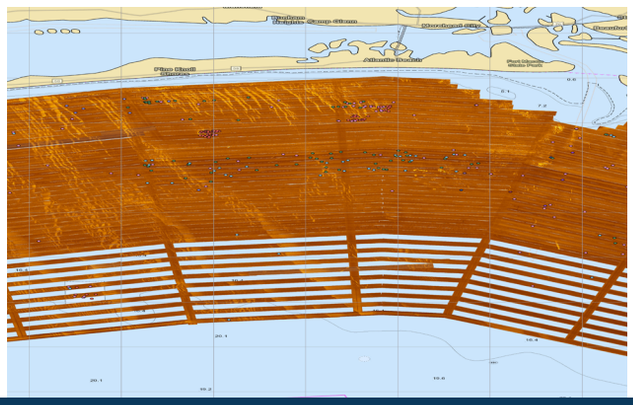
We've completed hundreds of hydrographic surveys, including geophysical sand resource evaluation since 2008

Visit our webpage to learn more

Bogue Banks Sand Survey

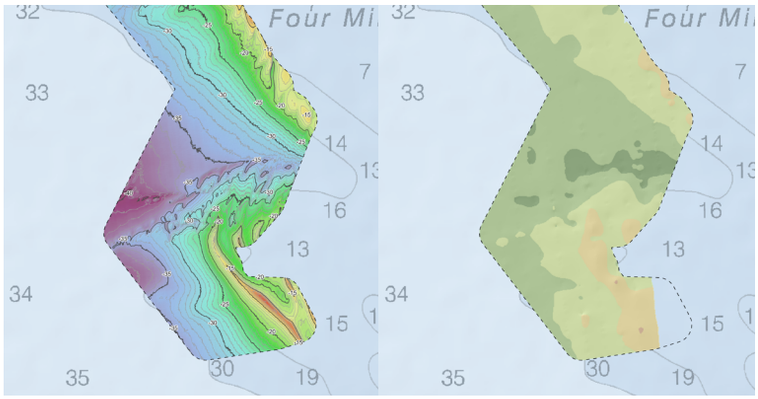
Overview: Expansive offshore sediment evaluation survey located within both State and federal waters (270 NMI^2 footprint).

Geodynamics was retained to conduct one of the largest sand & gravel surveys along the Atlantic seaboard to support Carteret County's next 50 years of beach renourishment. A scaled, variably-spaced survey line plan was developed to reduce the client's exposure to unnecessary acquisition and processing costs while a GIS database with highly-customized decision support tools was also specifically developed for the project to incorporate a large catalog of previously collected geotechnical data with the newly acquired HRG data to constrain areas of compatible sand. Geodynamics also worked with BOEM on behalf of the client to secure a geophysical prospecting permit, including all protected species provisions. Future surveying efforts will now be better focused and speaks to the merits of careful planning and when warranted, a step-wise approach.



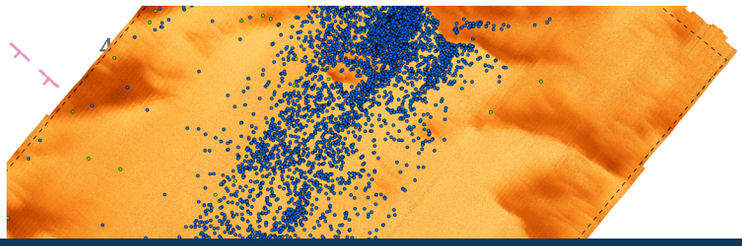
Oak Island Geophysical Surveys

Overview: Two discretely located survey areas in State and federal waters within the Frying Pan Shoal complex, presenting challenging operational conditions with detailed, multifaceted State and federal requirements for surveying activities and associated environmental commitments.



Wrightsville Beach

Overview: Seafloor surface and sub-bottom survey assessed bathymetry and the presence or absence of both hard bottom and cultural resources within a potential offshore sand borrow area. Our survey revealed 6,415 unexpected sidescan sonar contacts; tires formerly lashed together to help form a nearby offshore fishing reef had migrated to the survey area, compromising access to the sediment below.



"Quality of work was exceptional. Specifically, preliminary data indicating unforeseen anomalies in the survey area were promptly shared with the Government, which allowed project direction to evolve and stakeholders to be promptly informed of developments. [Geodynamics] was available and open to above-and-beyond communication, providing the Government with critical, clarifying information to inform its actions."

- US Army Corp of Engineers, 2022 Project Review