

CASE STUDY PROJECT SAPPHIRE

Introduction

In 2019, Bluefield Geoservices undertook two campaigns, each six weeks in duration to complete a deep-sea mining project in the Pacific Ocean. Bluefield utilised their BOXcone in Situ Testing System to investigate seabed samples from water depths exceeding 4,500 meters, in conjunction with the biology and geology project teams investigating a deep water mineral extracting feasibility.

In addition, the Bluefield Gravity Core equipment was deployed to collect a number of deeper samples for engineering analysis. Following the field operations Bluefield managed an extensive onshore laboratory testing programme including basic, advanced, and sedimentological soils testing.

Tests conducted during the six-week campaigns included:

300+ Cone Penetration tests

300 split samples used to categorize soil

200 Lab Vane tests

300 Torvane tests

100 Plate Load tests

10x 3 meter Gravity Cores

900 core samples for onshore lab testing

By utilising the BOXcone System fitted to a box core sample, Bluefield successfully executed an extensive program of Cone Penetration Tests, Plate-load, Laboratory Vane testing, sub-sampling and core photography.



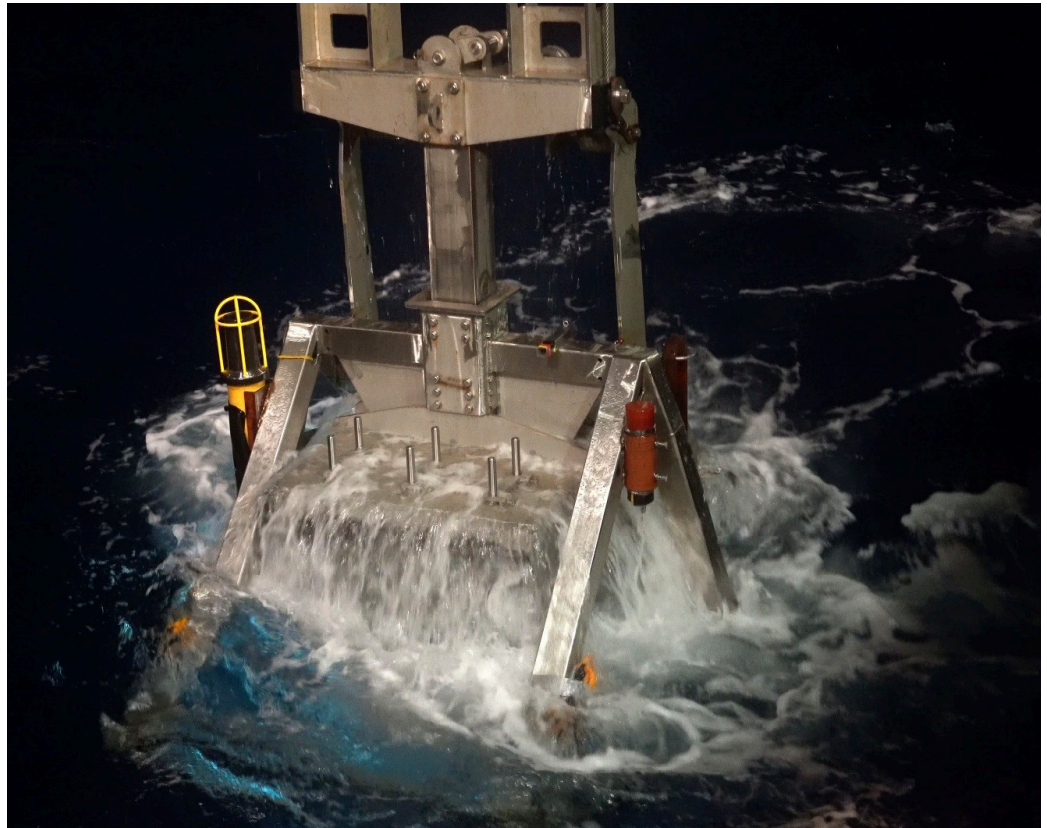
Client	Location	Duration	Water Depth
Restricted	Pacific Ocean	100 Days	4,500 m

The Bluefield Geoservices team has successfully completed hundreds of offshore survey projects, including geotechnical investigations from drillship, state-of-the-art robotic seabed drill rigs, shallow seabed investigations using various types of seabed testing and sampling systems in all water depths.

With over 100 years of combined experience in offshore geotechnical engineering and geotechnical surveys, and a track record for a commitment to data quality, safe working practices, and innovation, Bluefield is well placed to provide a variety of subsea services. Bluefield designs

and operates a range of ROV-deployed geotechnical survey tools including CPT, samplers, and T-Bar testing equipment.

As leaders in geotechnical engineering for trenching and seabed mining, Bluefield brings an integrated approach to projects, blending geotechnical, geophysical, environmental, metocean and other related disciplines to deliver solutions that meet client's exacting needs for shallow and deep-water projects. Bluefield also offers conventional geotechnical systems for offshore soil and rock seabed investigations.



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