



Oceanographic Studies

Hydrographic Studies

Marine Geophysical Studies

Marine Positioning

Submarine Cables

Cartography and Data Analyses

Environmental Studies

Certified by:



Member of:



Integral Solutions

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BENTOS, founded in Santiago, Chile, in 1994 is the leader in marine exploration work in Latin America in fields such as: oceanography, hydrography, submarine cables/pipelines, inspections by ROV and technical diving.

Our clients include Chilean and foreign companies related with the mining industry, engineering and construction, conventional and renewable energy, telecommunications, port operations, dredging, gas and oil, desalination of sea water, submarine pipelines and cables and governmental agencies and defense institutions.

Our organization is focused on offering solutions that incorporate the greatest amount of added value possible. For this purpose, we have implemented a quality management system and have obtained ISO 9001:2008 certification.

We value and are proud of the people who work on our team, which has a wide diversity of professionals drawn from disciplines such as: geodesics, coastal engineering, marine biology, oceanography, hydrography, geographic information system (GIS), cartography and geophysics, all seconded by support and administration professionals and technicians. In addition to the extensive knowledge we already possess, we have in place a policy of ongoing training to keep us up to date in connection with the fast moving technological progress and developments that characterize our field of endeavor.

At BENTOS we have and operate a wide range of oceanographic instruments of kinds customarily used on coastal engineering projects (wave, wind, tide, current and dispersion sensors), and we also operate special systems such as deep water and variable monitoring systems in real time for port operations.

Since data obtained in the field are essential for the preparation of the design basis for any maritime project, our policy is that the data must be acquired, processed and analyzed by experienced professionals. To support the efforts of these professionals, we have acquired specific software for the analysis of oceanographic data and have additionally developed numerical analysis information technology routines that enable an adequate integration of the variables to be achieved.



ADCP wave measurements in Panama.



Onboard tool box safety meeting.



Trawl fishing resistant anchoring structure.



Tide gauge.



ADCP retrieved from the marine floor.



Oceanographic buoy anchoring

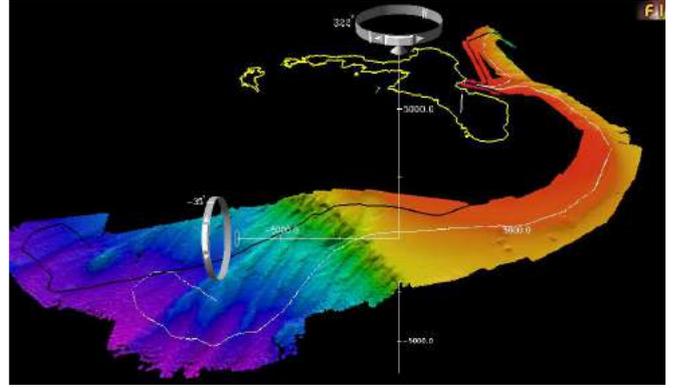
Typical projects:

- Current studies
- Tide studies
- Wave climate
- Analysis of tides and sea currents
- Sediment transport
- Dispersion in the water body
- Winds

Hydrographic Studies



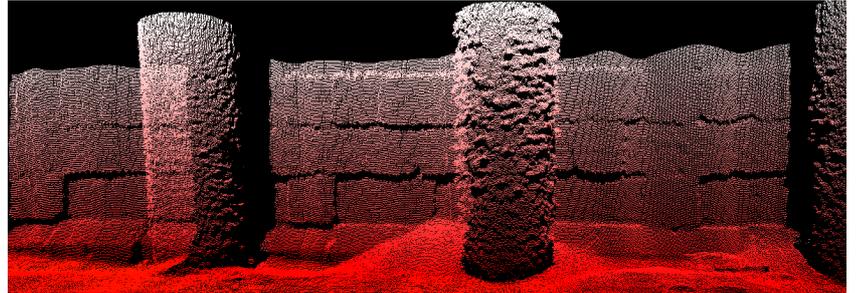
High-resolution multibeam bathymetric surveying.



Multibeam bathymetric surveying down to 3000m depth.



Installation of instruments inside the vessel cabin.



Acoustic inspection of Valparaíso berthing sites.



Multibeam transducer system.

To determine depths, BENTOS has several monobeam and multibeam systems with related sensors to rely on.

Work of this kind is required for various purposes, e.g., for the preparation of precision drawings to guarantee navigation safety, bathymetric surveying for the design of a marine terminal, definition of a submarine cable route, installation of submarine structures, location of lost items and others.

Although the usual business area of BENTOS is work at sea, we also offer solutions for lakes, reservoirs and rivers.

Typical projects:

- Precision bathymetry for ports and new navigation routes
- Determination of navigable bottom in areas with sediment
- Exploratory bathymetry
- Dredging volume calculation and control
- Studies of dams, lakes and mine tailings management facilities
- Location of shipwrecks
- Submarine cable and pipeline routing

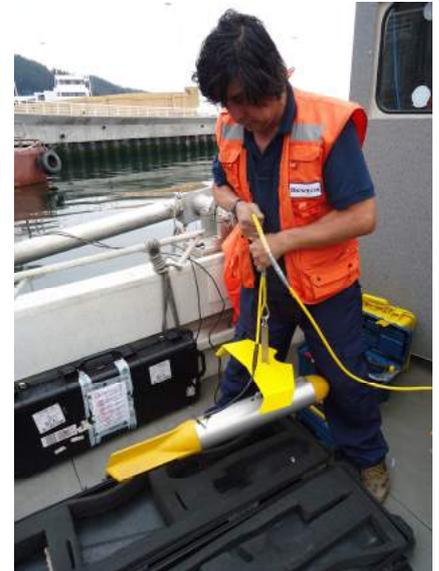
Marine Geophysical Studies

The performance of seismic profiles in combination with marine soil sampling makes it possible to characterize the nature of marine soil and stratigraphy. This information is useful for defining the design of geotechnical sampling to evaluate sand banks and to define routes for buried pipelines and cables, among other items of work.

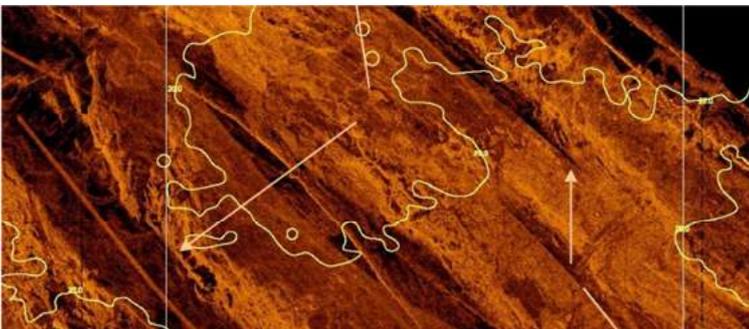
Seismic profiling, when combined with magnetometry, side scan sonar and other geophysical techniques is also used to locate submerged pipelines and cables and/or remains of shipwrecks, shipping cargo and possible victims.



Piston corer sediment sampling.



Side scan sonar (SSS).



Marine floor scanning by SSS system.



Boomer for marine seismic surveying.

Typical projects:

- Submarine cable and pipeline route feasibility
- Location of buried structures (beneath marine sediment)
- Support for geotechnical design work for dredging, pile driving, installation of gabions, riprap and breakwaters
- Determination of the nature of the bottom for anchoring large vessels and the support of jack-up type platforms.
- Localization of wreckage items (vessels, aircraft, torpedoes, etc.)



SeaSphy Marine Magnetism magnetometer.



Platform positioning in the Chacao Channel.



Topographic surveying.

We provide precise positioning in real time for ships, ferries, platforms and other floating and submarine structures (divers, ROVs).

Usually, the projects that require positioning involve heavy equipment, specialized personnel and high operating costs. At BENTOS, we understand the importance of performing work well, safely, reliably and without delays.

Typical projects:

- Construction support
- Dredge positioning
- Platform positioning
- Installation of pipelines and cables
- Monitoring of vessels in real time
- ROV positioning
- Search and recovery of shipwreck remains



Multibeam echosounder used to find the remains of the Casa 212 aircraft lost in the sea in 2011 at Isla Juan Fernández Island.



L1/L2 geodesic GPS.



Amazon River gas pipeline.

BENTOS has participated in submarine cable projects from the project start on up through installation and repair work. Because of this, we understand the importance of defining a good route and then obtaining permits such as marine concessions and other requirements associated with safety in navigation. Prior to the installation process, the customs clearance process is carried out for equipment and cables, followed by the inland transportation of cable reels and the search for support or installation vessels. Thereafter, we have the capability to support installation work or to perform such work directly ourselves.

Typical projects:

- Preparation of desk top study (DTS) surveys.
- Permits and concessions.
- Search and adaptation of support and installation vessels.
- Telecommunications and power cable support and installation work.
- Repair work.



Mobilization and adaptation of a Chilean vessel for installation duty.



Submarine cable installation, Robinson Crusoe Island.



FO cable repair work, Robinson Crusoe Island.

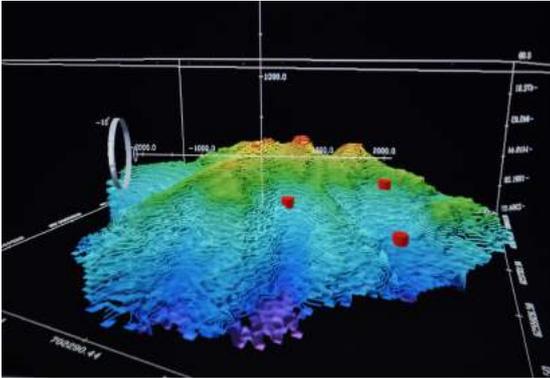


Post-installation remediation work.



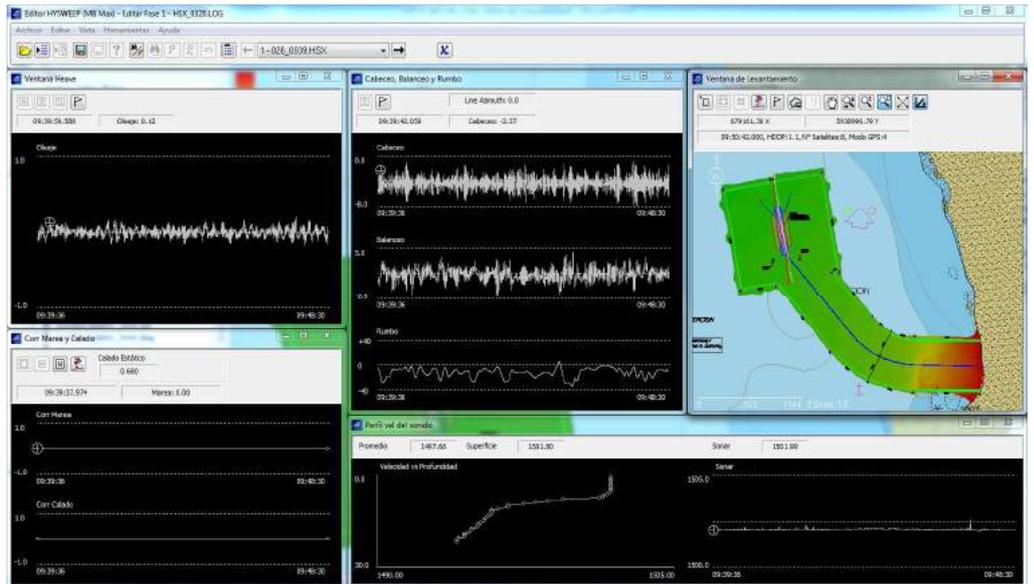
FO cable installation, Patagonia, Chile.

Cartography and Geographic Analysis

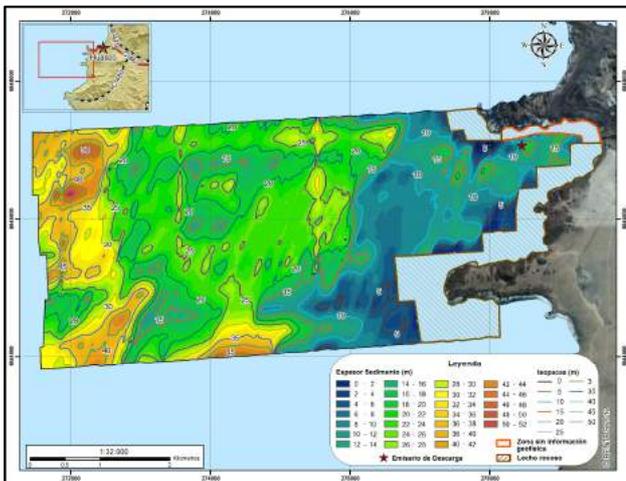


Fledermaus

We operate using AutoCAD, ESRI and ArcGIS. In addition, we use specific tools for the handling and visualization of hydrographic data, such as CARIS and Fledermaus, along with geophysical data tools such as SonarWiz5 and Coda Seismic+.



Hypack Hysweep



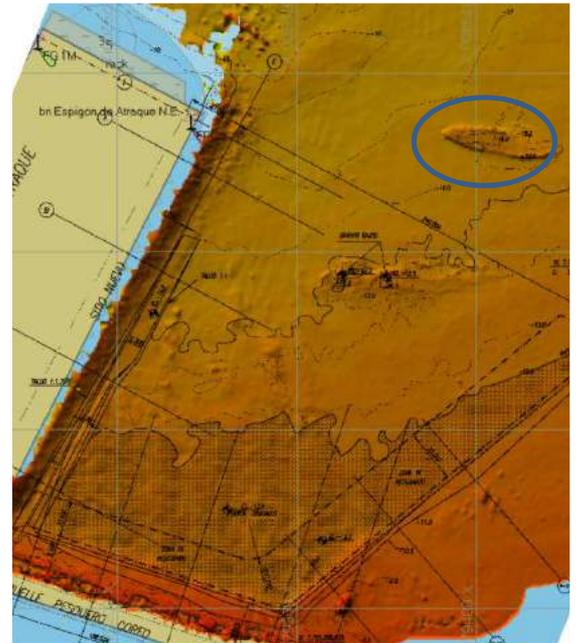
ArcGis

- Typical projects:**
- Visualization in 3D
 - Maps and drawings prepared by CAD
 - Cut and fill calculations
 - DTS for cables and pipelines
 - Analysis in GIS

BENTOS has comprehensive experience in the performance of marine environmental studies, including submarine archeology, effluent dispersion and numerical modeling and eco-toxological, biodiversity and marine water quality and sediment studies.



Submarine inspection.



Multibeam bathymetry.



Rhodamine WT dye stain dispersion studies.



Water sampling for chemical analysis.



Hard bottom coastal communities.



Marine flora and fauna studies.

Typical projects:

- Ports and marine terminals
- Effluents
- Thermal electric power plants
- Water desalination plants
- Dredging
- Submarine archeology

ACADEMICS

				
PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE	UNIVERSIDAD AUSTRAL DE CHILE	UNIVERSIDAD DE CHILE DEPTO. GEOFÍSICA	UNIVERSIDAD DE CONCEPCIÓN	UNIVERSIDAD GENT (BÉLGICA)

ENGINEERING AND CONSTRUCTION

				
CADE IDEPE INGENIERÍA Y DESARROLLO DE PROYECTOS LTDA.	CH2M HILL CHILE LTDA.	CONSORCIO ICUATRO-COWI, INGENIERÍA CUATRO LTDA.	GEOVENOR EXPLORA SpA	SK ECOLOGÍA S.A.
				
EMPRESA CONSTRUCTORA BELFI	GASATACAMA CHILE S.A.	CONSORCIO PUENTE CHACAO S.A	GOLDER ASSOCIATES S.A.	JAN DE NUL GROUP
				
MWH AMERICAS INC. CHILE LTDA.	PETRUS CONSULTORES GEOTÉCNICOS LTDA.	PLANAL SERVICIOS DE INGENIERÍA	INGENIEROS CONSULTORES	AUSENCO SANDWELL

PORTS

				
ANTOFAGASTA TERMINAL INTERNACIONAL S.A.	COMPAÑÍA PORTUARIA MEJILLONES S.A. (Puerto Angamos)	COMPAÑÍA PUERTO CORONEL S.A.	EMPRESA PORTUARIA ANTOFAGASTA	EMPRESA PORTUARIA SAN ANTONIO (EPSA)
				
IQUIQUE TERMINAL INTERNACIONAL S.A.	TERMINAL PUERTO DE ARICA S.A.	TERMINAL INTERNACIONAL DEL SUR S.A.	TRABAJOS MARÍTIMOS S.A.	

MINING				
				
COMPAÑÍA CONTRACTUAL MINERA CANDELARIA	MINERA ARATIRI	COMPAÑÍA MINERA DEL PACÍFICO S.A.	COMPAÑÍA MINERA TECK QUEBRADA BLANCA S.A.	FREEPORT-McMORAN COPPER & GOLD INC.
				
MINERA LOS PELAMBRES (ANTOFAGASTA MINERALS)	SOUTHERN PERÚ COPPER CORPORATION			

SUBMARINE CABLES				
				
CENTRALES HIDROELECTRICAS DE AYSÉN S.A.	COMISIÓN CHILENA DE ENERGÍA NUCLEAR	L-3 MARIPRO	NORDDISCHE SEEKABELWERKE GmbH NSW	COMPREHENSIVE NUCLEAR - TEST- BAN TREATY ORGANIZATION
				
SAESA	TELEFÓNICA DEL SUR	TRANSELEC S.A.	SUBSECRETARÍA DE TELECOMUNICACIONES	

OTHERS				
				
ABASTIBLE	BPZ ENERGY INC.,	CELULOSA ARAUCO Y CONSTITUCIÓN S.A.	CLEDIRSA	EMPRESA NACIONAL DEL PETRÓLEO
				
FUNDACIÓN CHILE	INSTITUTO DE FOMENTO PESQUERO	SUBSECRETARÍA DE PESCA Y ACUICULTURA		

Companies We Represent

Company Data



Company building



Vessel



Meeting room



Store room



Printer and plotter room



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