

Marine Sampling Holland: a New Company

Marine Sampling Holland bv is a new company that was formed on 1 November 2007. The company owns advanced coring and drilling equipment, has personnel with long experience, and is specialised in soil sampling of ocean floors, river and lake beds, and bottoms of harbours and canals.

Marine Sampling Holland bv (MSH; 8 1) has a long-standing history that started within the Geological Foundation in the mid-1960s. At that time, the exploration for oil and gas had started in the North Sea, the port of Amsterdam was extended and large quantities of marine infill sand were needed, and the search for industrial aggregates in the North Sea was started. For all these infra-structural works, geological knowledge of the North Sea was required. During these years, a reconnaissance study was carried out of the top-most metres of the North Sea seabed based on samples that were taken with vibrocorers built in-house.

Oil and Gas in the North Sea Subsurface

In 1968, the Dutch Ministry of Economic Affairs decided to take part in the exploitation of oil and gas in the Dutch sector of the North Sea, and the Geological Foundation became part of that ministry. It became the Geological Survey of the Netherlands and one of her tasks was to advise the ministry in the field of oil and gas exploitation. The marine department started a reconnaissance mapping of the Dutch sector of the North Sea. Since that time, research of North Sea geology has intensified, which was made possible by the deployment of ships owned by the North Sea Directorate of the Ministry of Transport, Public Works and Water Management of the Netherlands. The hydrographical division of the North Sea Directorate is responsible for routine monitoring of shipping lanes in the Dutch part of the North Sea and, in relation to marine incidents, surveying of wrecks and lost cargo. Two special survey vessels, ARCA and ZIRFAEA, are equipped with sophisticated sensors and oil spill equipment – and knowledge of seabed geology is necessary for all these tasks.

Part of TNO

Advanced sampling systems have been developed in close co-operation with private companies. In January 1997, the Geological Survey of the Netherlands merged into Netherlands Organisation for Applied Scientific Research (TNO). The group, responsible for marine sampling, was part of TNO Built Environment and Geosciences until 1 November 2007. At that time, the management of TNO Built Environment and Geosciences allowed the group to be privatised, and MSH was started with Wiertsema & Partners bv (8 2), a company specialised in geotechnical and environmental site investigation, and geotechnical advice. The management of MSH is in the hands of Dr Cees Laban and Gerrit de Vries MSc.

Sampling in a Wide Range of Environments

The personnel of MSH have gained over 40 years of worldwide experience, from the Arctic to the Antarctic, and all seas and oceans in between. MSH has a broad range of equipment available. Superficial sampling of the seabed for a first reconnaissance of sedimentological or chemical composition can be done with superficial samplers such as Van Veen grabs, box corers or Hamon grabs. For geochemical sampling of the superficial layer of the seabed, special autonomous corers are available taking undisturbed cores with a penetration of up to 80cm in sandy bottoms. A mini gravity corer makes it possible to sample with very small vessels in shallow waters such as lakes and rivers.

Information of depths up to 5.5 metres below the seabed can be obtained by deploying electrical or hydraulic vibrocorers. Hydraulic vibrocorers make it possible to collect undisturbed samples of sandy, gravelly or clayey seabeds. A core can be taken within just 30 seconds.

For information on greater depths in shelf seas, MSH has systems available for counterflush/airlift drilling. With these systems, disturbed samples can be taken in sandy, gravelly and clayey soils up to 12–20 metres below the seabed. These systems are lowered to the seabed, after which drilling can take place. Sampling to the depths specified above typically takes place within 30 to 90 minutes. For lowering equipment to the seabed, MSH has its own winches and davits available, with cable lengths between 1,000 and 5,000 metres. A containerised mobile workshop allows the drilling technicians to perform on-board repairs when needed. For sampling of the deep-sea floor, piston and gravity corers are available with which undisturbed soil samples can be taken up to depths of approximately 18 metres below the seabed.

Fields of Application

Sampling can be carried out for a broad field of applications, for example:

- Investigations for quantity and quality of building and infill aggregates (sand, gravel)
- Investigations for quantity and quality of mineral deposits
- route survey and geotechnical investigations for laying pipelines and submarine cables
- geotechnical investigations of offshore constructions
- chemical composition of seabed sediments
- dredgeability analysis
- scientific research.

Worldwide Experience

The projects MSH has recently carried out include sand search for the infill of harbour extensions, coastal extensions, artificial islands, beach nourishment, deepening of shipping routes, stability of tidal bed forms and sampling for geochemical studies of the seabed.

The population growth in the coastal zones increases the need for coastal protection systems, which requires better insight in the offshore sedimentary processes and the availability of sand for beach nourishment and infill. The intensifying of the marine infrastructure necessitates the deepening and maintenance of shipping routes, new harbours and extension of existing harbours. For the exploration of oil and gas at greater water depths, information on the stability of slopes and the ocean floor is required.

The combination of geotechnical, geological knowledge of MSH and the close co-operation with Wiertsema & Partners, together with state-of-the-art marine and land drilling and coring equipment makes MSH the right partner for investigations in a wide range of on- and offshore projects.

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