

Offshore installations such as wind farms, pipelines, and oil and gas platforms require a thorough understanding of the nature and condition of the sea floor. **Dave Long** describes how the BGS can help build up a picture of what lies beneath.

Sea-floor site investigations

The BGS's extensive database of the sea floor around the UK provides a useful regional assessment for planning site investigations for the many users of the sea floor. Before a structure is placed on the sea bed or buried within it, it is necessary to know the sediment conditions and answer questions such as 'how large should the foundations be?' or 'how easy is it to excavate?'.

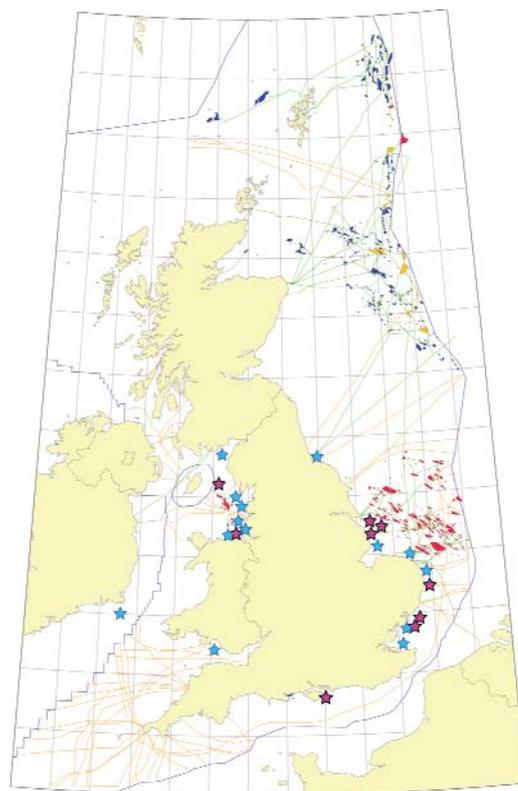
With the increasing use of large databases storing information in geographical information system (GIS) formats, we can produce results quickly. Additional cultural and environmental information can be added to produce a report based on wide-ranging information. Databases of BGS samples and seismic survey data, BGS interpretations, and external datasets are all available to be interrogated.

“ before a structure is placed on the sea bed or buried within it, whether it is a large oil or gas development platform, an offshore windmill, a cable or a pipeline, it is necessary to know the soil conditions ”

In recent years desk studies have been produced for large pipeline studies, new drilling campaigns, wind-farm developments, telecommunications and long-distance power cables, and aggregate extraction.

We find such initial-stage desk studies for site investigations very useful as they sometimes involve integrating existing company in-house data for a comprehensive study. Alternatively, when a site investigation is carried out later in the process, a second-stage project allows an assessment of our initial interpretation at the finer scale, and the newly acquired data improve our regional understanding. We sometimes become involved in the data acquisition stage of a site investigation project and can use the specialist equipment developed at the BGS to collect material for scientific purposes in unusual settings on the sea floor or where unusual questions need to be answered.

A desk study is a starting point, not a substitute for site investigation. It should be used to plan and focus the subsequent site investigation and can be used as a basis for interpreting the results.



The many users of the sea bed. Oil (black) and gas (red) developments, pipelines (green lines), cables (yellow lines), wind farms (blue stars), aggregate extraction (red stars).

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