

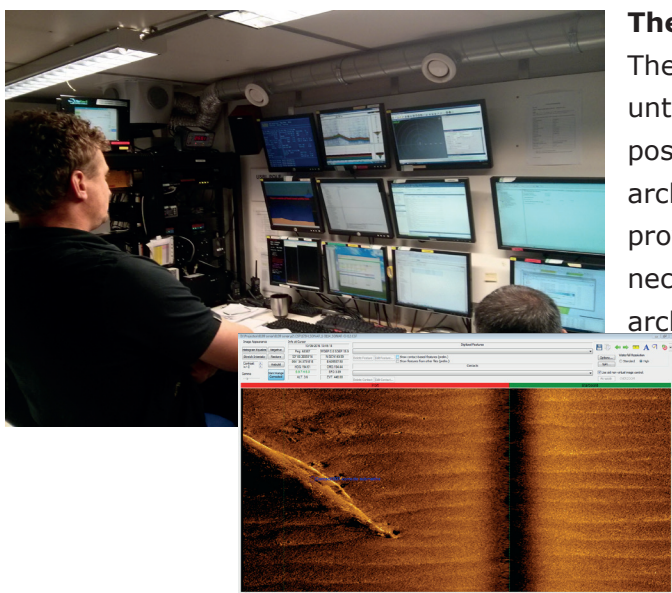
North Sea UXO and Archaeological survey

T&A Survey has performed several large scale field studies on the North Sea. In order to detect obstacles that could stand in the way of planned sand mining activities, the seabed was mapped using several geophysical techniques. On the one hand these could be archaeological objects like old shipwrecks, which by law require careful handling. On the other hand the possible presence of explosives on or in the seabed could constitute a risk during the mining of sand.

Three techniques

T&A carried out the survey using a vessel equipped with three different geophysical techniques. Together, these tools provided a detailed map of the seabed:

- **Multibeam echo sounder** maps the water depth. A local deviation in depth might indicate the presence of a large object on the seabed.
- **Side scan sonar** is much more precise: objects on the seabed are visualized to the smallest detail.
- **Magnetometer technology** is able to determine whether the objects detected by the multibeam echo sounder and, in particular, the side scan sonar consist of ferrous material. Magnetometer is capable of looking several meters deep into the seabed.



The results

The survey continued during day and night time, until it resulted in a list of objects and their GPS positions, distinguishing between objects with possible archaeological value and potential explosives. This data provided the State Service for Cultural Heritage with the necessary information to decide whether any additional archaeological investigations had take place before starting the sand mining. It also helped the client to determine which safety measures needed to be taken in order to ensure the activities were carried out safely.