

# NEW MARINE GEOPHYSICS GUIDANCE FROM HISTORIC ENGLAND



Deployment of a sound velocity profiler during multibeam bathymetry survey being undertaken with Drassm. Credit: MSDS Marine

In 2013 Historic England first released guidance on undertaking geophysical survey in the marine environment. By 2020 a new edition of the guidance was deemed necessary as the UK entered a very active phase of marine planning and development, largely concentrated around offshore renewables. This was prompted, in part, by the UK government's *The Ten Point Plan for a Green Industrial Revolution* published that same year, of which Point 1 is 'Advancing Offshore Wind'. This increased the need to produce an updated edition of the *Marine Geophysics Data Acquisition, Processing and Interpretation* guidance, to provide up-to-date information about the use of marine geophysical survey techniques and methodologies so that survey campaigns conducted to support maritime development projects could reveal or otherwise demonstrate the presence of historic and archaeological sites and places.

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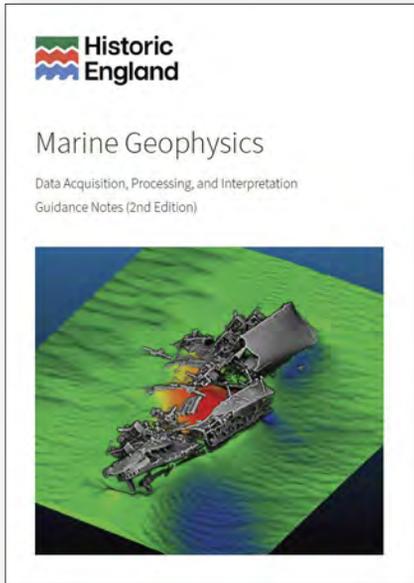
Prior to the commencement of offshore development, geophysical and hydrographic data is the primary dataset from which archaeologists can determine the presence, location, and extents of material of potential archaeological interest. However, there are important considerations to ensure that marine geophysical and hydrographic data is collected, processed and interpreted to defined standards and specifications across the sector to meet archaeological objectives. This in turn enables mitigation recommendations to be consistent and provide robust, but proportional, protection for the historic environment.

Historic England have now released the second edition of *Marine Geophysics Data Acquisition, Processing and Interpretation*, having commissioned MSDS Marine as the authors. It is the broad purpose of this guidance document to describe geophysical surveying techniques that can reveal information about the historic environment as it might be encountered on, within and beneath the seabed around England.

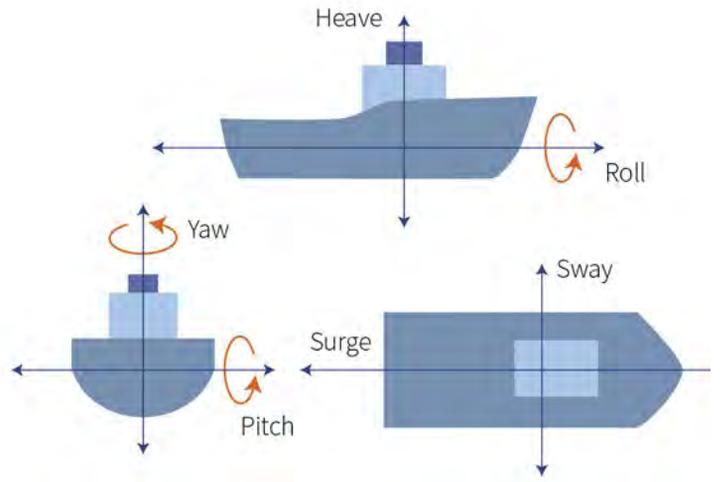
The updated guidance is aimed at a range of end-user groups including developers, surveyors, archaeologists, curators, early-career professionals and students, and not only provides guidance for the offshore development sector but also serves as a useful reference for those conducting geophysical surveys of archaeological sites. The guidance presents all aspects of the data collection, processing and interpretation process from survey planning through to reporting.

The guidance addresses the complex requirements of marine archaeology. Marine geophysical data is frequently collected for a variety of purposes — from route planning and engineering to ecological research, resource assessment and the detection of unexploded ordnance — with archaeological investigation often forming a key part of these projects. In line with the principle of 'collect once, use many times', this document highlights the importance of ensuring that survey outputs, archiving and data accessibility meet the needs of multiple end users.

To ensure suitability for the broad target audience, this guidance has been structured in such a way that it can be considered modular. Each section can be reviewed independently depending on the requirements of the reader. A modular approach also allows for future revisions to be made as technology advances, which may lead to, for example, changes in example specifications.



Guidance cover. Credit: Historic England



An example image from the guidance illustrating the effects of vessel motion. Credit: Historic England/MSDS Marine

This guidance has also been written for the various users of geophysical survey data. It contains technical concepts and terms required to accurately explain how survey equipment operates and the processing of the resulting data. The technical language used is consistent throughout the wider marine survey industry to ensure that the survey methods described are understood by those using or commissioning geophysical data.

This guidance covers the four principal sensors used within marine geophysical survey: the multibeam echosounder (MBES), the sidescan sonar (SSS), the magnetometer, and the sub-bottom profiler (SBP). It summarises each technique’s uses and limitations and provides guidance from survey planning through to final deliverables.

Historic England itself uses geophysical survey data to help shape management strategies for designated historic shipwrecks and to support investigations into heritage assets with potential for designation. This revised guidance defines the standards for acquiring, processing and interpreting geophysical data to meet these aims effectively.

The guidance was developed collaboratively, drawing on sector-wide expertise. By presenting these technical approaches in a clear and accessible way, this second edition empowers professionals to carry out and provide input to surveys with confidence and consistency. It details the full range of methods available and explains how to interpret the results to reveal valuable insights about our shared marine heritage.



QR code to access the guidance online

You can find the guidance online here: <https://historicengland.org.uk/images-books/publications/marine-geophysics-data-acquisition-processing-interpretation/>



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**Stuart Churchley**

Stuart is a Marine Planning Advisor at Historic England with experience in advising on a range of marine developments across England over the last 13 years. For this particular project Stuart acted as Historic England’s Project Assurance Officer.