

Monitoring and management of dredging and construction

Measuring, understanding and planning for development



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HR Wallingford is internationally renowned for the provision of authoritative advice and support in relation to the design, implementation and interpretation of monitoring studies. We have been involved in measurement and monitoring of marine and fluvial environments for more than 60 years. We apply our world-class expertise and technology to offer a complete range of advice in relation to physical, chemical and biological monitoring for all dredging and construction projects. No matter how large or small a project is, or what stage a project is at, we will seek to provide assistance where it is requested and we are able to help.



Developers and Regulators often require monitoring of the marine environment to assess potential changes and impacts during construction projects. Such monitoring is commonly a condition to gaining licences and consents, and projects have the potential for work to be managed and even halted based on measured impacts. Monitoring can also be of great interest to stakeholders and key to relationships between Developers, Stakeholders and Regulators.

Monitoring design

More monitoring is not necessarily better monitoring. The best monitoring provides the correct level of protection to the environment, in the most efficient and cost-effective way possible. A clear understanding of the environment, and to what extent it varies naturally, is essential before construction begins. Poorly designed monitoring can be very ineffective and costly.

Monitoring studies must consider the presence, or otherwise, of sensitive receptors (habitats, organisms or existing users of the environment), the risk of planned work impacting those receptors and the applicable regulatory framework.





HR Wallingford processes and interprets environmental data to identify and classify sensitive receptors. We assess the potential risk to these receptors using our state of the art modelling tools to assess currents, waves, sediment movement and sediment release from dredgers.

We have extensive experience of international regulatory systems and requirements, and work closely with regulators to ensure that our client's interests are properly represented and considered.

HR Wallingford provides scopes of work and technical specifications for monitoring activities. We also provide cost and schedule estimates for monitoring studies to help with financial and logistical planning.

Implementation of monitoring

We carry out tender assessments for monitoring work and help our clients with contractual negotiations for survey activities, particularly when dealing with risks from weather, instrument and data loss.

Our expert staff are experienced in client representation on site; this can be particularly important in the early phases of a project to identify any shortcomings and ensure that they are addressed quickly. Periodic site visits are also helpful to ensure that standards are maintained.

Data and its interpretation

Regulators often want dredging and construction activities to be actively managed using the results of monitoring. For example, if suspended sediment levels rise above a threshold that may potentially be damaging to the environment, dredging activities may need to be stopped, slowed or moved.

The correct selection of thresholds and responses is of great importance as is the accuracy and validity of the monitoring data being collected. HR Wallingford provides expert data analysis and interpretation to help set and manage environmental thresholds for dredging and construction. Our data processing and quality assurance utilises our in-house software package (Editor) developed specifically for this purpose. Our staff have decades of experience in this field.

World-class people and experience

Our highly experienced, dedicated team of experts is available to undertake studies and provide advice to clients worldwide.

HR Wallingford contributes to major port developments worldwide, assist dredging companies with monitoring around their plant and the prediction of impacts, and works extensively in the oil and gas sector for multinational companies. We also undertake smaller projects, including routine monitoring of existing ports and harbours to assist with dredging and shoreline defence.

As an organisation we actively contribute to state of the art research and to publications, allowing us to stay at the forefront of developments in the field.



HR Wallingford is an independent engineering and environmental hydraulics organisation. We deliver practical solutions to the complex water-related challenges faced by our international clients. A dynamic research programme underpins all that we do and keeps us at the leading edge. Our unique mix of know-how, assets and facilities includes state of the art physical modelling laboratories, a full range of numerical modelling tools and, above all, enthusiastic people with world-renowned skills and expertise.

