

A collaborative approach to improving access to UK marine data

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The Marine Environmental Data and Information Network (MEDIN) was formed in 2008 and aims to be the hub for UK marine data. It promotes sharing, re-use and improved access to that data. MEDIN is an open partnership of over 50 organisations, with representatives from government departments and agencies, research institutions and private companies. Data are accessible via an online portal, which contains information about 15,000 marine datasets from over 600 UK organisations. MEDIN are sponsored by a range of UK organisations and provides secure long-term management of marine data sets at specialist data centres.

Data are managed and delivered by a network of specialist data archive centres. These include the UK Hydrographic Office; the Met Office; the British Oceanographic Data Centre; the British Geological Survey; DASSH; Marine Scotland; CEFAS; the Archaeology Data Service; Historic Environment Scotland; and the Royal Commission on the Ancient and Historical Monuments of Wales. Over the last 12 years, MEDIN has significantly improved access to UK marine data. Free data management workshops are held across the UK to increase marine metadata knowledge, facilitating widespread adoption of an agreed set of common standards for their marine data, to enable easy discovery and re-use of data. The network provides expertise on best practice data management for marine data.

The benefits provided by marine data infrastructures, such as MEDIN, are often listed but, to date, have been relatively difficult to attribute economic value to. In order to address this, in 2019, a Cost Benefit Analysis (CBA) of MEDIN's services was conducted by experienced environmental economists, eftec, supported by marine consultants, ABPmer. The aim of the cost benefit analysis was to obtain robust quantitative and qualitative data around the benefits that MEDIN provides to its users through its portal and other services, comparing these against the financial and other costs associated with MEDIN. An online survey was circulated throughout the UK marine community during August-September 2019 focusing on four main benefits (the first three of which were quantified in monetary terms in the analysis):

- 1) Reduced time searching for existing marine data due to the MEDIN portal
- 2) Avoiding duplication of marine data gathering and savings from primary research efforts due to data uploaded by others to MEDIN along with standardized metadata.
- 3) Time savings for organisations in managing their own data and external data they hold due to the MEDIN portal, Data Archive Centres, data guidelines and workshops.
- 4) Improved decision-making due to greater availability of marine data.

There are two main costs of MEDIN, which these four benefits were compared to;

- 1) User time costs involved with the upload of data and metadata relating to time spent learning the MEDIN metadata standard and applying this knowledge to their own data.

- 2) The financial costs of running MEDIN e.g. employment of the MEDIN core team and other associated overheads.

The results of this cost benefit analysis show that the benefits of MEDIN far outweigh the costs. With a benefit to cost ratio (BCR) of approximately 8, this finding highlights the high value and cost effectiveness of MEDIN. The three monetized benefits sum to £59.7m over the 10-year appraisal period which far outweighs the total costs of £7.3m, giving a net present value of £52.4m. The most significant quantified benefit is the savings from improvements in organisations' own data management resulting from MEDIN guidelines and training. Both savings from searching for existing marine data and from primary data gathering are also substantial, and overall the contribution from all three benefits is significant. The results of this study are in line with similar ones undertaken internationally in recent years. A review of the economic effects of marine spatial data infrastructures (MSDIs) by Griffin et al., (2017) found that investing in MSDIs delivers benefit to cost ratios of between 2:1 and 18:1, with a mean of 7:1. While the costs and benefits assessed in these studies do not overlap perfectly with those detailed in the MEDIN CBA, they support the results found in this study and help support the conclusion that MEDIN and similar marine data sharing infrastructure, can and do provide far greater benefits to their users than the associated running costs.

References:

Edward Griffin, Andy Coote and Joep Crompvoets (2017): A marine spatial data infrastructure in New Zealand: a systematic review on the cost-benefits, *Journal of Spatial Science*, DOI: 10.1080/14498596.2017.1372227