Marine Environmental Data and Information Network (MEDIN)

Enhancing the national framework for sharing UK marine data

A summary of the discussion during the MEDIN Open Meeting 2023

'Measure once, use many times'

This document captures the outputs and results of the discussion session which took place at the hybrid MEDIN Open Meeting on April 26th 2023.

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1   Introduction

The Marine Environmental Data and Information Network (MEDIN) is a partnership of UK organisations committed to improving access to UK marine data. Sponsored by a consortium of 15 Sponsors and partnered with over 50 UK organisations, MEDIN aims to make all UK marine data Findable, Accessible, Interoperable and Re-usable. MEDIN operates by collaboration of Sponsors, Partners, Data Archive Centres and in-kind contributions from all involved in the network. The MEDIN Open meeting takes place annually aiming to gather feedback and information on different topics and to ensure that the UK marine community can contribute and steer the MEDIN work plan.

The 2023 hybrid MEDIN open meeting took place on April 26th, titled 'Enhancing the framework for sharing UK marine data' in Southampton at the National Oceanography Centre (NOC). Approximately 60 people joined online and there were 37 people in person. Polls were conducted throughout the day, with plenty of networking opportunities and presentations from MEDIN stakeholders. More information on the presentations and posters from the day can be found [here](#).

The focus of this report is a series of discussion sessions, which took place in the afternoon to explore the following questions:
1) What are your marine data challenges?
2) What MEDIN resources are you using?
3) How are you currently interacting with MEDIN?
4) What is working well?
5) What can be improved?

The main aim of these sessions was to provide a relaxed forum for all attendees to discuss these questions, capturing as many opinions, comments and suggestions within the limited time available, regardless of whether people attended in person or online. Online attendees recorded their ideas on a Miro board (an online whiteboard editable by multiple people at the same time) in small groups (typically between 3-5 people). In the room, groups of 5-7 people recorded their thoughts on large poster paper. Each session was self-facilitated, with the help of a rapporteurs from MEDIN Partner organisations. All comments were later transferred to a spreadsheet.

2   Marine Data Challenges

Each breakout group were briefed with the following question:
"What are your marine data challenges?"

A member of the MEDIN Core Team has since analysed all the comments from the discussion sessions and found that they can be grouped into 7 key themes:
1. Communication from MEDIN to stakeholders
2. Lack of resource (people, time, technical skills)
3. Technical (tools, data infrastructure)
4. Finding data and metadata
5. Education/knowledge of marine data management
6. Political/legal/organisational
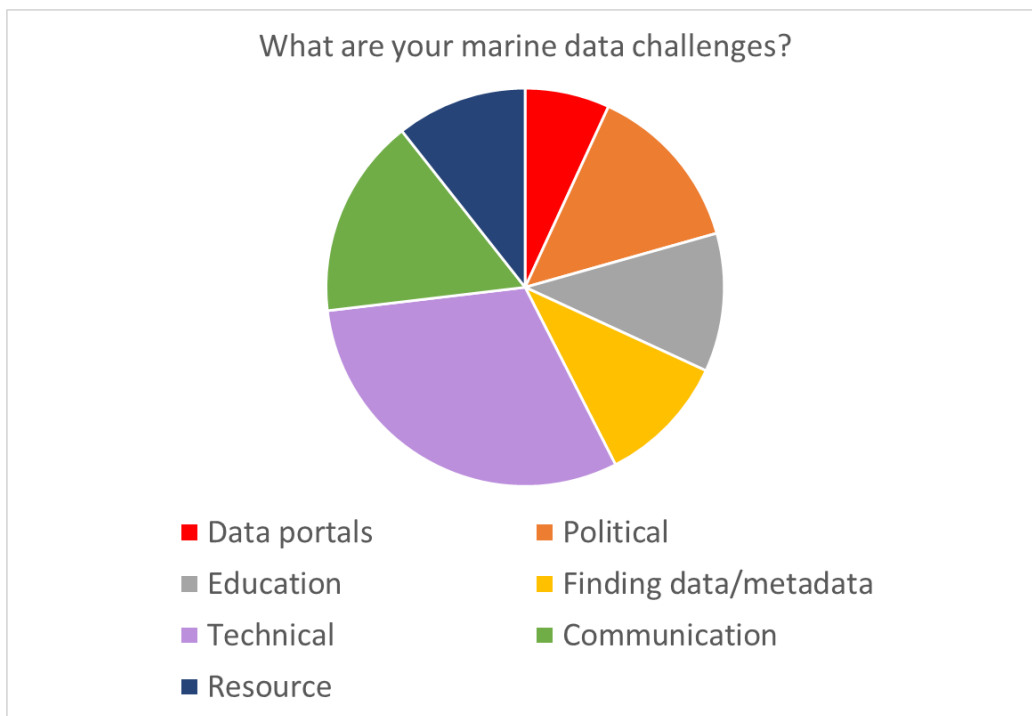7. Data portals (too many/too confusing)

Figure 1. Emerging themes from the results of the discussion session.

The most commonly discussed theme was related to technical issues. Attendees discussed challenges related to Application Programme Interfaces (APIs), visualising data and increasing capabilities for large volumes of data. There were multiple references to the existence of too many data portals and a difficulty knowing where to find data. Related to this issue, some attendees recommended more signposting of data by creating a central map of existing resources. In addition, some attendees suggested reducing the use of technical language and acronyms (jargon busting) to support colleagues with less technical experience or those new to the marine data community.

Throughout discussions, it was clear that there is a lack of time and money to adhere to good data management practices and resources became a prominent theme. Attendees said that there is a lack of resource available for keeping metadata standards up to date within organisations and there is limited access to data managers to complete quality checking of data collected. This is linked to the culture shift needed (political/organisational theme) within organisations to implement a top-down approach in raising the priority of data management training and processes during project work.

3   What MEDIN Resources are you using?

During the discussion, it was clear that most attendees are using the MEDIN guidelines, the controlled vocabularies, the MEDIN online metadata editor and the MEDIN portal to search for data.

4   How are you currently interacting with MEDIN?

Most people are using MEDIN to create metadata for their datasets. Attendees are also using MEDIN to find readily available data (using the MEDIN portal) and make use of the

support MEDIN provides to get help with where to put data and how to create metadata for their datasets.

5   What's working well?

A lot of technical aspects of MEDIN's work seem to be working well for the members of the marine data community attending the meeting. During this discussion the MEDIN metadata validation tool and incorporating existing standards and infrastructure stood out as the most popular services used by the attendees. Discussion points showed that people are pleased with, and using the MEDIN Discovery Metadata Standard. It is clear that the MEDIN training workshops are valuable as users appreciate support from MEDIN during the learning process and feel that it's a safe space to discuss marine data at all levels of understanding.
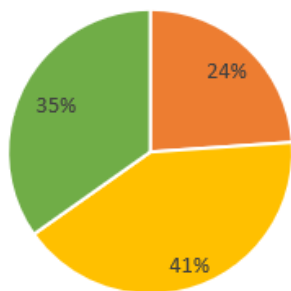
6   What could be improved?

Unsurprisingly, areas that the meeting attendees would like to see improved cover some of the same themes as the question about challenges. The discussion points are summarised as follows:

Figure 2. Themes related to communication during the discussion session.

There is a need for a framework showing how all portals and information are organised which would help understand the bigger picture of marine data. MEDIN is the perfect platform to engage all stakeholders in understanding the importance of marine data management and could do more to encourage a more open data culture throughout the UK marine community. Attendees felt that increasing the signposting of information and raising awareness of marine data management resources that already exist is a high priority. If possible, MEDIN should encourage more engagement from organisations that are new to the network, as well as organisations already established within the MEDIN. This could be achieved by greater communication of goals and ambitions by MEDIN to the wider community. Over half of the discussion points related to communication raised during this part of the meeting expressed a desire for increased communication from MEDIN would be beneficial (see figure 2 above).

Figure 3. Themes related to technical issues during the discussion session

Attendees expressed a need for data collection standards and better linkages between the UK Directory of Marine Observing Systems (UKDMOS), MEDIN Data Archive Centres (DACs) and the MEDIN portal. There was a suggestion that MEDIN could incorporate user testing by non-specialists to ensure that development of tools cater for all levels of experience. Figure 3 shows that 41% of the comments related to technical issues referred to a distinct lack of automation and interoperability in the systems used.35% of this discussion felt like a significant challenge was having out of date software and old versions of data.

Attendees felt that there remains an inconsistent application of standards applied to data across the marine community, which in turn makes implementing interoperability difficult, as extra resource is required to standardise and map different elements.
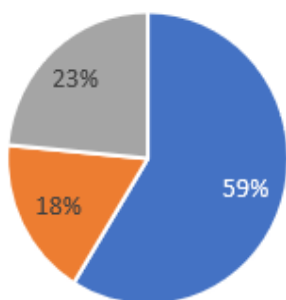
Figure 4. Themes related to finding data and metadata during the discussion session

It was highlighted that there needs to be more direct access to data. The "2 clicks to data" project, although successful for some records, is not consistent throughout the MEDIN portal. There needs to be more instant access where one or two clicks will deliver the data in the record you've searched for. Attendees felt that data interconnectivity between the marine and terrestrial sectors are lacking. It would be useful to have links between the two sectors to enable easier research for projects and to gather evidence quicker for report writing (see figure 4). In addition to improved data interconnectivity, it would be beneficial to have more social and citizen science data available for download from the MEDIN portal. An improvement in infrastructure for web scraping, high volume data downloads and API's would benefit users as well as being able to map ontologies between different domains' standards. MEDIN has already laid the groundwork to play a large part in influencing initiatives such as the UK Centre for Seabed Mapping (UK CSM) and should also consider its influence in planning for new data types and autonomous data sharing.
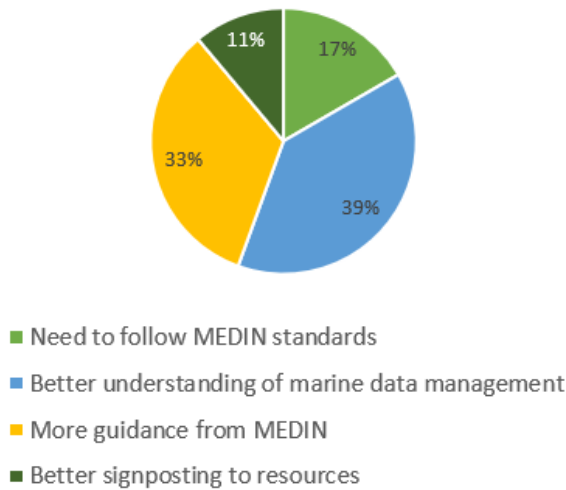
Figure 5. Themes related to education and knowledge of marine data management during the discussion session
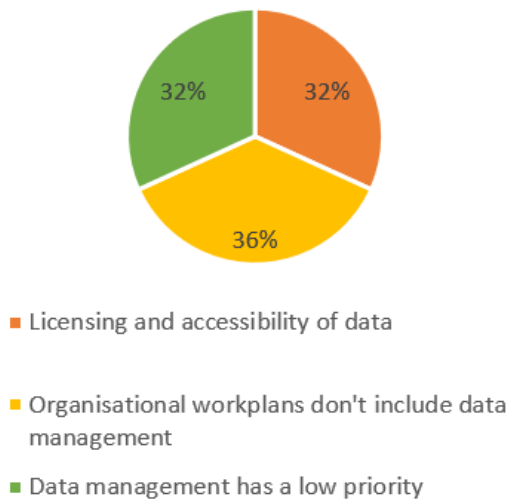

Figure 6. Themes related to political, legal and organisational aspects during the discussion session

Attendees discussed a need for tools and guidance for new and infrequent users of MEDIN. For example, more jargon busters and a glossary to explain frequently-used terms would enable increased understanding of MEDIN and marine data management from the beginning. MEDIN should also provide information and guidance on using the API standard so that the wider community can learn how to use it. More communication and engagement with the industry sector would broaden MEDIN's reach and increase input from industry into the MEDIN standard, guidelines and tools. MEDIN training could be better attended and incorporating the MEDIN workshops into undergraduate training courses would be an excellent way to train younger marine data users. Attendees during this discussion admitted that it's a challenge knowing which questions to ask in order to access data and there is sometimes not enough knowledge to use the MEDIN services.

Users find it challenging to adapt to changing demands within an organisation and the wider community (see Figure 6 for percentages). The priority of work programme tasks changes, which can hold up work related to marine data management and although not related to MEDIN, users consider this a marine data management challenge. Net Zero targets should be taken into consideration for the next programme of work for MEDIN. Sponsors should scrutinise the MEDIN workplan and share their prioritisation. There are often the same people taking part in the MEDIN working groups, the MEDIN Sponsors Board, the Executive Team and Short-Term Activity Groups (STAGs) which limits reach and breadth of thinking. It also increases the burden on individuals.
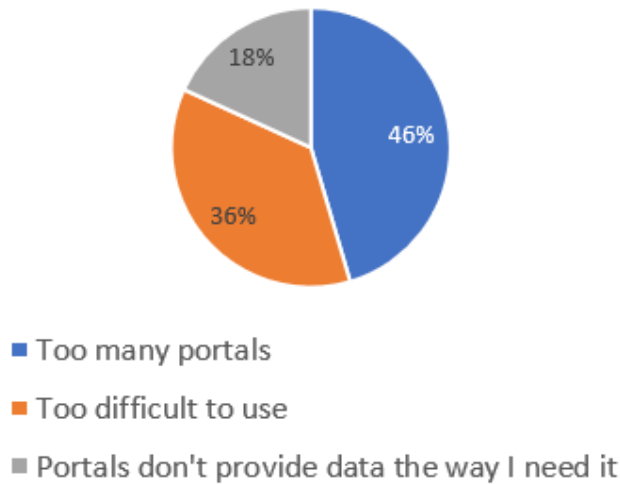
Data visualisations of the datasets in the MEDIN portal and linking datasets closely related in time, place and parameter were discussed in this session. The group raised concerns about MEDIN staying ahead in terms of technology and prioritising APIs and updating the MEDIN portal. Geographic Information System (GIS) layers in the portal need work and improved visibility so that they can be used effectively.

Figure 7. Themes related to portals during the discussion session

7 Conclusion

The themes presented during the discussion session of the MEDIN Open meeting 2023 are wide ranging and cover many areas of marine data management. As an initial assessment of prioritisation, we have looked at the number of times each point was raised across the different discussion groups. There are some themes which could be addressed relatively quickly, with minimal effort required, but most will need to be planned into the next MEDIN Business Plan as development activities and may require additional resources to pursue. This will enable MEDIN to implement changes and provide the support that the marine community has stated it needs. The next MEDIN Business Plan will be published in 2024 and results from this discussion have fed into it.