

## ANNEX E – OPEN ACCESS AND FAIR DATA

The Partnership supports a sustainable transformation of the blue economy which relies on wide and immediate access to quality data, across a range of marine and maritime disciplines and human activities. Better access to ocean data can support innovation, advance our understanding of marine ecosystems and the (cumulative) impacts of human activities, reduce costs and risks for maritime operators, inform decision-making, enable good governance, and increase Ocean Literacy.

To meet this challenge, the Partnership strongly supports Open Science principles, including the open sharing of research data to stimulate novel approaches to the collection, reuse, analysis, validation, and management of data and information. In accordance with the FAIR principles for data management (Findable, Accessible, Interoperable, Reusable), data generated by Partnership-related activities, including metadata and raw data (for data analysis across different datasets), should thus be made publicly available, possibly after a short period of exclusivity. This principle prevails as long as there are no legitimate reasons to constrain access, such as risks to the privacy of individuals that may arise from personally identifiable data or the need to protect commercial potential. The sharing of research data is made with a balanced approach towards openness, according to the principle “as open as possible, as closed as necessary”.

To support the access projects in this process, a preliminary Data Management Plan will be requested from all projects in the proposal phase and as part of the final access report (see below).

Activities supported by the Partnership TA Call to RIs also must comply with full and immediate Open Access principles for scientific publications. This includes publishing in full and immediate Open Access journals or publishing platforms, or full and immediate open access via a trusted Open Access Repository. The open-access publishing platform Open Research Europe, which makes it easy for

Horizon Europe beneficiaries to comply with the open-access terms, can especially be used. When using the repository option, partners should ensure that electronic copies of published articles are machine-readable and openly licensed, including bibliographic metadata. Information should be provided about all the other scholarly objects, tools and instruments that are needed to validate the conclusions of the publication.

### **(Preliminary) Data Management Plan (DMP)**

The following guide presents the core requirements for the establishment of their own DMP throughout the lifecycle of the project (proposal, awarded project). Its content has been developed to support researchers in ensuring that data are FAIR, where appropriate, i.e., Findable, Accessible, Interoperable, and Reusable.

Also, for assistance in developing a DMP, PIs are encouraged to first consult with relevant domain repositories, librarians, and information specialists at their respective institutions. When appropriate repositories have been identified for depositing and sharing data and digital outputs, staff at these repositories can provide additional guidance on the preparation of data and digital outputs management plans, as well as processes for fulfilling specific requirements for organising and formatting data and metadata.

Research data and digital outputs include, but are not limited to:

- *Data generated by research activities such as experiments, analysis, surveys, measurements, instrumentation and observations, video, audio, and computer simulations.*
- *All metadata describing the data and digital outputs, their acquisition (including model description and related metadata for simulations and workflows), and other details for the use and reuse of the data.*
- *Secondary data resulting from automated or manual data reduction, transformation, analyses, and results, together with the associated code, software, workflows, and provenance information.*
- *Stakeholder-oriented digital outputs such as maps (including GIS layers), decision support tools, tutorials, videos, local language resources, lesson plans, curricula, policy memos, and whitepapers.*
- *Descriptions of (and metadata relating to) physical samples connected with the call - but not the actual physical samples.*

Project-specific DMPs should adhere to relevant standards and community best practices, which may vary by subject and disciplinary area. DMPs should also comply with public access policies and applicable national laws for the respective Funding Organisations supporting this call. Data sharing should follow a balanced approach towards openness, according to the principle “as open as possible, as closed as necessary”. Shared data must be discoverable through machine-readable catalogues, information systems and search engines. Sufficient metadata must be provided and made openly accessible to enable data (including models, workflows, software, methods, etc.) to be discoverable, accessible, understandable, interoperable, and effectively reused by others, including those outside the discipline of origin and the context of acquisition. Data must be curated, including maintaining integrity, quality, and veracity, using internationally or community-agreed standards and protocols. Data must be preserved, protected from loss, and remain accessible and usable for future research in sustainable and trustworthy repositories.

Resulting publications must list where or how to locate the underlying supporting data and other research materials, including agreed persistent identifiers, processing details and any workflows, software, and code. Academic journals may also set specific requirements for Data Accessibility Statements to be included within published research results (primary research articles). Applicants should ensure that metadata created to support research datasets and other digital outputs retained for the long term is sufficient to allow other researchers a reasonable understanding and trust of those materials, thereby minimising unintentional misuse, misinterpretation, or confusion.

In the possible development of data infrastructures, it is important to leverage existing resources, platforms, standards, and recognised practices together with a clear sustainability plan. In case projects propose to develop data infrastructures, they are asked to work closely with and support relevant international networks, infrastructures, and standards organisations. They should make as much use as possible of existing certified domains, and national or international data repositories (for further information, possible resources include, but are not limited

to re3data.org, Core Trust Seal, Group on Earth Observations (GEO) FAIRsharing.org, etc). Projects should also coordinate with, and make use of, the products and practices developed by recognised research and operational data policy and sharing organisations such as the Committee on Data for Science and Technology (CODATA), the Research Data Alliance (RDA), the ICSU-World Data System (WDS), and the European marine data networks and services: European Marine Observation and Data Network (EMODnet), Pan-European Infrastructure for Ocean & Marine Data Management (SeaDataNet) and Copernicus Marine Environment Monitoring Service (CMEMS). More information on these important components of Marine data management, along with other initiatives, are described in the European Open Science Platform Blue-Cloud <sup>1</sup>(a component of the European Open Science Cloud for the marine domain).

Complementary to the set of questions provided below, it is recommended to consult the document Practical Guide to the International Alignment of Research Data Management - Extended Edition from Science Europe<sup>2</sup>. It includes additional guidance and explanations to respond to the questions.

### **Data Management Plan Approach**

In the preliminary data management section (to be included in your single pdf to be uploaded on the EPSS), please address the following questions (those that are repeated from the earlier stage should be elaborated on as appropriate):

1. What types of datasets of long-term value do you expect the project will produce or reuse? “Long-term” means those data that will or may be of value to others within your research community and/or the wider research, innovation, and stakeholder communities.

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<sup>1</sup> <https://www.blue-cloud.org/>

<sup>2</sup> <https://scienceeurope.org/our-resources/practical-guide-to-the-international-alignment-of-research-data-management/>

2. How do you intend to ensure that the data from your project complies with the FAIR principles (for instance, in terms of financial and time resources)?

3. Who will be responsible for developing, implementing, overseeing, and updating the DMP (role, position, and institution)? How data management responsibilities will be coordinated across partners?

4. How do you intend to manage the data during / after (if applicable) the project and to ensure their long-term protection?

- *For example, where will the data be held during the project, who will have access, and will a specialised data manager be part of the project team?*
- *For example, will the outputs be published with a Persistent Unique and Resolvable Identifier (such as a Digital Object Identifier (DOI), Accession Number, Handle, etc.), and/or be placed in a recognised, trustworthy long-term domain or other repository or data centre. Further information about repositories includes, but is not limited to, the Re3data.org registry of research data repositories, CoreTrustSeal list of certified data repositories, etc.)*

5. What restrictions, if any, do you anticipate could be placed on how the data can be accessed, mined, or reused? Are there possible restrictions to data sharing, and embargo retention?

- *Explain the reason in case of restrictions (ex. intellectual property protection).*

7. How have you accounted for the costs required to manage the data and digital outputs to ensure long-term accessibility?

Links for further information and documentation:

- Open Research Europe platform

<https://open-research-europe.ec.europa.eu/>

- Practical Guide to the International Alignment of Research Data Management - Extended Edition from Science Europe

<https://scienceeurope.org/our-resources/practical-guide-to-the-international-alignment-of-research-data-management/>

- Research Data Alliance (RDA)

<https://www.rd-alliance.org/>

- Blue Cloud platform

<https://blue-cloud.org/>

- European Marine Observation and Data Network

<https://emodnet.ec.europa.eu/en>

- SeaDataNet

<https://www.seadatanet.org/>

- Copernicus Marine Service

<https://marine.copernicus.eu/>

- Eurofleets+

<https://dmp.ef-ears.eu/>