Content

1   Introduction

1.1   Background

The Norwegian Marine Datacentre (NMD) at the Institute of Marine Research (IMR) is a national data center for professional processing and long-term storage of marine environmental and fisheries data from Norwegian waters. NMD maintains the largest collection of marine environmental and fisheries data in Norway

NMD is the coordinator of a Norwegian infrastructure for marina data in Norway, NMDC. Other institutions in Norway can deposit their data to NMD in order to publish their data to NMDC.

Good data management implies several activities which ensures that data are discoverable and accessible. Data should be presented in a well-defined way to avoid misunderstandings and a plan for long time preservations must exist.

NMD data management is based on the FAIR Principles for Data Management:

- Findable
- Accessible
- Interoperable
- Reusable

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NMD is certified as a trusted repository according to CoreTrustSeal and is a regular member of the ICU World Data System

On a national level, NMD is a member of 'Norge Digitalt'. Through this membership, NMD is obligated to fulfill the legal and technical requirements derived from the Norwegian Geodatalaw.

NMD works continuously to fulfill its obligations to both its national and international commitments.

NMC coordinates publishing and sharing of data from IMR to national and international repositories like SeaDataNet, CMEMS, GBIF, ICES, EMODNET, Geonorge

1.2 Scope

NMD is a department of the IMR and is funded by IMR. IMR is one of the latgest marine research institutes in Europe with about 1100 employees. The main activities are research, advisory work, and monitoring. IMR operates several research vessels, and all data collected are stored and maintained by NMD.

2 Data collection

NMDs main task is to preserve and publish data collected and processed by IMR. Data from other institutes in Norway may also be stored at NMD for long time preservation. Data collected by IMR is available to scientists internally and externally.

2.1 Types of data

IMR collects and produces a large variety of data such as oceanographic data, biological samples from fisheries and benthos, fish stock estimates, species distribution, etc. The origin of the data may be instrumental (e.g. CTD, Echosounder, Argo floats, moorings), manual (e.g. samples from fish collected with trawl, samples of benthos collected with grab) or processed data like map data or results of statistical or numerical simulations.

3 Ethics and legal compliance

3.1 Legal aspects

Data ownership will remain with the originating institution. Data collected or produced by IMR is owned by IMR. Data from other institutions deposited at NMD is the originating institutions property unless specifically stated.

3.2 Policies for access, sharing, and reuse

Data collected or produced by IMR shall be made available to the public and published under an open public license such as Creative Commons attribution license (CC BY 4.0). Exceptions from this principle must be justified, and except from the exceptions listed below, a dataset can only be given an embargo period of maximum 3 years. An embargo period must be authorized by a director at IMR.

Exceptions from the above open policy are listed below:

- Where human subjects are involved, confidentiality shall be protected as appropriate and guided by the principles of informant consent.

- Where local and traditional knowledge is concerned, rights of knowledge holders shall not be compromised.

- Where data release may cause harm, specific aspects of the data may need to be kept protected (e.g. locations of nests of endangered birds or locations of sacred sites)

When sharing data, transparency and traceability becomes important. NMD has focus on implementation and best practices utilization of persistent identifiers. NMD creates DOIs on selected datasets provided by DataCite.

4 Data documentation and sharing

4.1 Introduction

All data collected by IMR is publicly available to the community with the exceptions mentioned above. Raw data from instruments on the research vessels such as acoustic data will only be available on request because of large volume of data. A typical survey can collect several TB of raw data.

4.2 Metadata

All data stored at NMD and published at NMDC are accompanied with standardized discovery metadata. Discovery metadata are compliant with ISO 19115 and metadata can be harvested using the OAI-PMH protocol.

4.3 Data

Data from IMR is available for download through the NMDC data catalogue. All data are accompanied with discovery metadata which describes the temporal and geographical outline of the data, parameters and data transfer protocols. Depending on the format of the data, well known protocols like HTTP, FTP, OPeNDAP, and THREDDS will be used for data transfer. OGC web services such as WMS, WFS are supported when relevant or mandatory.

When possible, a dataset will be self-explainable. If this is not feasible, metadata which describes the data format will accompany the dataset.

5 Long time preservation

5.1 Infrastructure

NMD is using the infrastructure at IMR for long time staorage, backup and management of data.

The IMR storage system sre running IBM Spectrum Scale (GPFS). Data is accessible internally through iSCSI or SMB/NFS protocols. All data is archived on two sites to have an

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additional layer of data protection where GPFS Replication is used. GPFS Replication provide an active/active, synchronous Disaster Recovery (DR) and is independent of the storage hardware solution between the two sites.

Kryssreferanser

Eksterne referanser

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