

Delivering Quality Marine Data and Services: the IODE Quality Management Framework

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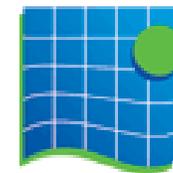
Rob Thomas, Marine Institute



Intergovernmental
Oceanographic
Commission



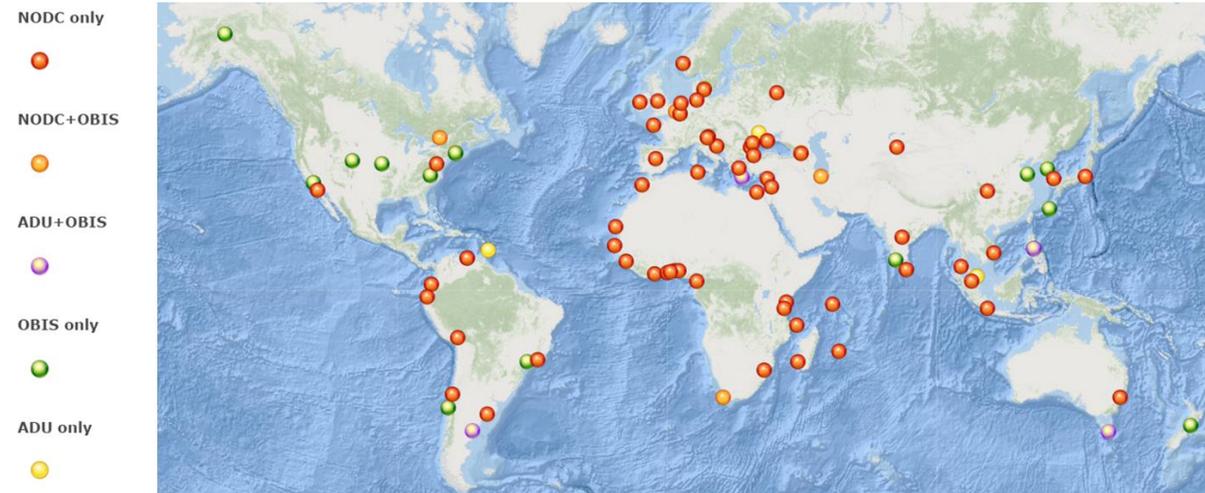
2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



Foras na Mara
Marine Institute

IODE Quality Management Framework

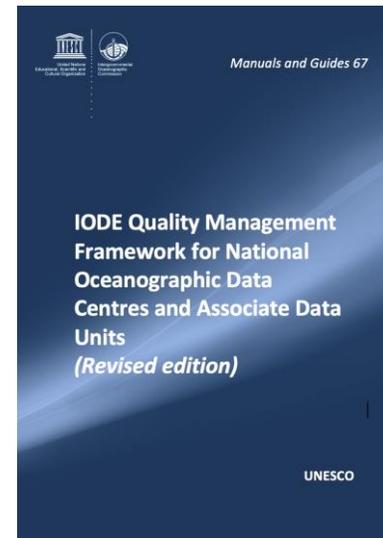
- IODE maintains a network of 100 data centres
- Data centres are responsible for the collection, quality control, archive and online publication of many millions of ocean observations



- IODE has implemented a Quality Management Framework (QMF) to ensure data centres are established and accredited according to defined principles

Quality Management System

- IODE QMF addresses the implementation of a quality management system (QMS) by its network of data centres
- A QMS can be described as a collection of business processes focused on consistently meeting customer requirements and enhancing their satisfaction
- Implementation of a QMS will assist data centres in the provision of good management practices
- The IODE QMF is described in *IOC Manuals and Guides 67* *



* Intergovernmental Oceanographic Commission of UNESCO. 2019. *IODE Quality Management Framework for National Oceanographic Data Centres and Associate Data Units (Revised edition)*. (IOC Manuals and Guides 67, rev. ed.) (<http://www.iode.org/mg67>)

IODE Accreditation Process

- IODE has implemented an accreditation process
- Accreditation of data centres is based on criteria that can be translated into quantitative indicators
- Accreditation will ensure the data centres are able to provide quality data to meet the requirements of a broad community of users
- Data centres must demonstrate capability to provide data and services in compliance with established standards and best practice
- IODE data centres are expected to comply with the IOC Oceanographic Data Exchange policy

Elements of IODE Accreditation

Element	Requirement
1. Organizational framework	<ul style="list-style-type: none">• Quality management system• Expertise in data management• Commitment to resource data management operations• Report to IODE committee
2. Quality control and maintenance	<ul style="list-style-type: none">• Adhere to standards and best practice (see: www.oceanbestpractices.org)• Maintain a discovery metadata catalogue• Advise data collection procedures using appropriate standards• Described quality control procedures used to process data
3. User access and communication	<ul style="list-style-type: none">• Committed to customer service• Committed to raising awareness of its data holdings and promoting the use of the data• Published Data Policy, adheres to the IOC Oceanographic Data Exchange Policy
4. Technical infrastructure	<ul style="list-style-type: none">• Documented data centre operating environment• Implemented security policy

Quality Management at Marine Institute Ireland

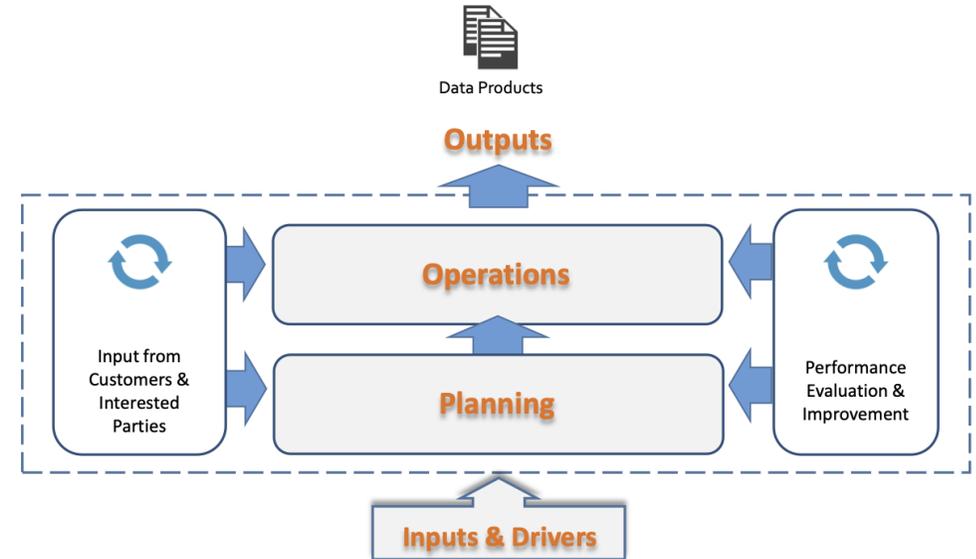
- The Marine Institute (MI) of Ireland included “Quality” as a goal in its Data Strategy
- To facilitate a QMF, MI has developed
 - A Manual detailing the implementation of the QMF across the data producing areas of the Marine Institute
 - A Model to deliver Data Management Quality Management Framework (DM-QMF) described in the manual
 - An Implementation Pack: templates and guidelines to assist in the implementation of the model (*Leadbetter, et al., 2020 **)
- MI was designated as an **Accredited National Oceanographic Data Centre** in February 2019



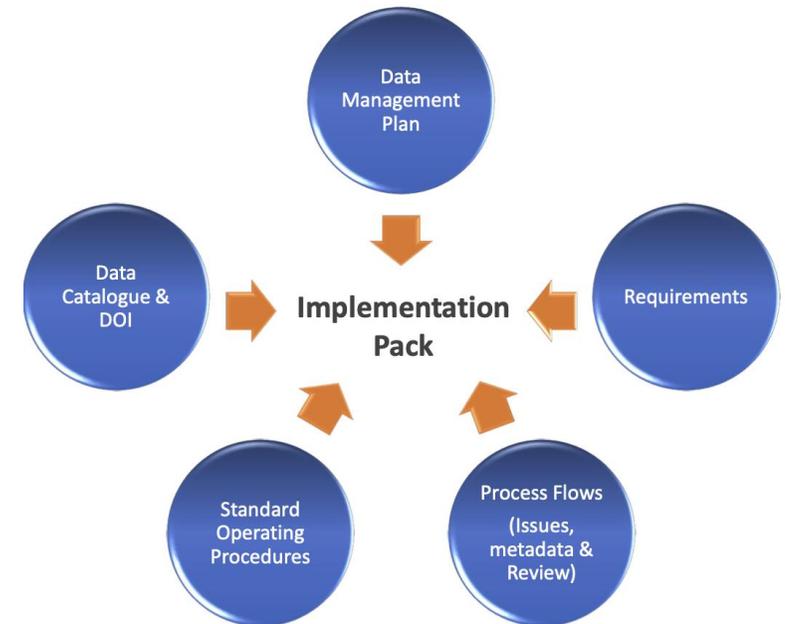
* *Leadbetter, A., Carr, R., Flynn, S. et al. Implementation of a Data Management Quality Management Framework at the Marine Institute, Ireland. Earth Sci Inform 13, 509–521 (2020). <https://doi.org/10.1007/s12145-019-00432-w>*

MI Data Management Quality Framework

MI DM-QMF model



Implementation Pack



Capacity Development

- 2020: OTGA Quality Management System Essentials for NODCs & ADUs
- Course developed and guided by staff at the Marine Institute
- The course provided an introduction to the development, implementation and management of a QMS to assist in the adoption of management practices and increased confidence in the quality of data, products and services
- Aim: For data centres to implement a quality management system which will lead to the accreditation.



Conclusion

- The IODE QMF ensures that its data centres are established and accredited according to defined principles
- The key steps required to implement a QMS and the accreditation process have been outlined
- The Marine Institute has implemented a DM-QMF which has resulted in designation as an Accredited National Oceanographic Data Centre
- The IODE's OceanTeacher Global Academy delivers courses to provide the necessary training so data centres can implement a QMF and achieve full accreditation.

