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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

2024 Meeting of the IODE Management Group

IOC Project Office for IODE, Oostende, Belgium, 5-7 February 2024

SUMMARY REPORT

IOC/IODE-MG-2024
Oostende, 7 February 2024
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1 OPENING OF THE MEETING/ ADOPTION OF AGENDA AND TIMETABLE

The meeting was opened by the IODE Co-Chairs. They welcomed the participants to the 2024 meeting of the IODE Management Group. They introduced the working documents for the meeting as well as the proposed agenda and timetable. They also informed the meeting of the working hours of the meeting.

The meeting was invited to adopt the agenda of the meeting ([Annex I](#)).

The Management Group adopted the Agenda for the meeting. It is attached to this report as [Annex I](#). The list of participants is attached as [Annex II](#).

2 REVIEW OF THE IODE-XXVII ACTION SHEET

2.1 OVERVIEW OF COMPLETED, PENDING AND UNIMPLEMENTED ACTIONS

Mr Greg Reed introduced this item. He referred to [Annex III](#). He reported that 16 out of the 61 action items had been implemented since April 2023. Another 33 are ongoing. For another 12 no action has been reported.

2.2 REVIEW OF ACTIONS REQUIRING DISCUSSION AT THE MG

Mr Reed invited the management group to review the below actions items (2.2.1 to 2.2.12).

2.2.1 Action item 34: Accreditation applications

Mr Reed reported that one new accreditation applications had been received since IODE-27 (March 2023). As such only 10 NODCs out of 59, 2 out of 40 ADUs and 0 out of 6 AIUs are currently accredited.

Mr Reed noted that some of the accredited NODCs and ADUs could assist with the accreditation process. He also mentioned that expressions of interest were reported from Spanish speaking countries (e.g. Panama) but as the documentation is not available in Spanish they were experiencing problems proceeding with the accreditation request. Ms Sierra suggested that we should also bring in the IOC Regional Subsidiary Bodies (RSBs) to assist with promoting accreditation. It was noted that we need a “pull” to attract more accreditation requests. It was recommended that as ODIS wants to be a “trusted data source” accreditation by ODIS partners is important. Currently some of the ODIS partners are accredited while others are not.

The Management Group instructed ODIS to provide mechanisms to allow and encourage all ODIS partners to communicate their accreditation status (IODE or other).

The Management Group invited accredited data centres to mentor data centres that have interest in accreditation but require assistance.

The Management Group invited IOC RSBs to assist and coordinate in this regard.

2.2.2 Action item 36, 67: Recruitment of marine libraries and information centres as AIUs

Mr Reed reported that despite sending emails to the IAMS LIC Presidents for several years, no new AIUs have been added leaving the number at 6.

Ms Pauline Simpson reported that 3 emails had been sent to IAMS LIC requesting to join IODE as AIU. There will be an in-person conference in Alexandria, Egypt in October 2024 (IAMS LIC 2024, Alexandria, Egypt October 13-17. Call for proposals will go out soon).

The Management Group decided that IODE should participate in the 2024 IAMS LIC Conference to promote participation in IODE.

2.2.3 Action item 54 and 55: review of NODC health check status within the IODE network

This agenda item was briefly introduced by Ms Lesley Rickards, Chair of the inter-sessional working group on the review of the NODC health check status within the IODE network. She reported on the progress made by the IODE Intersessional Working Group on the Health of NODCs since IODE-XXV (2019). She referred to [Document IOC/IODE-MG-2024/2.2.3](#). It was noted that the current procedure is limited to NODCs but the health check could also be implemented for ADUs.

The Management Group:

- (i) **Instructed** the Secretariat to undertake a first provisional health status check of all NODCs by IODE-28 and based on the criteria documented in Document IOC/IODE-MG-2024/2.2.3;
- (ii) **Instructed** the Secretariat, taking into account the experiences with the first provisional health status check preparations, to submit a revised version of Document IOC/IODE-MG-2024/2.2.3 to IODE-28 for approval.
- (iii) **Invited** Secretariats of RSBs to collaborate in ensuring continued communication and participation with IODE after staff changes at NODCs, ADUs or AIUs.

2.2.4 Action item 82,83: all IODE projects and invited Member States to contribute research and informational documents to AquaDocs

This agenda item was introduced by Ms Angela Clark. It was noted that a specific report on AquaDocs is discussed elsewhere. Ms Clark reported that there is growing number of communities in AquaDocs of which the Ocean Decade is the most recent. There are currently approx. 40,000 full-text publications in AquaDocs. A migration to another DSpace service provider is planned in 2024. This year a DSpace software upgrade is planned as well. It was noted that AquaDocs is an ODIS partner.

The Management Group welcomed the joining of AquaDocs by the Ocean Decade. It was noted that metadata tags exist to identify the contributing community.

The Management Group instructed AquaDocs to check with ODIS to ensure that any migration does not cause issues in the representation of AquaDocs content in ODIS.

2.2.5 Action item 187: Member States, NODCs and ADUs to support the development of GO2DAT financially and in-kind

see also agenda item 8.1.1

The Management Group was informed by Tim Boyer (WOD) that WOD covers the data required by Go2DAT. It was noted that GO2DAT asks for an ODIS bridge. It was noted that IQuOD uses WOD as a database to develop products and services.

The Management Group encouraged GO2DAT to collaborate with the World Ocean Database to optimize efforts towards a global ocean oxygen database, and to avoid duplication of effort.

- 2.2.6 Action item 216: The Committee invited IODE NODCs, ADUs and AIUs to report (as part of the reporting in preparation for IODE Committee meetings) on projects, programmes and other initiatives in which they are involved and relevant to IODE

To be done for IODE-28.

- 2.2.7 Action item 238: The Committee instructed the IODE Management Group to prepare a proposal on the way forward to take the recommendations from IODC1 and IODC2 into consideration in the work plan of IODE during the next inter-sessional period (April 2023 – March 2025) as well as in the preparations for IODE-XXVIII

Mr Taco de Bruin briefly reported on this item. He recalled that the recommendations of the IODC1 and IODC2 conferences are available from the ocean data conference web site <https://oceandataconference.org>. Since the IODC2 the landscape has changed: the Ocean Decade DCO for Data Sharing has been established and IODE has restructured its programmatic structure but also the outside world has changed, especially as a result of the Ocean Decade. As such we need to consider the recommendations of the two conferences in this changing landscape. A document will be needed to consider all this and how IODE can take into account the past recommendations in its programme work. Mr De Bruin invited volunteers from the Management Group to work on this document by the end of 2024 (so it can be submitted to IODE-28 in March 2025). Paula Sierra, Katherine Tattersall, Pier Luigi Buttigieg, Lucy Scott, Hernan Garcia and Jan-Bart Calewaert volunteered to be members of the drafting group and Mr Taco De Bruin as Chair of the Group.

The Management Group invited Mr De Bruin to Chair the drafting group and instructed the drafting group to prepare a document considering the outcomes of IODC1 and IODC2 in a changing landscape by end of 2024.

- 2.2.8 Action item 267: The Committee encouraged NODCs/ADUs/AIUs to explore ways and opportunities to streamline their CD activities utilizing the Ocean CD-Hub

Ms Johanna Diwa briefly reported on this item. In response to action item 267 Ms Diwa reported that an email was sent to all accredited NODCs, ADUs and AIUs inviting them to explore the Ocean CD-Hub and submit the details of their related CD activities to be added to the platform. Currently, there are 4 NODCs, 5 ADUs and 1 AIU who have undertaken relevant action and contributed entries of their CD activities which are now visible on the Ocean CD-Hub. Ms Diwa emphasized that the platform is open for additional contributions which can be submitted anytime to the CD Secretariat,

The Management Group strongly encouraged NODCs, ADUs and AIUs to continue exploring the Ocean CD-Hub in streamlining their CD activities and contact the CD Secretariat for any inquiries.

- 2.2.9 Action item 295: The Committee urged IODE NODCs, ADUs and AIUs to also submit projects, preferably as IODE actions or including IODE as a “partner” in [Ocean Decade] projects.

Mr Pissierssens informed the meeting that no action had been reported to the IODE Secretariat by IODE NODCs, ADUs and AIUs.

Mr Boyer reported that as part of Argo management team there is difficulty understanding all the Decade actions and how Argo can contribute and benefit. There does not seem to be a list of all decade actions that relate to data. So far OceanData 2030 seems to be the coordination system for decade data activities. He noted that Argo is moving to the cloud. Mr Buttigieg explained that we submitted OceanData 2030 and then the DCO Data Sharing was established. OceanData 2030 will hopefully attract technical experts from other decade actions to ensure the global sharing of data.

Further discussions on this topic were held under agenda item 9.1.

- 2.2.10 Action item 297: The Committee requested the DCU to keep the IODE Secretariat updated on any funding opportunities for the submitted Decade Actions and instructed the IODE Secretariat to update the IODE Management Group and IODE Committee on progress in this regard.

Mr Jan-Bart Calewaert, Head of the DCO for Data Sharing, briefly reported on this item. He stated that he could not speak on behalf of the Decade Coordination Unit (DCU). He informed the Management Group that the DCU is active in resource mobilization. As DCO for Data Sharing some suggestions have been made on actions that merit funding. The DCO for Data Sharing has been preparing pitches regarding the OceanData 2030 as it is central in implementing the decade data strategy. Discussions have been held with ODIS (Mr Pier Luigi Buttigieg) in this regard. Some discussions have been held with the European Commission. OceanData 2030 has also been pitched on other occasions such as the G7. He invited the Management Group to identify other decade actions that merit stronger fund-raising efforts.

- 2.2.11 Action item 354: The Committee called on Member States, philanthropic organizations or private companies to consider seconding, either at the IOC Project Office for IODE, in Oostende, Belgium or in-kind (working from their usual place of work) in order to strengthen the IODE Secretariat

Mr Pissierssens reported that no Member States, philanthropic organizations or private companies had come forward.

Mr Buttigieg noted that we need to have a structured pitch on how IODE is strategically aligned with other initiatives such as the Ocean Decade. Mr Calewaert stated that IODE has a wealth of activities useful for decade actions but is not sufficiently visible, so IODE needs to market itself better.

Mr Calewaert stated that we need to make a clear value proposition to potential donors. He recommended setting up a task team to assist with this.

Ms Lorna Inniss, Head IOCARIBE Secretariat, commented that the same issue exists at the regional level. We need to revisit our ocean data and information structure and support to countries. But the IOCARIBE secretariat needs support for this. She looks forward to discussion with INVEMAR. Assistance is needed to review

the landscape for data and information in the region with special attention to SIDS. So efforts are needed to get support including staff to assist with this process.

The Management Group decided to share information on how to approach potential donors based on their personal experience.

- 2.2.12 Action item 361: The Committee called on its members and parent institutions to involve IODE in any project proposal that includes data or information management elements

Mr Pissierssens noted that no specific invitation had been received.

2.3 REVIEW OF ACTIONS REQUIRING DELIVERABLE BY IODE-28

Mr Greg Reed introduced this item. He invited the Management Group to briefly review progress of items that required a deliverable by IODE-28 in March 2025.

- 2.3.1 Action item 37: The Committee invited accredited NODCs, ADUs and AIUs to provide assistance and mentoring services to other NODCs, ADUs and AIUs that wish to apply for accreditation.

Mr Pissierssens informed the Management Group that **an email will be sent to all accredited NODCs, ADUs and AIUs asking them about their availability to provide assistance and mentoring to other NODCs, ADUs and AIUs regarding accreditation.** The call will also include regional subsidiary body secretariats who can play a coordinating role in this matter.

- 2.3.2 Action item 151: IODE activities should be included in the work plans of the IOC Regional Subsidiary Bodies (RSBs) through active participation of IODE national coordinators (data management and information management), NODCs, ADUs and AIUs in meetings of the RSBs, and requested the IODE Secretariat to contact the regional IOC offices to ensure inclusion of data/information in the agenda of RSB meetings

Mr Pissierssens reported that discussions had started with the IOCARIBE Secretariat (Ms Lorna Inniss) after the 2023 IOC Assembly. These discussions were linked to those on the implementation of the new IOC CD strategy and related implementation plan. Similar discussions with the IOCAFRICA, IOCINDIO and WESTPAC Secretariat would be held shortly.

Regarding participation of regional IODE experts in RSB meetings, Ms Inniss noted that the focus should be on benefits through success stories where Data and Information Management (D&IM) has assisted with sustainable management. Discussions around D&IM seem to be more focused on developed countries rather than SIDS and global south. If IODE could demonstrate that activities were held in other global south countries and/or SIDS then this will make it more attractive. The IOCARIBE region submitted decade actions that will generate ocean data and information. There is room for IODE to be more engaged but there need to be more preparations in advance whereby the IODE experts from the region meet with the IOCARIBE Officers so D&IM is better covered in the RSB meeting agenda. Also IODE could be given space in the agenda or in working sessions.

Mr Ndarathi noted that issues in East- and West Africa are different. Data-informed processes are important. He referred to the 2023 OIH meeting where the need for data-informed MSP was mentioned. IODE should be involved in the RSB sessions.

He also noted that secondments to e.g. the IOCAFRICA Secretariat could include experts on D&IM. He welcomed increased communication and cooperation with IODE.

Ms Sierra noted that language remains a major issue in the region. This will need to be addressed to work in more than one language.

It was noted that, at the regional level, there should be not only a focus on local/regional needs but also on contributing to the global mandate of IOC and its IODE.

Brief reference was made to the ODINs and their future.

The Management Group called on RSBs to involve IODE through invitation to the RSB meetings as well as regular discussions on D&I needs and active involvement in RSBs and IODE activities.

- 2.3.3 Action item 159: The Committee instructed the IODE Management Group to (i) further clarify and finetune the naming definitions; (ii) propose the designation of all other IODE activities; and (iii) propose procedures to guide applications for new components, activities and projects, and submit these to the 28th Session of the IODE Committee in 2025

Ms Fyrberg briefly reported that the procedures for reporting on IODE Programme Components, Programme Activities and Projects need to be reviewed to reflect the new structure. IOC Manual and Guide 81 (Procedures for Proposing and Evaluating IODE Projects and Activities) should be revised. All Programme Components, Programme Activities and Projects should submit a report to the IODE Committee every two years. Performance indicators should be clearly identified by each Programme Component, Programme Activity and Project, subject to approval by the IODE Committee or IODE Management Group.

The Management Group instructed the Chair SG-QMF, supported by the Co-Chairs, to review and revise the reporting requirements described in M&G 81 and submit these to the 28th Session of the IODE Committee in 2025.

- 2.3.4 Action item 216: The Committee invited IODE NODCs, ADUs and AIUs to report (as part of the reporting in preparation for IODE Committee meetings) on projects, programmes and other initiatives in which they are involved and relevant to IODE

Mr Pissierssens reported that no action had been taken on this so far, but this would need to be part of the reporting for IODE-28.

- 2.3.5 Action item 220: The Committee strongly recommended NODCs and ADUs in Europe to consider involving IOC/IODE as a partner in future EU project proposals

Ms Fyrberg briefly reported on this item. She informed the Management Group that no invitations had been received. She had sent an email to colleagues in Europe inviting them to include IODE in future proposals. She invited the members of the IODE Management Group to be pro-active in this regard and to keep IODE in mind when proposals are considered and drafted.

2.3.6 Action item 300: The Committee instructed the “IODE Intersessional Working Group (IWG) to identify the IODE contribution to the UN Decade of Ocean Science for Sustainable Development (2021-2030)” to focus its work on elements 2 and 3 of its terms of reference

Mr Taco de Bruin briefly reported on this item. He reported that not much action has taken place. The IWG has not met yet and will need to be revitalized. He reported that cooperation is ongoing with the DCO for Data Sharing.

2.3.7 Action item 317: The IODE Committee, taking into account the 2022 events and their global impact, decided (i) not to proceed with the establishment of the IODE Partnership Centre for ODIS during the next inter-sessional period and (ii) to consider this matter again at the 28th Session of the IODE Committee in 2025

Mr Pissierssens noted that no action was needed on this item as it would need to be discussed at IODE-28.

3 MATTERS ARISEN SINCE IODE-XXVII THAT REQUIRE ACTION BY THE MANAGEMENT GROUP

3.1 OUTCOME OF IOC-XXXII

This agenda item was introduced by Ms Paula Sierra. She explained that she had presented the report of IODE-27 to the Assembly. She had reported briefly on the outcome of the 2nd International Ocean Data Conference and informed the Assembly that IODE-27 had focused on the following key issues: (i) status of the IODE network; (ii) progress review of the 15 IODE global projects; (iii) revision of structural elements of the IODE Programme; (iv) rules of procedure for IODE activities; (v) enhanced cooperation with other IOC programmes and other organizations; (vi) suspension of ODIN projects; (vii) IODE contributions to the UN Decade of Ocean Science for Sustainable Development; (viii) revision of the “IOC Strategic Plan for Oceanographic Data and Information Management (2017–2021)”; (ix) revision of the “IOC Oceanographic Data Exchange Policy”; (x) progress and way forward of the ODIS; and (xi) work plan and budget for 2023–2024. She further mentioned that 2 Member States had joined IODE as NODC and 7 ADUs and 1 AIU had been added. She also explained that she had presented on behalf of IODE Committee, thanks to the Government of Flanders (Kingdom of Belgium), Flanders Marine Institute (VLIZ) and Norwegian Agency for Development Cooperation (NORAD) for their support. She had further informed the Assembly of the restructuring of IODE with Programme Components, Programme Activities and Projects. She had also reported on the progress with the development of ODIS. She had reiterated the need for increased financial as well as staff support. The Assembly had adopted Decision A-32/3.4.2 (International Oceanographic Data and Information Exchange).

This included the following elements:

- Endorses the report of the 27th session of the IOC Committee on International Oceanographic Data and Information Exchange including the recommendations and workplan for 2023–2024 contained therein;
- Endorses the IOC Strategic Plan for Ocean Data and Information Management (2023-2029) as given in document IOC/A-32/3.4.2.Doc(1);
 - o Agrees that the Plan should be: (i) published and distributed widely and used as a basic data strategy throughout the programmes and projects of

the IOC, and (ii) regularly reviewed and revised by the IODE Committee, in close consultation with all IOC programmes.

The Assembly also considered the revision of the IOC Oceanographic Data Exchange Policy (agenda item 4.4). This agenda item had been introduced by Ms Lotta Fyrberg. The United Kingdom requested a slight modification which, after some discussion and modification, was approved. The Assembly adopted Decision A-32/4.4. In the decision the Assembly:

- Decides to close the IOC Intersessional Working Group on the Revision of the IOC Oceanographic Data Exchange Policy (2003, 2019) (IWG-DATAPOLICY);
- Adopts the IOC Data Policy and Terms of Use (2023) as detailed in Annex to this decision;
- Decides to develop guidelines for the development of detailed data and metadata sharing guidelines by all IOC programmes and projects.

Regarding “development of detailed data and metadata sharing guidelines by all IOC programmes and projects” it was noted that IODE has the responsibility for this issue and should provide the document to IODE-28.

It was noted that the Decade is preparing similar guidelines and the IOC (IODE) guidelines should be aligned with those of the Decade.

Reference was made to the new data policy:

“Section 9. Data and metadata sharing guidelines

IOC programmes, projects as well as other communities of practice should develop and/or apply, where applicable, detailed metadata, data and products sharing guidelines that are consistent with this IOC Data Policy and Terms of Use.”

The Management Group decided to identify existing documentation relevant to section 9, in close collaboration with the Decade Data Strategy Implementation Group (DSIG) and DCO for Data Sharing.

4 STATUS OF THE NETWORK

4.1 IODE NATIONAL COORDINATORS STATUS (REF ACTION 57)

Mr Pissierssens reported that IOC Circular Letter 2969 was issued on 24 October 2023 inviting Member States to report on any changes or to designate IODE national coordinators for data management and for marine information management. As of 2 January 2024, 27 Member States responded.

Mr Pissierssens noted that the response was somewhat disappointing.

4.2 ESTABLISHMENT OF NEW (ACCREDITED) NODCS, ADUS AND AIUS (REF ACTIONS 34, 35, 36, 67, 68, 69, 70)

Mr Pissierssens referred to agenda item 2.2.1.

4.3 DATA/INFORMATION SHARING BY IODE NODCS, ADUS AND AIUS (REF ACTION 45)

Mr Pissierssens reported that on 21 November 2023 the Secretariat sent an email to all NODCs and ADUs asking the following questions:

1. does your NODC have an online (open to the public) data discovery portal where users can search and discover your data holdings?
2. If you do not then are you planning to develop this in 2024 or 2025? If not then please explain why
3. If you need help to set up such a portal then please let us know
4. If you do have such a portal then provide the URL
5. If you do have such a portal then have you registered your portal in ODISCat?
6. If you do have such a portal then would you be willing to connect to ODIS/OIH? (if you have not done so already) (<https://oceanexpert.org/document/33422>)

A total of 31 out of 59 NODCs (52.5%) and 20 ADUSs out of 43 (46.5%) responded by 1 December (Italy responded after the deadline and their response is not included in the document).

Summary of results:

1. 18 of the NODCs that responded (58%) have an online data discovery portal
2. 18 of the NODCs that responded (62%) have indicated that they are willing to link to ODIS when their data portal is operational but nearly all that have an operational data discovery portal are willing to link to ODIS
3. 1 of the NODCs that responded indicated that they are not willing to link to ODIS
4. 1 of the NODCs that responded is already linked to ODIS
5. 16 of the ADUs that responded (80%) have an online data discovery portal
6. 17 of the ADUs that responded (89%) are willing to link to ODIS (10) or are already connected to ODIS (7)

Conclusion: The ADUs are substantially more advanced in sharing their data through ODIS. However overall, the response to the survey was somewhat low. It is noted that for 4 ADUs we do not have functional contact information.

Mr Buttigieg explained that a “how to” guide is being prepared as part of the final phase of OIH that can be shared with NODC to encourage them to join ODIS.

Mr De Bruin emphasized the importance of marketing and outreach which should be a task of every activity. He inquired whether outreach will also be a task for ODIS. Ms Scott noted that in OIH the website will migrate to ODIS while the OIH web site will mention that OIH will be subsumed by ODIS. OIH/ODIS are developing a press pack.

It was noted that many NODCs in the global south do not have the capacity to share data online.

The Management Group recommended to undertake a promotional campaign for ODIS within the NODC network and to ensure that the ODIS work plan includes a pro-active outreach programme. The Management Group also invited ODIS partners to actively promote ODIS.

The Management Group urged the RSB Secretariats to study the report (<https://oceanexpert.org/document/33422>) and to discuss with the IODE Secretariat what assistance would be needed to enable Member States in their region to share data online and join ODIS.

4.4 IODE DATA CENTRE HEALTH CHECK
(REF ACTION 54,55)

See 2.2.3 above.

5 RESTRUCTURING OF THE IODE PROGRAMME

5.1 STRUCTURAL ELEMENTS OF THE IODE PROGRAMME
(REF ACTION 159)

Ms Paula Sierra introduced this item. She recalled that IODE-27 had instructed the IODE Management Group to (i) further clarify and finetune the naming definitions; (ii) propose the designation of all other IODE activities; and (iii) propose procedures to guide applications for new components, activities and projects, and submit these to the 28th Session of the IODE Committee in 2025.

She reported that an *ad hoc* meeting of the IODE Management Group had taken place on 1 September 2023. She reported that the Group had completed the task “further clarify and finetune naming definitions” but had identified several issues that required further discussion (text highlighted in blue in the document (See [report](#))).

The Management Group decided to continue its work to “propose procedures to guide applications for new Components, Activities and Projects, and submit these to the 28th Session of the IODE Committee in 2025.” through *ad hoc* meetings and complete its work by December 2024.

5.2 RULES OF PROCEDURE FOR IODE PROGRAMMATIC ELEMENTS
(REF ACTION 164, 165)

This agenda item was introduced by Ms Paula Sierra. She recalled that the new Rules of Procedure were published as [IOC Manuals and Guides No. 91](#)

She invited the members of the Management Group in their capacity as (Co-)Chair of IODE Steering Groups to report on whether/how they had adopted the new Rules of Procedure in their management structure. It was noted that no documentation had been received in this regard from the Programme Component and Programme Activities.

The Management Group agreed that all Programme Components and Programme Activities will prepare documentation for IODE-28 detailing how the new Rules of Procedure have been adopted in their management structure.

6 IODE Quality Management Framework

6.1 REVISION OF IOC MANUALS AND GUIDES NO. 67
(REF ACTION 170)

This agenda item was introduced by Ms Lotta Fyrberg. She reported that the 2nd revised version of the [IOC Manuals and Guides 67](#) had been published in October 2023.

6.2 SG-QMF
(REF ACTION 171)

This agenda item was introduced by Mr Greg Reed. He reported that the membership of the Steering Group has been renewed in August 2023: <https://oceanexpert.org/group/281>

7 REPORTS OF IODE PROGRAMMATIC ELEMENTS

Under this agenda item all IODE programmatic elements were invited to briefly report progress since IODE-27.

Mr Pissierssens informed the meeting that all Programme Components and Programme Activities had been requested to identify any IT support needs for their activities in 2024. It is noted that general IODE IT support not specifically related to programme component, activities or projects requires 673.5 hours of staff time (40.8%). An additional 68.43 hours (4.1%) is provided to IOC CD, and 171.77 hours (10.4%) for support of other IOC sites and databases.

7.1 PROGRAMME COMPONENT ODIS

This agenda item was introduced by Mr Pier Luigi Buttigieg and Ms Lucy Scott. They provided a brief report on the most recent session of the SG-ODIS and SG-OIH.

1. Major requests from ODIS-SG-2

- Representatives requested modifications to the frequency with which their resources are harvested into the IODE ODS/OIH system. A solution is being implemented to allow each ODIS node to set their preferred frequency in their sitemaps, to remove communication overheads and support automation.
- Members requested that metadata to identify funders and funding. This capability is already present in ODIS but underused in the records shared through ODIS Nodes. The schema.org vocabulary provides a number of properties to describe funding and funders, as well as sponsors and other forms of supporting agents. These will be more clearly documented by the ODIS team, to encourage ODIS Nodes to utilise them, such that OIH can expose them more effectively.
- Requests for ODIS Node diagnostic reports to be made more visible were noted. The ODIS / OIH Dashboard has undergone significant updates to deliver these reports, both for the entire ODIS graph, as well as partner/Node sub-graphs. Performance enhancements have been implemented, and optimisations to cope with the growing size of the ODIS Federation.
- The ODIS Chair notes that the final report of ODIS-SG-2 is still being finalised. Other aspects will be elaborated upon therein.

2. Major developments

- Partner growth: number and variety: The growing visibility and popularity of ODIS has attracted further partners and candidate partners in the ODIS Federation. These include the NCEI Microplastics unit (with links to the SDG 14.1), the Leibniz Centre for Tropical Marine Ecology (ZMT), and the Integrated Ocean Observing Network (IOOS). It was noted that this growth was far beyond

expected and has only been supportable by the ODIS/OIH team through consolidation and automation of aspects of the system. While efficient, this does sacrifice extensions to the ODIS core capacity and addressing all partner concerns.

- Matchmaking services: As requested by the Government of Flanders, Kingdom of Belgium, ODIS - via the OIH Project - has determined the technical approach to implementing the matching of needs and offers across the ODIS Federation. This will leverage Offer/Demand patterns used in eCommerce and include the ability of users to digitise needs, requirements, etc, as standing queries to find matches. These needs can also be exported as a standing knowledge base of open needs that the wider ocean community can respond to, greatly enhancing landscape analysis.
- Architecture and workflow consolidation: As the OIH Project enters its final stages, technical development has focused on consolidating the functional modules of ODIS, simplifying their maintenance, stabilising the overall architecture, and adding automated processes to index, validate, and release new content. This includes deeper integration with ODISCat and OceanExpert, which provides the seed for building the ODIS graph.
- System-system interoperability: ODIS is now building interoperability bridges with systems of similar scale and/or complexity. To do so, the ODIS team has created a dedicate workflow to create and maintain bi-lateral conversion software to allow each system to identify and share content relevant to its counterpart(s). The WMO's WIS2, and UNEP's WESR are examples of ODIS counterparts involved in this process.
- Attempts to synchronise with Cross-domain Interoperability Framework (CDIF): Through participation in the WorldFAIR Project (Horizon) by the Alfred Wegener Institute (AWI), ODIS has been a key example to CDIF - a framework being coordinaetd by CODATA. ODIS has been a leading implementation case for WorldFAIR and CDIF, driving several core CDIF recommendations as they form (See: <https://doi.org/10.5281/zenodo.10219933>)

3. Focii for the last phase of the OIH Project: The OIH Project has been the primary force behind the development of ODIS. The following are the priorities for this last phase (ending June 2024), to consolidate the foundation of ODIS as a federation as well as the technical capacities at IODE to operate and further develop it.

- In pursuit of improved links between science and sustainable development, work to consolidate efforts with SDG custodian agencies for ocean carbon and plastics/debris will be prioritised. A functional ODIS link between these organisations and the broader ODIS Federation will greatly advance data sharing and interfaces between science and society. Exploratory work to develop a plan to intergate with UNSD systems will also be undertaken.
- Ocean Data 2030: Ocean Data 2030 (OD2030) is an accepted UN Ocean Decade Programme, which aims to bring together digital experts from all other Actions to align their activities and implementations, along the Ocean Decade Data and Information Strategy and its upcoming Implementation Plan. ODIS will be a leading element in this Programme, and planning is underway to allocate resources to leading OD2030 as part of ODIS operations (e.g. linked to system-system interoperability efforts).

- Semantics with UNDRR: Catalysed by WorldFAIR, a request from UNDRR to assist the digitisation of the Disaster Risk Reduction Glossary, such that it can interface with the ODIS Graph. WorldFAIR support for AWI will be used to initiate this work, with a focus on marine events.
- Sustainable code and automation: The progress in consolidating the technical infrastructure described above will be a priority in Q1 and part of Q2 2024.
- GOOS EOV data flows: Together with OBIS, and supported by the MARCO-BOLO Horizon Project, effort will be made to create a reference implementation for GOOS EOV data flow, through ODIS, into the BioEco Portal. This will commence with the Biology and Ecosystems EOVs but is intended to offer a solution for data systems to share EOV (meta)data in general.
- CARE implementation with Local Contexts: Work initiated in November 2023 has created a valuable opportunity to implement CARE-aligned functions in ODIS' operations. This will be pursued with the Local Contexts organisation.
- Create post-OIH ODIS SG: During OIH, frequent consultations with ODIS partners allowed the implementation of ODIS to be steered by the implementation partners. Following this phase, a new concept of steering ODIS will be needed. The current ODIS SG and implementation team will determine the model for this, emphasising external membership with regional and topical perspectives on the changing global datascape.

The Management Group thanked AWI (Germany) for providing expert assistance by Mr Pier Luigi Buttigieg, which has been instrumental to the development of ODIS.

Requirements for IT support

The ODIS website is currently a sub-page of OIH. OIH : see below

7.1.1 Programme activity: AquaDocs (ref action 82, 83, 84)

This agenda item was introduced by Ms Angela Clark-Hughes, Co-Chair SG-AquaDocs. She reported that AquaDocs has continued to grow after the merger in 2021 of the former OceanDocs and Aquatic Commons repositories. New organizations have joined as AquaDocs Communities, and existing organizations continue to add documents.

She expressed appreciation that the UN Ocean Decade agreed to use AquaDocs as their repository archive for the document outputs of Decade Actions. In addition, AquaDocs metadata is harvested by ODIS and through the Ocean InfoHub (OIH) search interface which provides further visibility and access to almost 40,000 publications.

The external hosted model works well, and it is hoped will be continued as part of the budget expenditure. The hosted solution has relieved IODE IT support from the maintenance role, but we have been grateful to still receive advice and support on IT requirements like customised emails and spam issues. A new vendor contract will be placed this year which will require further migration, entailing a heavy workload. However, as with many projects future sustainability will be the major consideration of 2024 and this will include working closely with OpenASFA to review options for closer collaboration/merger.

She thanked the volunteer Steering Group and Editorial Team for their support.

Requirements for IT support

“Although AquaDocs is externally hosted, Arno provides valued support to the project. He renews the domain on an annual basis, and communicates with the vendor when his technical expertise is needed. He also set up a new support email account to address the problem of spam that we had with the previous one. (We may need to revisit this new account as there is no web interface making it more challenging for the project managers to access).”

Staff time use in 2023: 6.16 hours; 0.4%

7.1.2 Programme activity: GODAR

This agenda item was introduced by Mr Hernan Garcia. He recalled that the IODE GODAR goal is to increase the volume of historical oceanographic data in digital form available to the global ocean community. This includes locating and digitizing worldwide ocean profile and plankton data sets not yet in digital form or digital data in obsolete media. GODAR also helps ensure the data goes to long-term ocean data archives and the World Ocean Database, which is an IODE activity. GODAR is grateful to the support from the IODE project office over the years. It is desired to enhance GODAR activities and impact on the ocean community.

In 2024, \$15k are requested to conduct four activities to be completed no later than December 2024.

1. **GODAR/WOD Workshop:** Conduct a GODAR/WOD hands-on workshop in South America at the Regional Training Center (RTC) INVEMAR, Colombia. The course will be led by Tim Boyer and Hernan Garcia and in close collaboration with Paula Sierra (IODE co-chair, INVEMAR). We seek to bridge open data access and scientific use of the data for regional problems and enhancing ODIS. Funds (\$12k) are requested for (a) travel support for as many selected South American students/professionals as possible which otherwise could not attend in person, (b) INVEMAR costs, and (c) travel support for Hernan Garcia to attend the course.
2. **Data Digitization:** Digitize data from the 1929-30 Dutch Snellius Expedition in Indonesian waters [1]. This project will be led by Mr. Taco de Bruin, Royal Netherlands Institute for Sea Research. We expect to connect with Indonesian colleagues and make sure that they are involved and benefit from this digitization effort. The workflow developed may be used in similar future digitization efforts, such as for the 1899-1900 Siboga Expedition also in Indonesian waters [2], and other relevant historical ocean data. The aim is to make the data FAIR-compliant and analysis ready. Data digitations needs have already been potentially identified such as:
 - a. IOCARIBE data rescue (Peter Pissierssens, per. Comm.)
 - b. Biodiversity critical data (OBIS, Ward Appeltans per. Comm.)
 - c. Plankton and fish data in Costa Rica, Venezuela, Ecuador, and Chile (Ana Peralta, University of South Florida, USA, per. Comm.)
3. **GODAR Needs Survey:** In close collaboration with the IODE project office, develop and conduct a survey of historical oceanographic data at risk of being lost and not used for ocean climate research including biodiversity. A parallel effort could potentially be made in collaboration with the World Data Service for

Oceanography of the World Data System of which IODE has a long-standing collaboration [no cost]

4. Explore creating a small steering GODAR group

Plan/timeline/milestones for the GODAR (2025-2027; Notional)

1. Based on the results from the proposed 2024 GODAR survey, identify and prioritize historical oceanographic profile and plankton data that should be digitized subject to the availability of funds. Create a new survey for 2025 to identify relevant GODAR data and provide data to WOD and ODIS
2. Conduct a GODAR/WOD hands-on workshop in Asia (West-Pac region) subject to availability of funds. This would be a goal undertaken with Ocean Teacher in collaboration with our Asian colleagues.
3. Enhance GODAR data rescue efforts with ODIS.

[1] https://en.wikipedia.org/wiki/Snellius_Expedition

[2] https://en.wikipedia.org/wiki/Siboga_expedition

The Management Group recommended to Member States and their data centres to inform ODIS and GODAR of materials that need to be digitized or are in the process of being digitized by GODAR.

The meeting briefly discussed the possibility of using “citizen science” to digitize data by ODIS. This could possibly be included in the survey (see above).

Requirements for IT support

None reported

Staff time use in 2023: n/a

7.1.3 Programme activity: GOSUD

This agenda item was introduced by Mr Ludovic Drouineau.

Mr Drouineau explained that Sairdrones data are now part of GOSUD repository. The Ocean Race data was successfully collected for GOSUD. It is important to understand that GOSUD is somehow a hub for European aggregators such as EMODnet Physics and Copernicus Marine In Situ. Thus the data from the Ocean Race (Sea surface temperature and sea surface salinity) is available in these European Data Portal.

Some discussions with SMART Ocean- SMART Industry to try and resolve some data gap in certain geographical areas that are poorly covered.

GOSUD has been fully collecting since November 2023 SST and SSS (Sea Surface Temperature and Sea Surface Salinity) from ships available on the GTS (Global Telecommunication System). Until that date, GOSUD had only partially collected these data. GOSUD is therefore now also sharing near real-time data (on request by OceanOps) via the GTS.

Regarding plan for 2024 he explained that they are preparing to extend GOSUD with BGC (BioGeoChemical i.e. dissolve oxygen, nutrients, ...) data. The funds asked will help on this task. A new format is coming based on CF (Climate and Forecast) NetCDF last conventions. Indonesia, CLS and Ifremer are associated to ease the access of oceanographic data (profiling floats, drifting buoys, ships) collected by

BMKG (Meteorological, climatological and Geophysical Agency in Indonesia). GOSUD is helping this by collecting ship data, disseminate them to the GTS. In the past there was a plan to deal with ADCP data but this is no longer the case. There is no specific focus on carbon data.

Requirements for IT support

None: <https://www.gosud.org/> is hosted at Ifremer. No change are planned.

Staff time use in 2023: n/a

7.1.4 Programme activity: GTSP

This agenda item was introduced by Mr Christopher Paver.

GTSP consistently obtains real-time data from the Global Telecommunications System (GTS) through the Canada Department of Fisheries and Oceans (DFO) data assembly center. Additionally, data is sourced from the Atlantic Ocean High-Resolution lines managed by the US NOAA Atlantic Oceanographic and Meteorological Laboratory (AOML). Over the last six years, various operational data streams, including Argo, have migrated to the GTS Binary Universal Form of Representation (BUFR) file format. During this period, the DFO has established a dedicated pipeline for managing Argo data and continues to develop software and infrastructure to handle all BUFR-formatted data within the current framework. All these data streams are submitted to the US NOAA National Centers for Environmental Information (NCEI).

Partners such as US NOAA/AOML, University of California San Diego Scripps Institute of Oceanography (UCSD SIO), Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO), and Australian Bureau of Meteorology (ABOM) continue to generate delayed mode data, which is then submitted to NCEI.

NCEI produces both Real-Time and Best Copy products for public use. Real-Time data products are generated weekly, while Best Copy products are produced monthly. These products are available in both MEDS ASCII and NetCDF file formats.

Requirements for IT support

None reported

Staff time use in 2023: n/a

Mr De Bruin queried if we have an idea of the level of uses and who the users are. Mr Paver responded that GTSP is hosted by a US institution, so they are not allowed to track use.

Mr Buttigieg informed the Management Group that ODIS can provide some but not complete usage statistics.

Mr Drouineau informed the MG that he also works on statistical usage reporting on in situ data.

7.1.5 Programme activity: ICAN

This agenda item was introduced by Ms Tanya Haddad (online).

Since April 2023, Programme Activity ICAN has worked on a number of very successful outreach activities, including the establishment of a multilingual YouTube channel with over 120 videos, numerous enhancements to the ICAN online directory,

the upgrading of the AMCA GeoNode, and the importing of over 200 data sets into the ACMA platform for regional data sharing.

This winter, ICAN has been working with the ODINAFRICA Steering Team to design and implement a training for the ACMA community, to be held later in 2024. This project will build capacity for data sharing via the ACMA GeoNode platform, and the ACMA platform will in turn be connected to ODIS, so that items shared via ACMA may be discoverable via ODIS interfaces such as OIH.

ICAN has also applied for and recently been notified that it was successful in its application for a 2024 Sea Grant Summer Scholar, and is expecting to host the scholar from June to August 2024. We expect the scholar to work on various tasks related to ICAN members, ICAN outreach related to a planned 2024 ICAN workshop, and the Ocean Decade.

Ms Scott reported on cooperation between ACMA and ODIS: systems are linked but next step will be to update content from Africa nodes. There are regular contacts between ODIS and ACMA participants to continue the work.

Requirements for IT support

The project office hosts the web site <https://ican.iode.org>.

Arno performs updates on the underlying server.

ICAN also assists with the ACMA GeoNode platform, which is hosted by the project office here: <https://acma.africanmarineatlas.org/>

We believe that the ACMA GeoNode platform should remain hosted at IODE.

Staff time use in 2023: n/a

7.1.6 Programme activity: IQuOD (ref action 109)

This agenda item was introduced by Mr Guilherme Castelao. The International Quality-controlled Ocean Database (IQuOD) has been dedicated to maximizing the long-term global subsurface ocean temperature database's quality, consistency, and completeness. Celebrating its 10th anniversary in June 2023 with its inaugural meeting in Hobart, Australia, IQuOD has demonstrated a steadfast commitment to its mission. In 2023, despite challenges posed by the global landscape, the organization conducted virtual meetings nearly every month, and the steering group convened in person in Germany in July to define the near future strategy. New leadership emerged in 2023, with Guilherme Castelao and Lijing Cheng assuming the role of chairs. Notably, the publication of "AutoQC Good et al. 2023: Benchmarking of automatic quality control checks" marked a significant milestone, contributing to improving quality control practices. Furthermore, IQuOD forged a valuable partnership with the World Ocean Database (WOD), collaborating on implementing quality control tests, reinforcing the organization's dedication to global collaboration and data integrity. A new task team was defined for education and training in response to action #109.

Over the next 1-2 years, IQuOD is embarking on a transformative journey to enhance its structure and visibility. A pivotal aspect of this initiative involves reformulating the IQuOD structure, fostering a clearer distinction between the steering group and task teams. A newly formed steering group aligns seamlessly with this evolved vision, while task teams are expanded to broaden their impact and efficiency. This strategic shift is poised to elevate the visibility of IQuOD significantly. Concurrently, the World Ocean Database (WOD) is diligently implementing the cutting-edge Good 2023 methodology under the leadership of Tim Boyer. A commitment to transparency and

progress is evident in the plan to publish a comprehensive data description and evaluation paper for the upcoming IQuOD release. The organization remains dedicated to pushing the boundaries of data processing and quality control techniques, continually advancing its capabilities. Moreover, a focused effort is directed toward refining the definition and quantification of uncertainty. To broaden the scope of its activities, IQuOD is set to pilot an initiative in salinity quality control.

Mr Boyer noted that he prepared a set of QC procedures which have been put in python on github. He recommended to link this to ODIS or OBPS. He also reported on an internal NCEI project that prepares a Jupiter Notebook.

Ms Fyrberg reported that Copernicus also has some QC procedures. She inquired if this is also linked to IQuOD and if the procedures are the same.

Mr Boyer responded that the code is shared for comparison and testing on data sets of known quality. A paper has been published on this. Since then there have been many changes in QC so there is now a second round of this.

Requirements for IT support

None reported

Staff time use in 2023: n/a

7.1.7 Programme activity: OBPS (IODE/GOOS) (ref action 124)

This agenda item was introduced by Mr René Garello, Co-Chair SG-OBPS. He highlighted some of the activities of the past year which started with new Co-Chairs, Mr George Petihakis and himself, and at the same time included the identification of a new Chair succession process in OBPS governance structure of Co-Chair-Elect. In addition, an Advisory Board implementation is proposed for discussion.

He outlined activities, from the much-appreciated energies of the volunteer Steering Group members, which this year has been enhanced by the addition of members from a diverse range of disciplines, geographic regions, gender, and career stages, supported by a team of Ambassadors, introduced to train the next generation of ocean observation scientists in best practices.

Particularly significant, under its growing Ocean Practices for the Decade Programme, is the work on the Ocean Practices Federated Network (OPFN). A 2024 pilot will offer a transformative approach for methods content systems residing in global individual organizations, to offer federated search services across its partners, advancing the discovery, adoption and exchange of methods and information. Acknowledging the need for increased communication and outreach, a new more modern website has been launched and a complementary metrics dashboard developed to collect and share important service-use statistics.

The new IODE Programmatic Structure has necessitated some expanded thinking on external funding opportunities to support the OBPS mission. OBPS has some research grants and has started the process to become an AISBL (Association internationale sans but lucratif), to have more flexibility to submit proposals for external project funding, whilst remaining part of the IOC family. A NORAD funded project, just started, is the ADAPT Project: Adapting Ocean Best Practices to the local context, which will provide training, as well as supporting collaborative development of guidelines on ocean observation and best practices, using the Caribbean as a pilot region. This is being managed by the Capacity Development and Training Work Package which also oversaw the production of four training videos on the creation of best practices and the use of the OBPS repository.

A new Strategic Plan is proposed for the end of 2024, where the OBPS Steering Group will examine a strategy for improved support of its growing stakeholders.

Mr Buttigieg stressed the need to clearly define the term “best practice” and “endorsed practice”. Mr Garelo explained that guidelines including a more detailed definition of both phrases were drafted and expected to be finalised within a few months. Mrs Simpson contributed that OBPS makes a clear statement on its interfaces that ‘unless it has been accepted and annotated in OBPS as an Endorsed Practice by an Expert Panel, inclusion of a methodology in the OBPS, does not indicate that the methodology is recommended by OBPS.’

Mr Appeltans asked whether IOC is a partner in EU projects dealing with OBPS. Mr Garelo responded that OBPS under IOC/UNESCO was a partner in EuroSea and JERICO S3 Projects. OBPS contributes under the IEEE France partnership in the Iliad and ObsSea4Clim Projects. In the Blue Cloud 2026 Project both OBPS and OTGA are contributing under the entity of IEEE France. This was because IEEE France has been a partner with the EU since 2005, on projects with an “Ocean Practice” component, as well as a Standards purpose, which is one of the main IEEE activities.

It was noted by Mr Boyer that IODE currently does not have an endorsement process.

Requirements for IT support

<https://www.oceanbestpractices.org> site hosted by the IOC Project Office for IODE which provides support for the site.

Repository DSpace : ARNO with addition of external for significant enhancements;

Metrics Dashboard : ARNO with Cristian

The Ocean Practices Federated Network (OPFN) in 2024, is to be hosted under ODIS/OIH and plans to implement a portal, separate from OIH. This will be a sub-network of ODIS/OIH.

Staff time use in 2023: 223.67; 13.6%

7.1.8 Programme activity: ODISCat

This agenda item was introduced by Mr Arno Lambert. At the second session of the ODIS SG meeting the decision was made to integrate the ODIS Catalogue in the OIH project and the ODIS programme component.

Steps were taken to make the ODISCat data visible and indexable for the OIH workflow in cooperation with the OIH consultants. It is expected that once the catalogue will be fully used to index the other OIH source the number of entries will rise.

New development to the system will be carried out in 2024/2025 as the need rises for more and other data about the data sources used in OIH.

As the ODIS Catalogue will be further integrated in the ODIS programme component there is no separate budget request.

Ms Sierra suggested additional records from REMARCO.

Requirements for IT support

Staff time use in 2023: part of ODIS-OIH

7.1.9 Programme activity: OceanExpert

This agenda item was introduced by Ms Sofie de Baenst.

Ms Sofie de Baenst explained that since IODE27 the following tasks have been dealt with:

- The registration process has been redeveloped and will go live in February 2024.
- The documents stored in OceanExpert and a list of all institutes per country are now more easily to find through the menu.
- The data policy has been revised (considering the current GDPR and UN regulations on storing personal data).
- We are further developing the connection with the eLearning platform of OTGA
- We started discussions on the connection with MarineTraining.eu.
- We are working on a document policy for the meeting documentations.
- We also started looking into the options to link with the INDICO UNESCO event tool, to avoid duplication for IOC admin staff when creating events in both interfaces.

Regarding the workplan for 2024, she explained that she wants to make the OceanExpert repository even more known towards the public (scientists, private companies, governments,...), knowing that (based on the result of the IODE survey in 2023), the OE directory is well known within the IODE community and scores well regarding user friendliness. She also explained that, with help of a contractor, they want to improve the mailing system, redefine the privileges of the profiles, upgrade the framework.

Mr De Bruin recalled offering OceanExpert to the Decade. The DCU made a decision to build its own system. Mr Buttigieg noted that OE is harvested by ODIS.

Mr Uday inquired about SSO for OTGA and OE.

Requirements for IT support

Staff time use in 2023: 227.54; 13.8%

7.1.10 Programme activity: QMF

This agenda item was introduced by Mr Greg Reed. He reported that the membership of the Steering Group has been renewed in August 2023: <https://oceanexpert.org/group/281>.

A training course for the IODE Quality Management System Essentials for NODCs and ADUs was held from 16-18 January 2024 and hosted by the OceanTeacher Global Academy. The course introduced the development, implementation and management of a Quality Management System which will assist in the adoption of comprehensive management practices and increased confidence in the quality of their data, products and services. The course was attended by 15 participants representing NODCs and ADUs from 11 member States with lecturers from Australia, United Kingdom, Ireland and Norway.

One application for NODC accreditation was received from Italian National Oceanographic Data Centre (OGS-NODC), hosted at the National Institute of Oceanography and Applied Geophysics – OGS. This application is currently under review by the SG-QMF.

Requirements for IT support

Staff time use in 2023: n/a

7.1.11 Programme activity: WOD

This agenda item was introduced by Mr Tim Boyer.

The World Ocean Database (wOD) has been a central project of the IODE for 20+ years. The WOD strives to assemble a comprehensive database of subsurface ocean profile data, historical and recent, in a uniform format with uniformly applied quality control. The WOD is completely and fully publicly accessible, meeting FAIR principles, and attempting to be equitably accessible as well.

The direction of the Ocean Data Information Service (ODIS) is federated access to data rather than the centralized approach of WOD. ODIS has engaged in support of the WOD through a cast level granule record generator.

A concerted effort by IODE and ODIS to facilitate centralized data access through the U. N. Decade World Ocean Database Program contribution would further the goals of the IODE and ODIS. A cloud-based system for self-submission of data by IODE constituents for inclusion of the WOD would lead to a more comprehensive and timelier WOD for historic to recent oceanographic monitoring. It would also lead to more equitable access and compatibility with other oceanographic observing systems by providing best practices for cloud-based data presentation for optimized utility in the cloud.

In parallel, activity to promote the WOD in its role as a Center for Marine Meteorological and Ocean Climate data (CMOC) in the Marine Climate Data System (MCDS) and to build out the system of data flow through the MCDS will strengthen the comprehensive utility of the WOD to the research and monitoring communities.

Finally, updating the IODE version of WODselect and its transfer to a cloud environment will increase awareness of the IODE centrality in the WOD project and provide WOD access to a wider user base.

Mr Pissierssens suggested that WOD could be a secure archive for data of finite initiatives (projects) that would otherwise disappear. This could be monitored through ODIS (if a partner informs that they will close their system then arrangements could be made to migrate the data to WOD). WOD could possibly also harvest data from ODIS partners for long-term secure archival. Tim Boyer said WOD is not a permanent archive. WOD currently has 19M oceanographic casts and that takes 70 GB.

Mr Buttigieg stated that ODIS could arrange for long-term archival facilities with IODE partner data centres or private sector.

Mr Paver suggested identifying existing data centres that can provide a backup service.

Mr Boyer informed that the NCEI offers to host data for institutions that cannot do it themselves (this was done for New Zealand).

Mr Buttigieg referred to human genome project that has 3 centres around the world to archive data. He added that developing countries may not wish to give their data to developed countries.

Mr Pissierssens responded that this is the definition of the ISC World Data System (<https://worlddatasystem.org>)

The Management Group decided to discuss this matter further under agenda item 8.2.2

Requirements for IT support

Staff time use in 2023: n/a

7.1.12 Project: Ocean InfoHub (incl OIH extension project)
(ref action 128, 152) – now moved to ODIS PC

This agenda item was introduced by Ms Carolina Garcia. She provided a brief report on the most recent session of the SG-OIH.

The Fourth Session of the IODE Steering Group for the Ocean InfoHub Project was convened on 4-5 October 2023 at the IODE Project Office in Oostende. A hybrid format was chosen to facilitate maximum participation of Steering Group members. The purpose of the meeting was to provide a comprehensive overview of progress on the work plan over the past 12 months, and to get feedback on plans for the remaining eight months of the project.

Project Manager Ms Lucy Scott, together with the OIH team, reported on the deliverables to date and the upcoming work plans for the five OIH work packages. The work plan is on track with no major technical delays. A no-cost extension has been granted for the project to run until June 2024; this was factored in to the work programme.

Ocean InfoHub Project highlights over the past 12 months include:

1. Three active communities of practice (Africa, PSIDS, LAC)
2. Technical working group active, and two subcontractors renewed
3. 25 partner organizations (representing 32 nodes) currently indexed
4. Documentation and resources continue to grow
5. Initiated a getting started toolkit
6. End-user feedback collected on the Global Search Hub
7. Front end Global Search Hub contract (II) just started
8. Plans in place for expanding end-user engagement, particularly in regions
9. A total of 98 organizations engaged and/or in the co-design process
10. Animated video, brochure and other materials disseminated widely
11. Four more training courses held (EN, SP, FR, PT) in 2023

Altogether, the project has organized or participated in 317 documented virtual, physical or hybrid meetings, webinars or events (besides staff meetings) since the last Steering Group meeting. We will continue to work closely with the regions on the three regional hubs and inclusion of additional partners.

Work on the OIH Front end global search portal is ongoing. Internally, OIH has been processing feedback from >60 end-users to triage requests for developments from users to inform the front end work. The global search hub currently contains over 100,000 records, including 24,000 experts, 13,000 institutions, 42,000 documents, 1,500 training courses, 113 vessels, 3,500 projects, 48,000 data sets, and 42,000 records with a spatial element.

The FUST review was reported on, as it contained many useful recommendations for the OIH project. According to the stakeholders, OIH exceeded its targets in all aspects, including partners, interoperability, and content items shared. Stakeholders believed that OIH's features and outputs will create desired impacts and become sustainable.

After the OIH project reporting, a session was held on cooperation with the Ocean Decade, and specifically the Ocean Decade Data and Information Strategy, the Decade Coordination Office for Data Sharing, and the registered Programme OceanData2030. The OIH Project will close in June 2024 but the ODIS Programme will continue to support core services seamlessly with IODE RP funding. OIHAfrica will also continue with RP funding and resources will be actively sought for other regions and further development of ODIS.

The Management Group recommended the development of proposals that focus on SOP, CZM, MSP that are based on OIH/ODIS. With these we could approach various donors and possibly philanthropic organizations.

Taking into account the concept note in preparation by IOCAFRICA **the Management Group recommended** to bring together the various IOC programmes in IOC (Ocean Science, GOOS, IODE, MPR, TSR,...) to co-design one or more proposals. These should respond not only to regional priorities and frameworks but also to global such as BBNJ, SDG etc.

Requirements for IT support

Staff time use in 2023: 223.67; 13.6%

7.2 PROGRAMME COMPONENT OBIS (REF ACTION 117, 138)

This agenda item was introduced and reported on by Ms Katherine Tattersall, SG-OBIS Co-Chair. Ms Katherine Tattersall, SG-OBIS Co-Chair, reported on this agenda item. OBIS gladly welcomes the increase in IOC budget to IODE and the new status of OBIS as an IODE programme component. We see that the value of IODE work is recognised by this funding increase. OBIS also welcomes the creation of a funded OBIS Technical Coordinator position which will support the work of the programme secretariat and be responsible for technical and scientific coordination, implementation and maintenance of the OBIS data system and planning of related programme activities.

Regarding the implementation of our 2023/24 work plan, OBIS data collections have continued to grow steadily. In 2023, we added 18 million new records to OBIS from 444 new datasets and 3640 previously unreported species. On average per day, that equals 50,000 new records, 1.2 new datasets and 10 previously unreported species. Many of the OBIS nodes are working very hard to standardise, QC and publish these records into OBIS.

The 11th session of the IODE Steering Group for OBIS met online in May 2023 and was attended by representatives from 24 OBIS nodes, the secretariat and GBIF. The SG-OBIS made decisions and recommendations with regards to:

- the OBIS 2030 UN Decade proposal which was submitted and endorsed by the Decade
- the continuation and reinforcement of existing collaborations with e.g. GOOS, MBON and GBIF and welcoming the new collaboration agreement with LifeWatch ERIC
- the 5-year OBIS CD-strategy 2023-2027 with a focus on regional implementation
- the closure of some project teams:
 - UN Ocean Decade proposal writing team
 - historical data project team

- strategic advisory task team

The OBIS GUMPT (Grand Unified Model Project Team) closed their work in September 2023 and presented a report on the project to the OBIS-SG and community, as well as at the GBIF Global Nodes meeting and TDWG Conference. The excellent work of the GUMPT lays solid foundation for further evolution of the OBIS data publishing model. The OBIS Data Quality Control Project Team (QCPT) concluded also in September 2023, having succeeded in aligning all OBIS automated quality checks to TDWG standards (“Core Tests and Assertions”) and documenting these in the OBIS wiki and GitHub repository. The Team produced a conference abstract for the TDWG Conference, summarising insights from their work. The leadership of all Project Team Co-Chairs was exemplary and is recognised and respected by the SG-OBIS.

Five new Intersessional Working Groups (IWGs) were established during the 2023 SG-OBIS to address key areas:

- IWG-OBIS-Data Policy will develop data and metadata sharing guidelines that can be added as annexes to the new IOC data policy.
- IWG-OBIS-Comms will develop a communication and Outreach plan to enhance OBIS visibility and funding opportunities.
- IWG-OBIS-DNA will focus on DNA-derived data sharing.
- IWG-OBIS-Structure will develop a new management structure aligned with IODE rules and procedures.
- IWG-OBIS-Products will create a collaborative and interdisciplinary platform for the development of indicators and information products.

The following IWGs have either completed their tasks or made significant progress toward completion, in preparation for the next SG-OBIS which will be held on 25-29 March 2024: IWG-OBIS-Data Policy, IWG-OBIS-Comms, IWG-OBIS-Structure, IWG-OBIS-Products.

The OBIS steering group requested IOC Member States to advocate for more stable funding and a regular programme position for the OBIS data manager during the 32nd session of the IOC Assembly. OBIS node managers worked with their respective IOC delegations to raise interventions on this topic and the Assembly supported the proposal as reflected in the meeting report (<https://oceanexpert.org/document/32840>):

“The Assembly called for an increased regular programme allocation for IODE as well as additional staff to ensure the long-term sustainability of OBIS. This additional regular programme position for the OBIS data manager will enable sustained technical support to the global network of national, regional and thematic OBIS nodes, to allow the expansion of OBIS with biological and ecosystem essential ocean variables of GOOS and to support the implementation of international agreements, such as the Kunming-Montreal global biodiversity framework under the CBD and the recent agreement on Biodiversity Beyond National Jurisdiction (BBNJ) under UNCLOS”.

In October 2023 OBIS released a new online course to instruct and support the OBIS community in contributing and publishing datasets to OBIS. The course is well-subscribed and the first cohort will finish their training in February 2024. Also in October, OBIS was invited as an observer to the GBIF Governing Board meeting in Canberra, Australia.

In November 2023 the 5th OBIS Executive Committee meeting convened to evaluate the progress of the OBIS 2023 work plan and budget, and to develop a work plan and budget for the upcoming years. During the EC-OBIS meeting the committee addressed various IWG action items, including the development of a draft communication and outreach plan, and the establishment of a new OBIS data policy and guidelines aligned with and implementing the recently adopted IOC data policy. Additionally, a comprehensive review of the OBIS management structure was initiated to align it with the new IODE Rules and Procedures. A proposal outlining a revised structure and updated Terms of References has been drafted and it will be presented at the forthcoming OBIS steering group meeting, scheduled for 25-29 March 2024 in South Korea.

Initial feedback on the proposed restructure and 2024-2027 work plans and budget, gathered from the SG-OBIS during scheduled online briefing and question sessions, was engaged and positive. The new proposed OBIS structure will reduce the current size of the SG-OBIS in line with IODE requirements (currently the SG has representatives from all 33 OBIS nodes). Importantly, the structure will provide alternative fora for nodes and other OBIS community members to contribute to the work plan in the form of three coordination groups and a biannual node conference.

The coordination groups are:

- OBIS Nodes coordination group
- OBIS data coordination group
- OBIS products coordination group

The coordination groups will play key roles in two OBIS priority areas: Data Mobilisation and Data Application. The data and products groups will contribute to the technical and scientific coordination of OBIS and the Nodes group will play a role in monitoring and reviewing the OBIS work plan and budget, alongside the SG-OBIS.

OBIS will appoint a part-time consultant community engagement officer to assist in the establishment of these coordination groups and to provide administrative support. Technical and scientific workshops for the coordination groups will require travel funding and the biannual OBIS conference will also require travel funding for some Nodes. The in-person SG-OBIS meetings will continue to be a significant component of our annual expenditure. OBIS is self-sustaining for IT/website/software requirements and the new OBIS Technical Coordinator position assures us much-needed stability. However, annual digital infrastructure costs will draw on our budget, and will very likely increase over time. Finally, we plan a small but important allocation of funds for development of OBIS communication and outreach materials and distribution of these materials.

Mr Buttigieg noted that the ODIS-OBIS link is strong, but thought should be given to which Darwin Core values should be included in the metadata packages.

Requirements for IT support

Staff time use in 2023: none (managed by OBIS staff)

7.2.1 Project: PacMAN

This agenda item was introduced by Mr Ward Appeltans. He explained that the Flanders-FUST funded project PacMAN (Pacific Islands Marine Bioinvasions Alert Network) made significant progress in 2023 by advancing the implementation of eDNA monitoring for invasive species management in Suva, Fiji. The project partner

at the University of South Pacific has continued with operational monitoring, with a focus on routine eDNA sampling at four strategic locations within the Suva harbor — an international marine traffic hub in the Pacific Islands. The first batch of eDNA samples underwent sequencing, successfully identifying a species flagged on the watchlist. Subsequent efforts involved the University of South Pacific working closely with the Biosecurity Authority of Fiji to refine and implement quantitative PCR methods and analyses. These advancements enable rapid surveillance and detection of high-risk target species. The identified species has already been detected in multiple samples from the harbor, prompting proactive communication to major stakeholders. As part of the ongoing initiative, a comprehensive communication plan is in progress, accompanied by the reactivation of the Fiji Invasive Species Task Force.

However, the project has also faced substantial delays in obtaining materials in Fiji, along with ongoing capacity development needs. Therefore, a no-cost extension until the end of 2024 has been requested and granted. This extension would address these challenges and potentially prevent a funding gap, considering our anticipation of a significant new contract with the European Commission. It would also allow for the organization of a final event in October/November 2024, with comprehensive training on the decision support tool. This will help in ensuring active engagement from all stakeholders and the continuation of the project within the national invasive species program.

Requirements for IT support

Staff time use in 2023: none (managed by OBIS staff)

7.2.2 EU-OBIS funded projects

This agenda item was introduced by Mr Ward Appeltans. Five new EU Horizon projects started in 2022-2023 which directly involves IODE/OBIS: MARCO-BOLO, MPA Europe, eDNAquaPlan, DTO-BioFlow and BioEcoOcean. These EU projects run for 3-4 years and are in the early stages of development but are well on track. Currently 4 staff members (1 project appointment and 3 consultants) are paid on these EU projects.

These extra-budgetary projects are essential in reinforcing OBIS's role as a global leader in marine biodiversity data management by increasing capacity through (i) training and tutorials, (ii) development of resources such as tools and manuals and (iii) by providing enhanced data flow, data access and standardization to support the creation of relevant marine information products. An example is the development of models that use OBIS data to support the identification of priority areas to protect, including predictions for future climate change scenarios. A strong focus in several projects is the establishment of data workflows and streamlining protocols for biodiversity monitoring using environmental DNA. These projects allow OBIS to develop the capacity and be one of the world leading data systems for this type of data.

Mr Calewaert inquired about the OBIS communication and outreach plan. He also referred to the request for OBIS to be connected to multiple DCOs. Mr Appeltans responded that OBIS has been lucky as OBIS now has 2 UNESCO regular positions which is unique within IODE. But this has made OBIS attractive to donors as this demonstrates stability. He expressed frustration regarding the linking of OBIS decade actions to only one DCO.

Requirements for IT support

Staff time use in 2023: none (managed by OBIS staff)

7.3 PROGRAMME COMPONENT: OCEANTEACHER GLOBAL ACADEMY

This agenda item was introduced by Ms. Ana Carolina Mazzuco. She recalled that IODE-27 had designated OTGA as an IODE Programme Component.

She reported that in 2023, OTGA and its network of 17 Regional and Specialized Training Centres (RTC/STCs) have supported the delivery of 50 training courses (face-to-face, online, and blended), contributing to building equitable capacity development and impacting approximately 2215 participants worldwide. OTGA provided coordinated management, a common global e-learning platform as well as new educational resources in support of the different IOC Programmes and other partners. These courses covered a wide range of topics in ocean science, such as data management, marine spatial planning, satellite remote sensing, blue carbon, and many others priority areas of the UN Decade of Ocean Science for Sustainable Development and the 2030 Agenda and its SDGs as well as supporting the implementation of the IOC Capacity Development Strategy. OTGA has updated and implemented quality procedures and maintain ISO certification as a learning services provider to ensure the highest quality of training is delivered (reference Document No. OTGA01, Course Management Guidelines). Training and management were provided free of charge for both organizers and users, enabling accessibility also for under-resourced participants and institutions.

It was highlighted that OTGA has already received more than 60 requests for training courses in 2024, reflecting its value to the ocean community and IOC capacity development. OTGA foresees a significant increase in staff demand in the next years, which will require planning and extra-budgetary funds to sustain high-quality operations and incorporate new developments. OTGA Steering group will meet in June 2024 to review the achievements of the network in the last years and plan for the future. This meeting agenda includes (1) an assessment of the results of the OTGA-2/FUST project, (2) expectations and agreements within the RTC/STC network, (3) preparation of work plans and budgets for 2025, (4) mapping of funding strategies, and (5) codesign of new training activities.

OTGA committed in its workplan to implement action to raising additional resources and secure the financial sustainability of the programme component activities, by:

- Actively engaging with RTCs/STCs and other partners to mobilize funding through local and regional agencies/donors to deliver and support on-site training. Collaboration confirmed for 2024: GEF/UNDP SGP CV to deliver online and face-to-face training about microplastics; development of training funded by the European Commission - Blue Cloud 2026 initiative; and ECOP/OTGA project proposal for training to the Asia-Pacific community to the CAPaBLE call from the Asia-Pacific Network for Global Change Research.
- Leading and applying for additional funding through IOC/UNESCO donors to develop and implement new training activities. Collaboration confirmed for 2024: Training Internship project was applied to NORAD fund as IOC Capacity Development; and ongoing collaboration with OBPS on the ADAPT project (NORAD funded) to deliver support on-site and on-site training courses in the Caribbean.

Mr Reed noted that OTGA works across IOC but is still an IODE activity. This can be considered as confusing. So how do we explain that OTGA works across IOC? This has been raised by the donor.

Ms Diwa stated that OTGA is mentioned in many presentations as “IOC training system” which sends a clear message. We need to further reinforce that branding as IOC.

Mr Buttigieg stated that the training materials are digital content and as such that fits within IODE. IODE provides the content management system while the IOC programmes provide the content.

The Management Group stated that OTGA has repeatedly received positive evaluations and is widely considered as the IOC training system.

7.3.1 Project: OTGA2

This agenda item was introduced by Mr VS Udaya Bhaskar Tata. He provided a brief report on the most recent session of the SG-OTGA.

OTGA-2 has successfully mobilized USD 986,853.00 from the Flanders Government (FUST, 513GLO2046 project, 2021-2024) to increase capacity and skills by ocean specialists to use standards and best practices tools towards achieving SDG 14, to support Regional and Specialized Training Centres efficiently develop and management of the training programme. This funding was crucial to the development and consolidation of OTGA network and delivery of trainings, which achievements will be presented during the meeting. From this project, USD 267,212 is assigned as extra-budgetary funds to support OTGA training activities until June 2024. A no-cost extension for OTGA-2 until the end of 2024 has been requested. This extension will allow the Regional and Specialized Training Centres to deliver onsite training courses which have been requested by the regions.

Requirements for IT support
Staff time use in 2023: 104.8; 6.4%

7.4 REGIONAL ACTIVITIES (REF ACTION 151, 208)

See agenda item 9.2

7.5 RESULTS OF THE “USER FEEDBACK SURVEY ON IOC/IODE PRODUCTS AND SERVICES”

This agenda item was introduced by Mr Peter Pissierssens. He referred to [Document IOC/IODE-MG-2024/7.5](#).

He reported that during the past 6 decades the IODE programme network of over 100 data centres has created a wide variety of global databases, hosted by the IODE Secretariat and partners, providing ocean data and information, freely accessible to all. IODE has also established the OceanTeacher Global Academy providing free online and hybrid technical training in various areas of the IOC’s mandate. More recently IODE has embarked on the development of the Ocean Data and Information System (ODIS), creating a global federation of data systems, many of which are partners in the IODE network. The need for reliable ocean data and information will be important more than ever during the UN Decade of Ocean Science for Sustainable Development and not only for the ocean research community: our products and services must address needs to users of the entire value chain from observation & science, through data & information management to decision making support. It is for this reason that we embarked on an online survey of various IOC

and Decade stakeholder communities to investigate their awareness, use, appreciation but also criticism of the IODE products and services.

The survey was opened on 10 October 2023 and closed on 15 November 2023. Emails were sent out to the OceanExpert mailing lists for IODE National Coordinators for Data Management, IODE National Coordinators for Marine Information Management, NODC contacts, ADU contacts, AIU contacts as well as to the larger IODE contacts (approx. 1800 addresses). In addition, the Decade Coordination Unit (DCU) sent the invitation to fill the survey to their contact lists. The IODE invitation emails included English, French and Spanish versions of the invitation text. A total of 286 responses were received.

Scientists represented the largest group of respondents, followed by government employees involved in coastal/marine management. Respondents involved in the Ocean Decade (the 3 groups combined) represented only 20%. 76% & of the NODCs responded and 52.4% of the ADUs. Responses were received from respondents in 90 countries.

Focusing on the IODE community respondents the results show that of the 10 products/services 3 are extremely poorly known (GOSUD, GTSPP, IQuOD) with close to 80% of the respondents indicating they do not know the product/services. Only OceanExpert and OceanTeacher Global Academy have less than 20% unknown ratings. In terms of user satisfaction OceanTeacher Global Academy, OceanExpert, World Ocean Database and OBIS score the highest.

Mr Plissierssens suggested to developing a diagram showing interactions between all activities.

Mr Garcia suggested involving a social scientist to assist with the diagram. We need professional help. He noted that even members of the MG may not be aware of what all IODE activities do.

Mr De Bruin proposed that a designer artist should prepare the diagram.

Mr Buttigieg suggested to add logo/badge/icon on partner web sites to relevant IODE web pages.

Mr Ndarathi suggested to organized webinars on IODE activities.

Mr Garelo recommended that each activity should better promote itself and supported the proposal to develop a diagram.

Mr Uday suggested preparing an IODE slide deck that shows all IODE activities and can be used by the RTCs.

Ms Mazzuco proposed to develop a communication strategy for IODE which will be useful

Ms Iniss stated that we need a webinar series providing information on the programs. A series because there are so many programs. The idea of brochures is welcome. We use them a lot in the IOC/ARIBE region, especially promoting them at regional meetings. Key messages also help, short comments that may be used in presentations etc.

The Management Group decided to reinforce communication activities including (i) the preparation of a diagram that explains what each IODE Programme Element

(IODE Programme Component, IODE Programme Activity, IODE Project) does and how these are related; (ii) organizing webinars (especially in the regions) to promote IODE and its activities; (iii) development of a communication plan. In addition, IODE activities need to improve collaboration.

The Management Group instructed the Secretariat to start the above activities (i) and (ii) and start discussions with the MG on (iii).

8 COOPERATION WITH OTHER ENTITIES

8.1 COOPERATION WITH OTHER IOC PROGRAMMES (REF ACTION 187, 192,197,198,199,201,)

8.1.1 Ocean Science

8.1.1.1 *Harmful Algal Information System (HAIS)*

This agenda item was introduced by Mr Henrik Enevoldsen. He recalled the actions recommended by IODE-27:

“The Committee welcomed the latest developments related to the HAIS data portal.

The Committee expressed its support for the continued development of and fundraising for the HAIS data portal, which will be crucial to future editions of the GHSR.”

He also recalled Decision IOC-FAO/IPHAB-XVI.3 on the TASK TEAM ON THE HARMFUL ALGAL INFORMATION SYSTEM (HAIS) AND THE GLOBAL HAB STATUS REPORT (GHSR) including Decision IPHAB-IV.3 on ‘The Development of a Periodic Global HAB Status Report’, Decision IPHAB-XI.2 on the ‘Development of a Global HAB Status Report’, Resolution IPHAB-IX.2 on the ‘Development of the Harmful Algal Information System’ as a joint IPHAB-IODE activity, and Decisions IPHAB-XII.3, IPHAB-XIII.3, IPHAB-XIV.3 and IPHAB-XV.3 on an IPHAB Task Team on the Development of a Global HAB Status Report.

These decisions were taken in recognition of the continued and long-term benefits to policy administrators, managers of regulatory monitoring programmes and scientists of a series of syntheses of high-quality information and future scenarios on the biogeography of harmful species and occurrence of harmful algal events, including their economic and societal impacts.

He highlighted the launch of the first Global HAB Status Report (GHSR) and its relevance for current and developing global assessments, such as the United Nations World Ocean Assessment, the UNEP Global Environmental Outlook, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) global assessment on biodiversity and ecosystem services, the International Panel on Climate Change (IPCC) reporting, as well as for the United Nations Decade of Ocean Science for Sustainable Development (2021–2030). The publication of the first GHSR was only possible due to the establishment of the ‘Harmful Algal Information System’ (HAIS) as an element of the GHSR and as a data portal integrating the data in IOC/IODE’s Ocean Biodiversity Information System (OBIS) and Harmful Algal Event Database (HAEDAT);

On behalf of IPHAB he expressed appreciation for the collaboration provided by the IODE programme in general, and by the technical OBIS staff in particular, for the

development, hosting and technical maintenance of the HAIS and HAEDAT data systems.

He recalled the invitation by IPHAB for IODE and OBIS technical staff to continue its active role in HAIS through its Ocean Biodiversity Information System (OBIS) and that the Chair IODE GE-BICH has a seat on the Task Team on HAIS and GHSR which also serves as an editorial advisory group for HAIS/GHSR

He highlighted the importance of collaboration between IODE and IPHAB in particular in relation to:

- (i) Advise HAIS partners and define amendments required to update HAEDAT to facilitate proper data entry, extraction and quality control as well as improving recording criteria for HAB events such as 'high biomass blooms', 'cyanobacteria events', 'ciguatera events' and others raised by IOC regional groups. Identify areas for HAIS adjustments, geographical data gaps and website edits. Ensure standardization between HAIS and initiatives undertaken by TTs on Taxonomy (WoRMS) and Biotoxins.
- (ii) Advise and encourage regional groups and editors on data compilation, quality control and submission of HAB data to OBIS/HABMAP and HAEDAT and production of associated metadata documents,
- (iii) Develop a template, for FAO approval before the end of 2023, for a short and concise annual summary of HAEDAT with the view to submit such summaries annually to the FAO Committee on Fisheries (COFI) and the Subcommittee on Fish Trade (COFI-FT) and starting in 2024 covering the year 2023,
- (iv) Identify the focus of the second Global HAB Status Report, identify priority drivers and associated relevant global datasets. Engage with working groups, groups of experts within and outside IOC (including IOC IGMETS, IOC TrendsPO, ICES WGPME, the marine sites of the International network on Long Term Ecological Research (I-LTER), EMODNET-Biology, and ICES-IOC WGHABD, GOOS/EuroGOOS), and individual scientists to identify time series of phytoplankton data including information on HAB species,
- (v) Work with the IOC FAO IPHAB Task Teams to develop and implement the UN Decade Action – HAB Solutions, herein included raising of the required funding.

Specifically, IODE was requested to designate an expert for the TT-HAIS as the GE-BICH was abolished in 2017.

Ms Tattersall informed Mr Enevoldsen that this can be discussed at the upcoming SG-OBIS meeting.

The Management Group instructed the SG-OBIS to designate a representative from IODE/OBIS in the TT-HAIS who can then take part in defining detailed technical and financial requirements with input from OBIS experts.

8.1.1.2 Global Ocean Oxygen Database and Atlas (GO2DAT)

This agenda item was introduced by Mr Henrik Enevoldsen. He recalled the actions recommended by IODE-27:

“The Committee welcomed the development of GO2DAT, the cooperation with the IOC WG GO2NE and GO2DAT Steering Committee.

The Committee encouraged Member States, NODCs and ADUs to support the development of GO2DAT financially and in-kind.”

He explained that oxygen is critical to the health of the planet. However, oxygen decline (deoxygenation) continues to increase in the coastal and open ocean, due to human activities (CO₂-induced warming) and increasing loads of nutrients. And while oxygen is measured for decades in the ocean, the scientific community is still not able to constrain the rate of deoxygenation. Data of known quality are required to quantify changes in ocean oxygen and to advance the understanding of ocean extreme events. To date there is no common platform to share ocean oxygen data obtained on different measuring platform. Different data bases use a variety of procedures to assess the quality of data and request various levels of meta data.

Therefore, GO2DAT aims to provide scientists, no matter where and when, with access to ocean oxygen data of known quality. It will support all stakeholders and decision makers with relevant information to take action to limit dead zones and open ocean deoxygenation. And finally ocean oxygen data will be translated in knowledge to increase the understanding of the connection between oxygen loss, climate change, ocean and human health

Since IODE-27 the GO2DAT co-chairs, supported by the IOC Secretariat, established a Steering Committee with Members from the scientific community, NODCs and ADUs (e.g., Emodnet, ICOS, WOD). The group conducted a survey to analyze ocean oxygen measurement methodologies, data treatment and quality controls. A manuscript summarizing the results of the survey and proposed concrete steps to guide the establishment of GO2DAT is drafted. A review including relevant NODCs, ADUs is envisaged to take place early 2024. Furthermore, new connections with experts leading the development of ODIS and Ocean InfoHub were established. It is expected that financial support via a new GEF project and in-kind support by private sector will help to implement GO2DAT.

He invited the IODE Management team to support the GO2DAT chairs and steering committee in the development and application of data and metadata standards for ocean oxygen measurements and to guide on the integration of GO2DAT in other IODE efforts, in particular ODIS and Ocean InfoHub.

Mr Boyer noted that it seems that a database is being established for oxygen while WOD includes ocean data from the NODC network and other sources. So the support request seems to duplicate existing efforts. He recommended to use the WOD instead as a basis. Mr Enevoldsen responded that he will discuss this matter with his team members.

The Management Group instructed the OIH technical team, before the end of the OIH project, to assist with the addition of the GO2DAT system in the ODIS Federation with the objective of increasing interoperability, detecting and remedying duplication, and harmonization with other IODE assets, in particular the World Ocean Database.

8.1.1.3 Cooperation with IOC Ocean Science Section in SDG 14.3.1 data portal

This agenda item was introduced by Mr Henrik Enevoldsen. He recalled the actions recommended by IODE-27:

“The Committee welcomed the latest developments related to the SDG 14.3.1 data portal presented. The Committee invited NODCs and ADUs, as well as relevant existing regional networks, to participate in the upcoming data collection calls. The Committee expressed its support for the continued involvement of the IODE Secretariat in the further development of the SDG 14.3.1 data portal, which will be a crucial contribution to ODIS.”

Ocean acidification has been observed globally, in all ocean basins and seas. The rate of change, as well as the scale and pattern, however, shows great regional variability. A limited set of long-term observations sites in the open ocean have shown a continuous decline in pH over the last 20 to 30 years. The national datasets submitted towards the SDG 14.3.1 Indicator present a more varied picture for coastal observations of ocean acidification. The growing number of observations of ocean acidification, in particular the increase in coastal observations being reported towards the SDG 14.3.1 Indicator confirms the importance of continued observations at high spatial and temporal resolutions to enable predictions on the rate and scale of change, to understand variability, and to inform mitigation and adaptation strategies at relevant scales. There are, however, still significant gaps in the observations, making global predictions and developing strategies impossible.

IOC has, together with data managers and representatives of relevant national and international data centres, been working on the alignment of metadata requirements and vocabularies to enable the automated exchange of pertinent data between databases via a federated data system. The federated data system will further facilitate the submission, collection, storage and sharing of ocean acidification data for the SDG 14.3.1 Indicator. This next step for the SDG 14.3.1 Data Portal, developed with and hosted by IODE, will require the support of the data experts at IODE.

The IODE Management Group was invited continue supporting the communications with the NODCs and ADUs for the annual calls for data collection towards the SDG 14.3.1 Indicator and the integration of the SDG 14.3.1 Data Portal with other relevant ocean carbon databases through a federated system.

Mr Boyer asked how this is related to GOA-ON and why there are 2 data portals. Mr Enevoldsen responded that they are linked. There are different roles and different contributions but there is no duplication.

The Management Group instructed the OIH team to develop the specifications for exchanging SDG relevant metadata across the ODIS Federation and offer technical support to integrate SDG data streams into ODIS.

The Management Group instructed the Secretariat to continue supporting the communications with the NODCs and ADUs for the annual calls for data collection towards the SDG 14.3.1 Indicator.

Regarding the “integration of the SDG 14.3.1 Data Portal with other relevant ocean carbon databases through a federated system” **the Management Group invited** the SDG 14.3.1 team to discuss the requirements in more detail with OIH/ODIS.

8.1.2 Global Ocean Observing System (GOOS)

This agenda item was introduced by Ms Joanna Post. She recalled the actions recommended by IODE-27:

“The Committee instructed its Co-Chairs to engage with the OCG Data Strategy Implementation Plan to ensure that it is fit for purpose from the ocean data management community standpoint.

The Committee urged IODE experts to participate in (online) OCG meetings. The Committee noted with appreciation the ambitious plan for a BioEco Data Portal that is an integrated resource for national, regional and global ocean observing system monitoring and planning, and instructed IODE OBIS to identify the resource needs to fulfil this in a 2023-2025 planning proposal.”

Ms Post provided an overview of the GOOS programme and recent progress on the GOOS 2030 Strategy. The GOOS management team are focused on evolving GOOS strategically according to key priorities under its three application areas - climate, forecasting and ocean health - and in response to mandates from member states, key focus areas highlighted by the steering committee and in collaboration with sponsors. This includes clear deliverables, building engagement and advocacy, supporting data flow along the value chain, and synergizing GOOS and UN Decade activities.

An update was provided on the OCG Data Strategy Implementation Plan and IODE experts were encouraged to participate in OCG meetings, including the upcoming OCG-15 (13-17 May 2024, Victoria, BC, Canada).

An ambitious plan for a BioEco Data Portal that is an integrated resource for national, regional and global ocean observing system monitoring and planning has been developed but needs resources to reach its potential.

Mr Appeltans, on the BioEcoPortal, stated that OBIS is happy to assist but as staff time available is limited a more sustainable arrangement will need to be found for the further development. He inquired about the role of IODE/OBIS. Regarding the OCG data implementation strategy, Mr Appeltans had been designated as member of the panel for biology but the strategy is not public so he has not seen the document. Ms Post responded that she does not think biodiversity is included in the strategy.

Mr Boyer inquired about the relationship between GOOS and IODE regarding data flow. What is the role of IODE in data flow and what is the role of GOOS?

Ms Post responded that this is still a work in progress. GOOS exists to coordinate instrumentation. The OCG is building conversation around data flow. We also have OceanOPS to deal with metadata and information. OBIS is a separate topic. Ward is connected with GOOS for the biodiversity data flow. Ms Post was asking if someone in North America can join the OCG. There is also GRA forum on 8-9 April, Barcelona, and IODE colleagues are invited.

Mr Pissierssens asked Ms Post how she would define the cooperation between GOOS and IODE. She responded that GOOS deals with measuring and metadata. The data then flow to IODE. We want to build a federated data system that can then result in data products, as part of the value chain.

Mr Pissierssens suggested a side meeting during the Thirteenth Session of GOOS Steering Committee, 14 – 17 April 2024, Spain between GOOS and IODE to discuss collaboration. Ms Post said she will discuss with the GOOS Co-Chairs. Mr Pissierssens asked if the draft implementation plan could be shared as soon as possible so this could then be looked at by the MG in preparation for the GOOS-IODE meeting.

The Management Group requested GOOS to organize a joint GOOS-IODE meeting on data, possibly during the Thirteenth Session of GOOS Steering Committee, 14 – 17 April 2024, Spain, and to share the data implementation plan well in advance.

8.1.3 Tsunami Resilience Section (TSR) and the IOC Tsunami Information Systems

This agenda item was introduced by Mr Bernardo Aliaga. He recalled the actions recommended by IODE-27:

“The Committee took note of the activities undertaken with the TSR and invited TSR to consider more extensive collaboration through relevant IODE activities.”

He noted that the TSR deals mainly with sea level data and collaborates with mainly three data centres for this. A meeting was held recently to harmonize the 3 data portals into a unified data portal. Metadata are being identified. In addition, the web site hosted by PSMSL will be migrated to UNESCO. In addition there is cooperation on data management policy and CD strategy.

He recalled that the IOC Tsunami Resilience Section (TSR) is working with the Ocean Teacher Global Academy (OTGA) to develop training courses to be delivered by the two OTGA Specialized Training Centres (STCs) in Indonesia and at ITIC. Courses planned 2023-24 include:

- Tsunami Awareness. An overview covering hazard assessment, warning, preparedness, mitigation, response;
 - Tsunami Early Warning Systems (TEWS). Components of, and requirements for robust, reliable, and effective TWS;
 - TWC Staff Basic Competencies. Information and skill requirements for TWC staff.
- It has not been possible to finalize these so far.

TSR has also actively contributed to two Working Groups:

- IOC Group of Experts on Capacity Development (GE-CD)
- IOC Intersessional Working Group on the Revision of the IOC Oceanographic Data Exchange Policy (2003, 2019) (IWG-DATAPOLICY)

Ms Mazzuco welcomed the plans to complete the training courses and she inquired about the timeline/planning. She recalled the planning of a course for the Caribbean and she inquired if OTGA could be involved in this. Mr Aliaga announced 2 courses in Puerto Rico (tide gauge installation and data management).

Ms Diwa thanked Mr Aliaga for referring to the IOC CD strategy.

Mr Buttigieg stated that the unified portal would be the logical choice for an ODIS node - are there plans to create this link with the metadata flows that portal will harvest ? Mr Aliaga confirmed that this could be considered.

The Management Group welcomed the ongoing cooperation with TSR and **called** for continued and expanded cooperation on sea level data sharing (through ODIS) and training through OTGA.

8.1.4 Marine Policy and Regions

Mr Julian Barbière was unable to attend. This agenda item could therefore not be discussed.

8.2 COOPERATION WITH OTHER ORGANIZATIONS (REF ACTION 212, 216, 220,225,227)

This agenda item was introduced by Ms Lotta Fyrberg.

8.2.1 WMO

This agenda item was introduced by Ms Joanna Post. She focused on the WMO-IOC Joint Collaborative Board (JCB), the successor of JCOMM. It was recalled that JCOMM, established in 1999, was an intergovernmental body of experts, which provides the international, intergovernmental coordination, regulation and management mechanism for an operational oceanographic and marine meteorological observing, data management and services system.

Ms Post recalled that the JCB had been requested, following the abolishment of the JCOMM WMO/IOC Joint Technical Commission for Oceanography and Marine Meteorology) to:

- Facilitate the continued work of all JCOMM functions and activities, by recommending connections to appropriate working structures on both sides
- Make recommendations on evolving the governance for the Global Ocean Observing System, in consultation with all co-sponsors, to further develop the partnership and functional connections between GOOS and WIGOS
- Prepare, in consultation with WMO and IOC technical, scientific and regional bodies, a comprehensive and coordinated WMO-IOC Collaborative Strategy, based on existing sectoral strategies, and submit in two years to WMO and IOC governing bodies for adoption

The mandate of the JCB had been defined as follows:

- To coordinate, through a quadrennial WMO-IOC collaborative strategy, the collaborative development, integration and implementation of the activities related to oceanographic and meteorological observation, data and information management, services, modelling and forecasting systems as well as research and capacity development carried out by WMO and IOC
- To provide the WMO and IOC governing bodies with strategic advice on joint work between WMO and IOC to achieve relevant objectives, including proposing new actions, as required, e.g. by preparing coordinated draft resolutions and/or decisions for both the WMO and IOC governing bodies,
- To review work plans and provide technical and scientific recommendations for WMO and IOC subsidiary bodies and programmes, including proposing cross-cutting projects, and
- To engage in liaison or consultation required with relevant intergovernmental and international stakeholders.

The JCB membership is as follows:

JCB Members	Surname	Firstname
WMO Co-Chair	Mohapatra	Mrutyunjay
WMO EC-1	KARNAWATI	Dwikorita
WMO EC-2	Abader	Ishaam
WMO EC-3	Martis	Albert

WMO SC-ON rep	Thurston	Sid
WMO SC-IMT rep	Tandy	Jeremy
WMO SC-ESMP rep	Richardson	David
WMO SC-MMO rep	Paker	John
WMO RB rep	Wheeler	Matthew
IOC Co-Chair	Srinivas	Kumar T
IOC Regional rep	Lahijani	Hamid Alizadeh
IOC Regional rep	Johnson	Ashley
IOC Regional rep	Santiago Scardilli	Alvaro
IOC Observation (GOOS)	Tanhua	Toste
IOC Data (IODE)	Fyrberg	Lotta
IOC Data (IODE)	Sierra	Paula Cristina
IOC Forecasting (GOOS/OceanPredict)	Davidson	Fraser
IOC TOWS-WG rep	NISHIMAE	Yuji
IOC Research rep	Legg	Sonya

IOC Decision A-32/4.9 requests a four-year Review of the Joint WMO-IOC Collaborative Board: “Requests the IOC Executive Secretary to oversee the Joint WMO-IOC Collaborative Board self-evaluation review of performance, and report back with the findings to IOC Executive Council in 2024”.

The tasks to implement for the review are: (i) self-evaluation questionnaire; (ii) online meeting (27-29 February, 1000-1200 UTC during 3 days) to discuss the self review and to discuss priorities and recommendations to Member States; and (iii) prepare a report based on self-review and recommendations and recommendations for WMO EC-78 (10-14 June 2024) and IOC EC-57 (June 2024).

Mr Buttigieg reported that discussions have been held with WMO on linking ODIS with WIS 2.0. This could be a model for other such collaborations.

Mr Pissierssens noted that IODE had hoped that the JCB would create collaborative pathways between WMO and IOC to encourage cooperation. This has not happened so we identified our own channels (as explained by Mr Buttigieg).

Mr Boyer noted that GOOS has been designated as the official partner in the JCB and this made it difficult for e.g. WOD to work with WMO (e.g. through MCDS).

Ms Post also referred to the “WMO-IOC collaborative strategy” which can be downloaded from <https://unesdoc.unesco.org/ark:/48223/pf0000385473>.

The Management Group welcomed the discussions between ODIS and WIS 2.0 and invited WMO to continue the discussions towards linking between ODIS and WIS 2.0.

The Management Group requested that IODE should be more involved in the discussions in JCB.

8.2.2 WDS

This agenda item was introduced by Mr Greg Reed. He reported briefly on WDS matters as relevant to IODE.

Mr Garcia inquired how the WDS can be more involved with IODE. Mr Reed pointed out that the new IODE structure does not include the WDS anymore.

The Management Group noted that there is a lack of clarity regarding the coverage of ocean data within the WDS. Mr Garcia noted that the WDS covers many disciplines so links with other than “marine” WDS data centres may be desirable.

The Management Group instructed the IODE Co-Chairs and Mr Garcia to contact the WDS Secretariat to obtain more details on the coverage of ocean data in the WDS, and to discuss collaboration between the WDS and IODE. This discussion should also include the need for multiple long-term, synchronized and redundant (providing backups to each other) global ocean data archives.

8.2.3 ASFA

Ms Taylor was not available so this agenda item could not be discussed.

8.2.4 IAMSLIC

Ms Taylor was not available so this agenda item could not be discussed.

9 STRATEGIC ISSUES

9.1 ROLE OF IODE IN THE UN DECADE (REF ACTION 300, 301, 302, 307)

This agenda item was introduced by Ms Paula Sierra. She recalled the reference actions focus on submissions of the Decade Action by or in cooperation with IODE, the pro-active DCO’s action to attract funding as well as the Decade’s more active participation in IODE programme elements such as ODIS, OBIS, OTGA and others as these can all contribute substantially to the data and information requirements of the Decade

9.1.1 Submitted IODE decade actions

As reported during IODE-27 the following decade actions had been submitted:

- e-DNA expeditions in marine World Heritage sites (Ward Appeltans)
- Ocean Practices for the Decade (Peter Pissierssens on behalf of OBPS)
- OceanTeacher Global Academy: Building Capacity and Accelerated Technology Transfer for the Ocean Decade (Cláudia Delgado, Greg Reed, Sofie de Baenst)
- Pacific Islands Marine Bioinvasions Alert Network (PacMAN) (Ward Appeltans, Pieter Provoost)
- OceanData-2030 (Lucy Scott)
- OBIS 2030 (Ward Appeltans)

The leads for each of the actions were invited to report briefly on implementation progress.

Ms Scott reported that for OD2030 she was working on communication materials for the Decade Conference. There is also work ongoing for contributions to the Decade.

Mr Appeltans reported that for OBIS 2030 cooperation is needed with other decade actions and he asked for support in this regard from the DCO data sharing.

Mr Boyer noted that it is unclear, e.g. from the Argo perspective and WOD, who we should be linking to in terms of other decade actions. Getting a list of all actions related to ocean data would be helpful. We are struggling how to fit in with the digital twins and also between digital twins there are different data flows. It would be good to have one flow, maybe through ODIS, that could be used by all digital twins.

Ms Scott referred to TURTLE – interoperability of digital twins (ODIS is involved) and some of the digital twins are working on a meta-pattern to allow twins to interoperate with one another and draw from common data resources. Mr Buttigieg noted that there should be externalization layer in each digital twin.

Mr Calewaert responded that the DCO for data sharing is struggling with the same issue as the DCO DS has been assigned only a few decade actions under its responsibility. The DCO DS has prepared a list of actions that seem to be of relevance to the DCO DS. Mr Calewaert offered to share that list. A survey is being prepared that will be sent to all decade actions to identify the data aspects of the actions (data needed, data generated, interest in working with ODIS2030, OBIS 2030,...).

Mr Garcia queried about the support that the DCO DS can provide. He stated that many submitted decade actions do not have funding.

Mr Demargne referred to the DCO DS which is one coordinating entity of the decade. Concretely there are some groups: decade alliance (organizations, MS, NGOs, private sector), foundations dialogue (group of foundations: they meet every year).

The Management Group requested the DCO for Data Sharing to share the list of ocean data relevant Ocean Decade Actions with the IODE Management Group and to collaborate on the planned survey of Ocean Decade Actions, as this will assist IODE programme elements to identify collaboration opportunities.

9.1.2 Actions submitted in cooperation with IODE

As reported during IODE-27 the following decade actions had been submitted in cooperation with IODE:

- The World Ocean Database Programme (WODP): Openly discoverable, accessible, adaptable, and comprehensive digital global profile oceanographic data of known quality (submitted by Hernan Garcia, NCEI/NOAA, United States as a Decade contribution)
- CoastPredict - Observing and Predicting the Global Coastal Ocean (Nadia Pinardi, Italy)
- Ocean Observing Co-Design: evolving ocean observing for a sustainable future
- Marine Life 2030

Mr Hernan Garcia was invited to briefly report on progress with WODP. He recalled that the objective is to create an umbrella where pieces that can contribute to the database are put in the cloud and that applications can be developed. WOD is in the

cloud now. But work on this is done as part of the WOD as no particular funding has been found. Mr Boyer reported that the WOD Cloud and Open GTS project was approved under OceanData 2030. It intends to bring together the WOD programme and WMO Open GTS data flow so all historic as well as real-time data are coming in through GTS. This should be easy to do in OceanData 2030. He reported also on the WOD contribution and noted that no funding has been received. He inquired if the DCO for Data Sharing would assist in mobilizing funds.

Mr Calewaert responded that one of the 5 priority tasks is resource mobilization. Right now the DCO for Data Sharing operates with 1 FTE and has not been able to work on resource mobilization.

Mr Buttigieg reported that an interoperability bridge is being built between ODIS and Open GTS.

Mr Ward Appeltans was invited to report briefly on Marine Life 2030. IODE/OBIS is a member of the core coordination team of Marine Life 2030 and Mr Ward Appeltans reported that he attends the monthly online core team meetings and the quarterly meeting with the decade projects endorsed under Marine Life 2030. A major focus of Marine Life 2030 is to work with people in data mobilization to OBIS. However, perhaps the biggest focus recently has been organizing the writing for the white paper on Challenge 2 for the Ocean Decade Vision 2030 process, and for discussion at the Ocean Decade Conference in Barcelona.

9.1.3 DCO for Data Sharing

This agenda item was introduced by Mr Jan-Bart Calewaert. He explained that the for Data Sharing (DCO-ODS) was established in June 2023, reporting to DCU/IOC and hosted by IODE, with an eleven month consultancy assignment involving one FTE shared between Mr Jan-Bart Calewaert and Ms Oonagh McMeel. In the early stage of the establishment, a commitment was received for a part-time volunteer Ms Sun Miao of the Chinese National Marine Data and Information Service (NMDIS), and later on some support was received from Seascope Belgium colleagues to assist with the set-up of the DCO-ODS Website and Virtual Helpdesk/databooth.

The DCO was set up with a view to expand the DCO-ODS Secretariat to take on the full envisaged role, responsibilities and tasks as stipulated in the Terms of Reference (which includes a 4-5FTE staff base).

In short, the role of the DCO-ODS is to:

- **Coordinate & interconnect the data-sharing component of the digital ecosystem** for the Ocean Decade and thereby contribute to **implementation of the Decade's Data and Information Strategy** and its five strategic objectives. recommended if not essential reading;
- **Support activities that are aimed at addressing Decade Challenge 8, i.e. 'Creating A Digital representation of the Ocean, including a dynamic ocean map, underpinned by services allowing easy discovery, access, retrieval of data, information, knowledge on the past, current and future state/behaviour of the sea.'**;
- **Assist Decade Actions** and collaborators with data sharing guidance to achieve the highest possible data quality and adherence to FAIR and CARE principles. This involves Coordinating and facilitating interlinkages between Actions, developing synergies and avoiding duplication of efforts; Supporting the Actions' data and information needs (finding/retrieving + ingesting/sharing); set-up, promote, facilitate

and/or contribute to priority coordination actions on technical matters that need to be resolved; communicate and raise awareness to existing assets, opportunities and successes and help mobilise resources to implement Actions. The latter presents an opportunity for IODE and some of the programme components/projects that are involved in Decade Actions to be promoted and involved in resource mobilisation activities;

- **Promote data literacy and capacity equitably.** This presents an opportunity to connect/collaborate with the CD facility and OTGA and bring them more into the picture and increase their use;
- Help identify and address **data gaps and infrastructure needs.**

The focus in year 1 has been on:

- 1) **Establishing DCO on solid grounds** (elaborate workplan, clarify/prioritise tasks and allocate to staff, set-up operating procedures, templates, quality standards, etc ...)
- 2) **Establishing contact, fostering links and engaging with Decade Stakeholders**, with a focus on
 - a. other related DCOs/DCCs and Decade Data Groups (Data Coordination Group, Corporate Data Group, Strategy Implementation Group, Vision 2030 Challenge 8 Working Group). Regular meetings too place with these, resulting in an agreement with commitment from three DCOs to collaborate on driving the development of the digital ecosystem with concrete tangible actions, e.g. foster agreement on (meta)data standards, develop a Data Readiness Level framework. In this regard IODO and/or any other data community can propose bringing together experts around a particular challenge which needs a solution, e.g. a Task Group on setting standards/practices for cloud optimized data formats as raised by Tim Boyer during the meeting.
 - b. Decade Actions: (i) primary DCO-ODS assigned Programmes (GEOTRACES, OCEANDATA2030, WODP, Digital Innovation Hand-in-Hand with Fisheries and Ecosystems Scientific Monitoring from FAO), and their connected project; and (ii) all other actions (in particular those with a strong data collection, management and/or sharing component).

The support developed/provided include but are not limited to:

- **DCO-ODS&IODE 1st Webinar** on Wednesday 31/01/2024 showcasing along others IODE activities, and associated core Actions WODP, OD2030+OTGA...
- Establish the **Community of Practice on Data Sharing** for Decade Actions on the Ocean Decade Network (ODN). A Kick-off meeting took place in December 2023 (video available on the DCO-ODS website).
- **DCO-ODS Website** with information about DCO & Decade Programmes associated and relevant Data activities/opportunities
- **Data Resources Toolkit** with guidance and links to resources on data management and sharing. IODE could assist to make sure that the Toolkit is as complete and useful as possible (guidance documentation). As discussed the previous day, IODE could help compile a list of relevant reference materials, e.g. Data Policies and Terms of Use developed and implemented by various ocean science communities, Terms of Use, guidelines for data management, list of recommended data exchange standards. At the same time we recognise that adopting existing or creating new standards is not enough. We should strive towards a distributed data ingestions facility providing assistance to data holders without this capacity!!
- **Virtual data helpdesk.** IODE should be involved as experts and help to foster/adopt this helpdesk and connect it to its NODCs, ADUs and programme

components as a lot of the expertise exists, e.g this could become **'HELPDESK POWERED BY IODE'**.

- **A Survey with semi-structured questionnaire** will be launched in the coming weeks to establish the data-sharing/data-management needs of Actions and solicit feedback to ensure the support and resources provided by the DCO are fit-for-purpose. There is an opportunity for IODE and/or its activities to add a question to ask if Decade Actions are willing/interested to work with this/that IODE activity (in general or on specific issues).
- **Vision 2030 Process White Paper:** since June last year, DCO-ODS has been working with 16 experts together with Paula Sierra (co-chair), through a series of meetings and iterative background documents, to deliver the Zero draft on time in January and is now available for public review. The zero drafts are available here <https://oceanexpert.org/document/33599vand> to provide feedback go here: <https://oceandecade.org/vision-2030/>. IODE project office is asked to promote and invite its network to provide comments, considering the relevance of the 'services required' to ongoing IODE initiatives.
- **Communication and outreach:** the DCO-ODS is working to promote the role of the DCO, priority Actions, the Decade Data and Information Strategy as well as initiatives and tools/Services that exist that can help achieve the Strategic Objectives on data and information management and sharing under the Decade. Therefore, there is an opportunity to promote and make more visible IODE and its programme components/projects which play an important role in ensuring successful implementation of the Data and Information strategy.
- **Resources mobilisation:** the DCO-ODS is also working to mobilise resources for its own continuation/deployment, but also to support its priority Actions/Programmes. Again, this is an opportunity to advocate and pitch IODE Actions. This will require some pro-activity from these actions to develop useful value propositions that can be presented to potential funders.

In the coming 2-3 years, the focus will be on (i) *Securing funding*; (ii) *Expanding the Secretariat staff base with at least 1 FTE*; (iii) *Further develop Website, toolkit and help-desk function to be fit-for-purpose*; (iii) *work with OTGA, CD facility for Capacity Building and Trainings*; (iv) *Addressing Challenge 8, where we will call for a permanent Challenge 8 Expert Group. The challenge 8 expert group would guide the actions and assess progress towards achieving the vision targets for CH8 (using identified milestones and achievements; guide the process of selecting and co-developing base-layers / use case. We would invite IODE to advocate for and participate to this group to influence future developments and build on their long foundations in this area.*

Additional comments and questions from the DCO-ODS in relationship with IODE:

We much applaud the additional resources that will be made available to UNESCO-IOC through Member donation that will flow to IODE and its programme components. It is now a question to allocate these strategically with future impact in view. With this in mind, late last year DCO-ODS asked for a one-off 10,000 euro support from IODE Project Office, to bring in some additional junior support to help with a number of additional tasks (not foreseen in our assignment for IOC-DCU) – in particular in relation with the (i) further developing the Data Resources Toolkit, (ii) organising the Data Booth for the Decade Conference, and associated with that (ii) launch the virtual Help desk facility. The feedback from the Community of Practice launch and the 1st webinar indicated that the helpdesk and toolkit have been very much welcomed by the Decade Actions. Resources to cover these additional costs would still be very much welcomed bridging to time from now to the Conference (and follow-up after) until hopefully a continuation/expansion of the assignment with more budget

becomes available. This will greatly help to make available the time of the DCO-ODS to work on communication/promotion and resources mobilisation for Ocean Data 2030 and any other IODE action that should be prioritised for additional funding.

For the online Help-Desk, the DCO-ODS would welcome IODE to (i) Promote call for volunteer experts and identify relevant individuals to help answer questions; and (ii) advertise the helpdesk function; and (ii) assist with the technical development of a useful helpdesk service ticketing system. For now, we can handle volunteers and questions via the website but once we are more operational this may need to be automated and we would welcome idea/support on how to do this, possibly linking

Mr Appeltans inquired about the future of the DCO for Data Sharing. Should it be an IODE activity or structural element?

Mr Calewaert responded that the DCO DS is close to IODE, and the relationship is natural. But depending on the relationship between IODE and the DCU the DCO finds itself in the middle. Regarding funding we received funding for 11 months from the DCU.

Mr Demargne expressed his appreciation to the DCO DS team for the work achieved. Regarding funding he reported a strong lead for funding from a philanthropic source for 50% of the required funds for the next 2 years.

The Management Group welcomed the establishment of the DCO for Data Sharing and expressed its appreciation to the IODE experts who have been involved in the work of the DCO (data and information strategy, Vision 2030,...) and to Mr Calewaert for his close collaboration with IODE.

9.1.4 2024 Ocean Decade Conference

Mr Jan-Bart Calewaert reported on this agenda item.

- Decade Conference - Delivering the science we need for the ocean we want – will take part on 10-12 April 2024 - as part of the Ocean Decade Week (8-12 April 2024) in the coastal city of Barcelona.
- There is the **core programme** – with a focus/structured around the 10 Decade Challenges and the Draft White papers setting the strategic ambitions (parallel session where these will be presented and then invited talks)
- **There will be a number of exhibition booths**, one is a Data Booth,
 - **Concept (What):** A data-sharing help desk or 'clinic' that will run throughout the duration of the 3-day conference focused on showcasing existing initiatives and developments open to all , and providing expert support and guidance on access to resources on ocean data sharing. The help desk will be open to all conference participants, through the course of the three days (c100-150+ people) but targeting representatives of endorsed Actions.
 - **Overall lead and organisation:** IOC-DCU, DCO for Ocean Data-Sharing, IODE
 - **Co-organisation support, including staffing of booth:** IOC-IODE and its programme components (OBIS-ODIS-OTGA-OBPS); Data Coordination Group (DCG) and Data Strategy Implementation Group (DSIG), Seabed2030
 - Including

- A **staffed help-desk** providing information, advice and access to resources on the following: how to implement a data management plan, data policies, and platforms to share and/or access data, (meta)data formats, standards, best practices.
- A **permanent display of Materials from** co-organising/co-funding core Ocean Data focused Decade activities, Programmes and Projects such as OceanData2030, OBIS 2030/MarineLife2030, OBPS and OTGA.
- **Interactive demos** on a regular schedule [see/develop schedule in Annex], lasting 10-15 minutes each, focused in morning and noon slots. Some may be repeated several times if considered of great interest. These demos could also later be available as Webinars. These demos can reference the Data and Information Strategy vision and strategic objectives. Topics (5-6) for demos could include:
 - DCO-ODS Toolkit (JBC)
 - OBIS - MARine Life 2030 (WArD Appel)
 - ODIS-OIH (Pier Luigi)
 - OTGA, CD Facility / CD hub (joint or separate slot)
 - Seabed 2030 (Carol/Greg/Joana)
 - WOD Programme (Hernan Garcia)
 - Geotraces (Bill Landing or Elena MAsferer)
 - Marine Regions (VLIZ)
 - *Digital Innovation Hand-in-Hand* with Fisheries and Ecosystems Scientific Monitoring - Fisheries Atlas (FAO – Marc Taconet)
 - HUB Ocean? [ask clarification from Louis - who and what - do they have a Decade Actions?]

LD made a list of **Data and Observations related satellite events** Barcelona - for location selection.

Once all the list of confirmed satellite events is published, the next step for me (with Terry and Jan-Bart) will be to map all the data/observations events into a timeline and map to create a sort of 'pathway' for conference attendees to follow.

Observations, data management and sharing, cloud-based services THEME

OFF-SITE events

- | | |
|--|------------------------------------|
| • The data we need for the ocean we care | Sara Pittonet Gaiarin (Blue Cloud) |
| • Implementing a federated global ocean data and information system – What's in it for you? | Louis Demargne (DCG) |
| • A dialogue between stakeholders of the ocean observation community identifying common priorities and challenges to respond to 2030 global objectives. From research infrastructure to oceanographic vessels for data accessibility, accuracy and interoperability | Jaume Piera |

- **Digital Twins of the Ocean and Early Career Ocean Professionals:** Leveraging ocean data networks with cloud technologies to deliver the ocean we want, today and tomorrow
Julia Vera Prieto / Bente Lilja Bye / Isabela Katime
- **Technologies in sustainable ocean observations** – From low cost to new technology development.
Ann-Christine Zinkann
- **GOOS Regional Alliance Forum XI**
Denis Chang Seng

ONSITE events

- **How to harness private sector data to boost ocean science and drive a sustainable ocean economy – Guidelines and benefits**
Louis Demargne
- **The seabed data we need for the ocean we want**
Sarah Jones Couture
- **Ocean Census: Discovering marine life**
Kira Coley
- **How will Ocean Decade biological observation programmes address the Vision 2030 recommendations for Challenge 2 “Protect and restore ecosystems and biodiversity”?**
Sophie Seeyave
- **Co-designing ocean observing systems for better societal services – Pan tropics and basin use areas**
Ann-Christine Zinkann

Mr Demargne reported that during the pre-conference days 8-9 April there will be many satellite events. The large majority of the off-site events will be in other locations and will not require registration.

Mr Demargne recalled that the deadline for registration is 10/2/2024. He reported that so far 2400 registrations were recorded. The number of seats available is 1500. He asked for more patience when waiting for a reply. Regarding satellite events there are now 180 that were accepted.

It was reported that the IODE Secretariat staff who pre-registered and registered for the main conference have not received confirmation and may therefore not be able to participate in the Conference. Ms Paula Sierra and Mr Taco De Bruin were accepted.

List of satellite events currently approved off-site (Monday-Tuesday) and onsite (Wednesday-Friday): <https://oceandecade-conference.com/satellite-events.php>
The venues of the off-site events were not available at the time of the MG meeting.

9.1.5 IODE and Sustainable Ocean Planning (SOP)

This agenda item was introduced by Ms Paula Sierra. She recalled that the 2023 IOC Assembly had discussed the document “[Development of a new IOC-wide Strategy on Sustainable Ocean Planning and Management](#)”. It was recalled that over the past 3 decades the IOC has embarked on the development of science-based approaches to support integrated ocean management efforts at local, national, and transboundary levels. These include: (i) the Large Marine Ecosystem approach focusing on transboundary management of marine resources, with partners such as

NOAA, GEF, and UNDP; (ii) the establishment of Integrated Coastal Area Management programme focusing on technical tools and related capacity development for coastal management, adaptation and hazard mitigation (ref. ICAM Strategy endorsed by the IOC Assembly in 2017 through document IOC-XXIX/2 Annex 16); and (iii) since 2006, IOC has been leading international efforts in Marine Spatial Planning, developing technical guidance supported by related capacity development actions in all ocean basins. This was reinforced in 2017 with the development of a joint roadmap between IOC and the European Commission to advance MSP implementation globally and the establishment of the MSPglobal initiative. The Joint Roadmap was renewed in 2022 for a further five years.

Building on the political commitments of the High-Level Panel to sustainably manage 100% of the ocean area under national jurisdiction by 2025 (or within 5 years after joining the Panel) , the provisions of the UN Ocean Conference Lisbon Declaration highlighting the role of science-based actions and innovation to “informing integrated ocean management, planning and decision-making”; various initiatives of international, regional and national institutions to support the implementation of ocean management, sustainable ocean planning, marine/maritime spatial planning, and other area-based/ecosystem management approaches, there is now an opportunity to accelerate these efforts in all ocean basins through the UN Decade of Ocean Science for Sustainable Development 2021–2030.

In light of these recent developments in the area of ocean management and considering the objectives of the IOC Medium-term Strategy (2022–2029), it is timely that IOC and its Member States consider adopting an IOC-wide Strategy on Sustainable Ocean Planning & Management, which would guide the contribution of the Commission across its programmes on ocean sciences, observation and data, early warning services and assessments, through the development of new services, ecosystem-based management tools, assessment and related information products, as well as capacity development in support to sustainable ocean management.

A process had been outlined for developing the IOC-wide Strategy on Sustainable Ocean Planning and Management (2024–2030), as well as the consultation process foreseen to collect inputs from Member States, IOC programmes and technical bodies as well as relevant stakeholders engaged in ocean management, prior to its presentation to the IOC Council at its 57th session in 2024.

Member States welcomed the initiative to develop a new strategy and stressed the importance of linking it to the work of IOC programmes in order to ensure that all elements of the IOC Functions can contribute to the development of Member States-led ocean management processes. It was decided that the Draft Strategy should be presented to the IOC Executive Council at its 57th session.

The Assembly adopted Decision A-32/4.7 which states “*Requests the Executive Secretary to collect input on document IOC/A-32/4.7.Doc(1) from Member States, IOC programmes and technical bodies, and other relevant stakeholders and to present a revised version of the document IOC/A-32/4.7.Doc(1) at the 57th session of the IOC Executive Council*”.

She noted that Mr Barbieri was unfortunately not be able to attend the meeting.

The Management Group instructed the Secretariat to put the document, once received from the DCU, in a Google doc for comments by the Management Group members by end of March 2024.

9.2 RESTART OF THE ODINS

This agenda item was introduced by Ms Paula Sierra. She recalled that IODE-27 had made the following decisions on ODINS:

150 **The Committee**, while recognizing the importance of IODE related capacity development in the regions, **decided to suspend** the ODIN (Ocean Data and Information Networks) projects, noting that IODE has become very active in most regions through its OBIS, ODIS/OIH, OTGA, OBPS, AquaDocs and others.

151 **The Committee encouraged** that IODE activities should be included in the work plans of the IOC Regional Subsidiary Bodies (RSBs) through active participation of IODE national coordinators (data management and information management), NODCs, ADUs and AIUs in meetings of the RSBs, and requested the IODE Secretariat to contact the regional IOC offices to ensure inclusion of data/information in the agenda of RSB meetings.

152 **The Committee welcomed** the offer by NMDIS (China), as ODINWESTPAC Secretariat, to actively participate in OIH/ODIS in preparation for new future arrangements of ODINS.

She noted that the decision to suspend the ODINS was, to a large extent, guided by the expected low level of financial resources received from the UNESCO regular programme. As would be reported under agenda item 11.1 that situation had now changed considerably. The Management Group was therefore invited to consider the future of ODINS again, bearing in mind the changed circumstances while also taking into account the request to RSBs to include IODE activities in the work plans of the IOC Regional Subsidiary Bodies (RSBs).

Ms Inniss asked if IODE had proposed an alternative to the ODINS.

Mr Pissierssens explained different options to restart ODINS from informal to project oriented.

Ms Inniss proposed a regional working group on D&IM. She requested some advice from IODE to ensure that a connection with IODE is maintained.

Mr Pissierssens suggested that this group could also develop project proposals for donors. Ms Inniss informed that IOCARIBE is working on a strategic plan right now, but they are missing some inputs from the regional GOOS group and the inputs from the regional Decade Task Force team.

Mr Ndarathi recalled the ODINAFRICA history. He wondered if OIH/ODIS had filled the niche of ODINAFRICA. He recalled that during a meeting organised to encourage Member States to participate in the OIH project, the region requested for the re-activation of ODINAFRICA. IOCAFRICA Member States had requested a steering group to guide the process of the revival of ODINAFRICA. The group was composed of 4 data centres in Africa and 2 OIH experts. It was supposed to create a strategic work plan. In 2023 IOCAFRICA stressed the need to revive ODINAFRICA, to improve data collection, as well as update the inventory of ocean observation platforms, data sets and expertise available in the region. This should include the reactivation of the National Oceanographic Data Centres (NODCs). He informed that the Steering Group had prepared a strategic plan. The document provides a roadmap towards achieving improved gathering, processing, sharing and access to ocean-related data and information, to facilitate better understanding and management of the marine environment in the region for the period 2022-2030. The

plan also aims to provide a framework through which member states and institutions in the region can actively engage, contribute, and benefit from the reactivated ODINAFRICA network. Mr Ndarathi requested that the IODE Management Group to assist in reviewing the draft strategic plan and subsequently transforming the document to proposal(s) which can be submitted for external funding.

Ms Tanya Haddad suggested to start with restabilising the ListServ of regions.

Ms. Carolina Garcia suggested to take into account the lessons learnt in the past.

Ms Inniss referred to the UNESCO SIDS strategy. SIDS have specific vulnerabilities and need data for policy decisions more than mainland states. She requested help to develop a campaign across IODE activities targeted at SIDS. This can then lead to proposals.

Ms Tattersall recalled the request to revive the ODINs and asked to consider several questions: perhaps not all ODINs need to be re-established; some regions see value in the ODINs; can we build on the existing networks?; should it be the same model?; what about governance of the ODINs. She concluded asking for a survey to participants in past ODINs to assess expectations. It would need to be decided who will send out the surveys.

Mr Reed referred to the question of Mr Ndarathi regarding the niche left by the ODINs and whether this has been filled by other IODE activities. He referred to OTGA which is very active in meeting the CD needs of the regions covered by former ODINs. The CD requirements of the regions are discussed and implemented through the SG-OTGA which has representation from the RSBs. Regarding sharing of resources, OTGA training centres collaborate in the regions and share expertise and training resources.

Ms Inniss agreed with Mr Reed that the ODINs were replaced by OTGA in terms of capacity development and the Ocean InfoHUB is doing well also. However, the challenge is that the ODINs were seen as a coordinating governance framework, and right now there is none. It is this governance arrangement that would support both widespread use of OTGA and Ocean InfoHUB.

Ms Scott noted that during the funded ODINAFRICA it worked very well and was very effective. It was also important for LMEs in Africa. But it was a funded network. With OIH we have moved in a different direction. But still having ODINAFRICA would have been helpful for OIH. This is the aspect “networking”.

Ms Sierra suggested to RSBs to start establishing the regional working group on D&IM accordingly with the strategic plan than they inform is under construction. After that require advice from MG of IODE to follow the priorities on data and information.

The Management Group agreed to revive ODINs as regional communities of practice in ocean data and information management, led by the regional subsidiary bodies and implemented jointly with the global IODE programme and its programme elements.

The Management Group encouraged the RSBs to establish regional ODIN working groups that will govern the ODINs composed of regional as well as international (IODE) experts. Regional specificity needs to be taken into account and RSBs need to identify their regional priorities regarding D&IM. IODE will provide experts advice when invited.

10 IODE CAPACITY DEVELOPMENT

10.1 ASSISTANCE AND MENTORING BY IODE NODCS, ADUS AND AIUS (REF 37)

This agenda item was introduced by Ms Ana Carolina Mazzuco.

Reference was made to action item 37 “*The Committee invited accredited NODCs, ADUs and AIUs to provide assistance and mentoring services to other NODCs, ADUs and AIUs that wish to apply for accreditation*”. (see above under 2.3.1). Mr Pissierssens recalled that an email would be sent to all accredited NODCs, ADUs and AIUs asking them about their availability to provide assistance and mentoring to other NODCs, ADUs and AIUs regarding accreditation. The IODE Quality Management Framework encourages NODCs and ADUs to implement a quality management system which will lead to accreditation. In January 2024, IODE organized a face-to-face training in Quality Management Systems for NODCs and ADUs’ staff, to share expertise and guidance on accreditation. A total of 15 participants from 11 member states joined this 3-days mentoring, led by Mr Greg Reed in collaboration with instructors from the British Oceanographic Data Centre (Lesley Rickards, Mark Hebden), the Institute of Marine Research in Norway (Marte Strømme) and the Marine Institute in Ireland (Rob Thomas), supported by OTGA. The goal was to assist in the adoption of comprehensive management practices and increased confidence in the quality of their data, products, and services.

Mr Buttigieg noted that IODE data centres could assist by preparing small videos that show “how to” in the context of the tasks of data centres: Documentation with an eye towards training and capacity development.

The Management Group encouraged its data centres to assist Member States that wish to establish a data centre but lack expertise by documenting (documents and videos) data centre practices.

10.2 IODE IMPLEMENTATION OF THE IOC CD STRATEGY (2023)

Ms Johanna Diwa reported on this item. She reported that the 32nd Session of the IOC Assembly (IOC-XXXII) adopted the new IOC Capacity Development Strategy 2023-2030 and its outreach and promotion plan. The new Strategy retained the 6 major outputs, and expanded to a total of 16 activities and 31 actions, making use of existing initiatives which are all interrelated and essential.

IODE programme components highly contribute to outputs of the CD Strategy especially those related to training and education, through OTGA which is a core implementing mechanism of the IOC CD Strategy, and equitable access to and sharing of ocean data and information through OIH, OBIS, ODIS and OBPS.

She also referred to the report made on first day regarding the Ocean CD-Hub (<https://oceancd.org>), an online search tool for capacity development opportunities around the world, is undergoing improvements for continuous developments to provide existing capacity development opportunities in ocean science and management. As the Ocean CD-Hub is being coordinated by IODE Project Office, NODC/ADUs can streamline its CD activities and contribute to ensuring a better-targeted approach for CD interventions that are country-driven and needs-based, providing access and relevance to specific national priorities and needs of Member States.

It is envisioned that IODE will continue to contribute to the implementation of the new IOC CD Strategy, especially in addressing the priority CD needs of the regions related to data and information management. Through closer collaboration with RSBs, these capacity development needs can be identified and mapped in a matrix vis-à-vis the outputs and activities in the strategic framework and later on do a matchmaking with the existing expertise and opportunities available in the region which can be tapped as a form of resource mobilization. There are also opportunities for co-designing proposals for funding that respond to the CD priorities of the region. In this regard, it is very important that the CD needs of the regions that are relevant to the IODE mandate are clearly identified and visible in the CD workplans of the regions.

The Management Group decided to share IODE experience in CD through OTGA and ODINs with the IOC CD coordination unit, including the GE-CD and to make the GE-CD aware of training opportunities and capacity matchmaking in ODIS and OBIS.

11 REVISED WORK PLAN AND BUDGET 2024-2025

11.1 OVERVIEW OF REVENUE UNESCO RP 2024-2025 (UNESCO 42 C/5)

This agenda item was introduced by Mr Peter Pissierssens. He recalled that the IODE-27 work plan and budget had been drafted based on the expected continued low level of funding of approx. US\$ 77,500/year. Thanks to the return of the United States to UNESCO in July 2023 and strong requests by a number of UNESCO Member States to the UNESCO Executive Board and UNESCO General Conference the overall UNESCO regular programme as well as IOC budget has been increased considerably for the 2024-2025 biennium. The new allocations are shown below.

	BIENNIUM	2024	2025
Africa InfoHub	150,000	75,000.00	75,000.00
IODE & OBIS core systems	432,155	216,077.50	216,077.50
IODE & OBIS products & services	432,155	216,077.50	216,077.50
IODE & OBIS training & education	282,771	141,385.50	141,385.50
subtotal	1,297,081.00	648,540.50	648,540.50

It is noted that the new allocation of US\$ 150,000 for “African InfoHub” will be decentralized to the IOCAFRICA Secretariat in Nairobi but will require close collaboration and coordination with the ODIS programme component.

11.2 CONTRIBUTIONS FROM FLANDERS

This agenda item was introduced by Mr Peter Pissierssens. He informed the Management Group that support to the IOC Project Office for IODE is continuing until at least December 2026 when the current MoU between IOC and VLIZ ends.

Under that MoU three staff are seconded through VLIZ to the Project Office, and office space and IT infrastructure is provided.

The MoU specifies that a review of the performance of the UNESCO/IOC Project Office for IODE shall be organized once, and prior to the expiry of the MoU. The evaluation report shall be submitted for approval to the IODE Committee that oversees the Project Office activities. The IODE Committee may, as it deems necessary, recommend the renewal or extension of this agreement and will submit this Recommendation to the next available Session of the IOC Assembly or Executive Council.

The Management Group decided to undertake the review of the IOC Project Office for IODE in 2024 for submission to IODE-28 and the 2025 Session of the IOC Assembly. The Management Group instructed the Secretariat to identify reviewers as soon as possible, using the same methodology as for the previous review.

Mr Pissierssens informed the Management Group that the second element of support to current phase of the Flanders-UNESCO Trust Fund for Science (FUST) had ended on 31/12/2023. That phase had supported OTGA2, OIH and PacMAN. The projects would still continue in 2024 but would end either in June or December 2024, depending on funds remaining. He further reported that a formal review of the FUST had been carried out in 2023. Its main recommendations included:

- FUST resources are used to provide seed funds for the first phases of innovative projects with high potential for impact, scalability, replicability and sustainability.
- For scaling up, replication and sustainability of FUST projects, additional funding is raised from other sources and donors.

These 2 recommendations seem to imply that no further support from FUST will be possible for the three large-scale projects OTGA, OIH and PacMAN.

There were also project specific recommendations:

- A sustainable financial strategy for **OTGA** should be developed, taking into account multiple sources of funding and potentially introducing a paid model for certain services or collaborations (e.g. full payment by the organisations under the affiliation programme and full or co-funding by training centres). Other models could also be considered such as inviting trainers to offer certified courses on a paid basis using the platform (similar to the Udemy model). To increase the added value of the courses and attract new learners and trainers, innovative training programmes on new topics of high relevance could be introduced. For this, an online survey could be implemented to identify potential learners' needs and demands as areas of training. Organising short virtual webinars delivered by renowned specialists and UNESCO Goodwill Ambassadors on less technical topics that can still be linked to the FUST fields targeting various groups including general public, youth and children can help attract a broader audience to the platform. Moreover, implementing a 'train-the-trainer' approach could address the trainer shortage and enhance scalability. Train-the-trainers programmes are also important to ensure that knowledge and best teaching practices are transferred in an effective manner from experienced trainers to the others. Lastly, assessing and adjusting the adherence to ISO standards (e.g. not requiring ISO compliance for specific training offers/workshops or for specific organisations based on the purpose of training/workshop) could broaden OTGA's appeal and utility to a more diverse

set of users, strengthening it as a comprehensive platform for relevant capacity building and awareness raising activities.

- To ensure **OIH**'s sustainability, it is recommended to broaden its reach to incorporate more systems, organisations, nodes, and regions, with special emphasis on the oceanographic and polar data communities. In addition, strategies to transform raw data into actionable knowledge should be established through business intelligence and the application of artificial intelligence. OIH should also explore opportunities to align more closely with the goals of the Ocean Decade, potentially leveraging its coordination office for data sharing. At the same time, UNESCO could ensure that OIH is defined as a priority within the Ocean Decade. In the future calls, it is recommended that FUST mandates at the outset infrastructure projects such as OIH to ensure functionality and operation for a period of three to four years post-project, without necessitating additional funding.
- It is recommended that **PacMAN** takes steps to solidify government ownership, possibly by strengthening the role of governmental agencies in the project implementation process. Accelerating data accessibility, which is a key factor for the continuity of the monitoring plan, should be a priority. Exploring potential collaborations with regional and international organisations, NGOs, and long-term programmes can secure post-2024 funding. Furthermore, efforts should be made to adapt and implement the project's protocols in other regions, leveraging the capacity and knowledge gained through PacMAN to extend its impact.

In December 2023 the Government of Flanders approved the renewal of the FUST agreement for a new period of 5 years. The next FUST Steering Group is expected to meet in April 2024. New instructions on submissions of proposals are expected to be provided around February 2024.

Based on the results of the evaluation it is yet unclear what proposals will be supported under the new FUST. Ms Mazzuco welcomed the linking of training with scientific activities. She highlighted that the topics often vary a lot between regions. Also, when training is combined with research then the budget for training is often minimal so this will need to be addressed.

The Management Group agreed to consider projects that combine the main IODE Programme Components (as well as their programme activities and projects as relevant) as demonstrators of the amplifying power of these initiatives together, especially in a regional context, with high relevance to coastal planning. Additional partnerships should be envisaged as well.

The Management Group expressed its great appreciation to the Government of Flanders for its long-term and substantive support to IODE that enabled IODE to develop its highly visible Programme Components, and looks forward to continued collaboration and support.

The Management Group instructed the IODE Programme Components to assist the RSBs with the drafting of proposals for submission to FUST.

It was noted that quite a bit of effort has gone into Decade proposals with the expectation of funding. Mr Boyer suggested that the WOD decade proposal should

be considered for FUST funding as a contribution to the data needs of the global south.

The Management Group requested the IODE Programme Components and Activities to prepare concept notes by mid-March 2024.

11.3 NEW INITIATIVES AND OPPORTUNITIES

11.3.1 NORAD

This agenda item was introduced by Mr Peter Pissierssens. Several small-scale projects have been supported by NORAD. It was noted that NORAD funding is limited to activities that have a capacity development focus.

- 2021: OIH Africa: Database of training opportunities (\$50,000)
- 2022:
 - Establishment of new nodes in the Ocean Data and Information System, supported by the Ocean InfoHub Project. (\$95,000)
 - Development of 50 short tutorials relevant to OBIS topics (\$66,000)
 - Ocean Practices for the Decade - Capacity Development in Ocean Best Practices Pilot in the Caribbean (\$99,577) – implementation starting in 2024 and decentralized to IOCARIBE Secretariat

Late 2023 NORAD decided that support would be continued in 2024 and a new call for proposals was issued end of 2023. The following proposals were submitted by IODE:

- An ODIS/OIH Hub for BBNJ (\$100,000)
- OceanTraining Internships to enhance global human capacity in the operationalization of information systems and delivery of specialized training (jointly with IOC CD) (\$120,000)
- OBIS (Ocean Biodiversity Information System) “Propagules program” – training a new generation of OBIS users (\$100,000)
- Capacity development for the regionally focused expansion of the Ocean Data and Information System (ODIS) (\$100,000)

It was noted that the total annual budget for CD related proposals is \$500,000 shared among all IOC programmes.

Mr Pissierssens reported that the proposal “**ODIS/OIH Hub for Biodiversity of the High Seas**” and **OceanTraining Internships** had been approved, each with a reduced budget of US\$85,000 (as were the 3 other IOC proposals).

The Management Group requested to change the name of the ODIS/OIH proposal to “Biodiversity Data Hub for the High Seas”

The Management Group thanked NORAD for its support to IOC and its IODE.

The Management Group invited the IOC Executive Secretary to involve the RSBs and Global Programmes in discussions with NORAD.

11.3.2 FUST

See agenda item 11.2

11.3.3 European Commission

This agenda item was introduced by Mr Ward Appeltans. In addition to the 4 Horizon Europe projects already mentioned under 7.2.2, one more EU project started on 1 Feb 2024 (runs for 4 years), called Co-Creating Transformative Pathways to Biological and Ecosystem Ocean Observations (BioEcoOcean). This project involves both IODE/OBIS and GOOS. The aim of this project is to co-create a Blueprint for Integrated Ocean Science (BIOS) which will support and encourage operational workflows that adhere to FAIR Data Principles. IODE/OBIS has several roles in this project, including taking the lead on developing and implementing the project's Data Management Plans and lead a work package to develop and organize training courses that facilitate blueprint implementation and management of collected data and metadata according to our OBIS biodiversity standards. Activities within this project will help integrate data contribution to OBIS into global marine observation programme procedures, as well as facilitating adherence to data standards. This will improve visibility, expand the OBIS community, and increase data flows to OBIS. In addition to the Horizon Europe programme, UNESCO can also have a direct cooperation with the European Commission. Currently IOC has 2 such cooperation agreements:

The IOC Tsunami unit is implementing the project called Strengthening the Resilience of Coastal Communities in Mediterranean Region to the Impact of Tsunamis and Other Sea Level-Related Coastal Hazards, funded by the EU DG for European Civil Protection and Humanitarian Aid Operations for 1,2 million EUR. The Project is in its final implementation phase, scheduled to be complete by June 2024 with the achievement of seven Tsunami Ready communities recognised by UNESCO. A Phase II (2024-2026) has been approved for the same amount of financial support.

The IOC-MPR unit and DG-MARE have cooperated on the field of Marine Spatial Planning since 2017 through the adoption of a Joint MSP roadmap, which has actions to be implemented by 2027. The MSPglobal Initiative is the mechanism to execute those actions and it became one of IOC's flagship projects to provide guidance and technical support to Member States to develop such marine policy towards a Sustainable Blue Economy. In the first phase of the project (2018-2021), IOC received 1.4 million EUR of co-financing support, which resulted in several technical products as well as a global community of MSP stakeholders composed of more than 5,000 people from over 140 countries. In July 2023 MSPglobal 2.0 was launched (1.5 year; 1 million EUR of co-financing) and is expected to co-develop with collaborators further knowledge and tools necessary to address capacity needs and socio-environmental challenges to be integrated into MSP such as climate change. The project is also implementing activities to strengthen MSP and ocean governance in the Gulf of Guinea and the Western Pacific regions. There is potential for a third phase of the project (2025-2027). These activities are linked to IOC's institutional strategy on Sustainable Ocean Planning and Management.

IODE has the potential to enter into a direct cooperation with the EU Directorate-General for International Partnerships (DG INTPA). DG INTPA is currently working on developing a Global Ocean Programme (GOP) that aims at enhancing developing countries' capacities to participate in, implement and benefit from global ocean conservation and sustainable use treaties and processes, with an emphasis on processes related to Biodiversity Beyond National Jurisdiction (BBNJ). IODE/OBIS has been asked to provide input into the concept note, and we expect to hear back from DG INTPA before August 2024. This programme is expected to start in 2025

and may involve IODE, building on the expertise acquired through OBIS/PacMAN and OTGA2.

The Management Group instructed IODE and its Programme Components and Programme Activities, to prepare a joint position paper to the European Commission, proposing an administratively streamlined and direct funding mechanism to IOC and its IODE. Acknowledging the EC's desire to align their projects (e.g. within the Horizon programme) to the UN Ocean Decade and other international frameworks, the paper will propose an approach for IOC/IODE to participate in projects, or advise on calls, proposals or other activities that involve international data, information and knowledge sharing.

11.3.4 Other

No other contributions were mentioned.

11.4 REVIEW AND APPROVAL OF REVISED WORK PLAN AND BUDGET 2024-2025

This agenda item was introduced by Mr Peter Pissierssens. He recalled that all IODE programmatic elements had been requested to submit a revised work plan and budget for 2024 and provisionally for 2025 taking into consideration the new programmatic structure as well as the new financial situation. An email with template was sent to all SG Co-Chairs on 13 October 2023 with deadline for response on 15 November 2023. This resulted in a revised work plan and budget as provided through [Document IOC/IODE-MG-2024/7.5](#). It was noted that the 2025 budget would need to be discussed and adopted by IODE-28 in 2025 and as such, requests formulated at this Management Group meeting would be considered as provisional and indicative only.

The IODE Management Group agreed that extra-budgetary funding that comes through IOC should be included in the table in Annex IV but that other contributions that do not come through IOC should not be shown in this report.

To reflect all support to IODE, **the Management Group instructed** all Programme Components, Activities and Projects to provide a comprehensive report on all extra-budgetary contributions (including staff time and other in-kind contributions) for submission to IODE-28. The Management Group will formulate guidelines for this reporting (this may also include "formal" vs "informal" support).

The IODE Management Group adopted the work plan and budget for 2024 and provisionally, subject to review and revision by IODE-28, for 2025.

The revised work plan and budget for 2024 and provisional budget for 2025 is added as [Annex IV](#).

12 PLANNING FOR IODE-XXVIII

12.1 CANDIDATE HOSTS, DATES

This agenda item was introduced by Ms Lotta Fyrberg. She recalled that INVEMAR (Colombia) offered to host the 28th Session of IODE in March 2025. Ms Paula Sierra was invited to report on the status of preparations.

Ms Sierra informed the Management Group that logistics arrangements are well proceeding. INVEMAR has an auditorium for 400 participants as well as Secretariat rooms and two rooms for Sessional Working Groups. A brochure with local information is being prepared and discussions are held with hotels to obtain reduced rates. Also, possible interpretation arrangements are being investigated. The Host Country Agreement (HCA) will be discussed with IOC/UNESCO and all requirements mentioned in the HCA will be met.

Ms Sierra then showed a short video about the venue.

Ms Tattersall requested if the OBIS conference could be organized back-to-back with IODE-28. Ms Sierra responded that this would probably be possible but this will need to be investigated more.

Ms De Baenst inquired about the main meeting room which has a capacity of 400. Mr Pissierssens inquired about the capacity in U-shape. Ms Sierra responded that the capacity is probably 100 in U-shape but this needs to be confirmed. There is also room for poster displays. For the scientific conference theatre configuration will be used. Ms Fyrberg inquired about the possibility of a hybrid meeting. Mr Pissierssens that IODE Committee meetings are held in-person.

The Management Group expressed its great appreciation to the Government of Colombia and INVEMAR for hosting the IODE-28 meeting and International Ocean Data Conference III.

12.2 REQUIRED ADMINISTRATIVE AND PRACTICAL ARRANGEMENTS FOR IODE-XXVIII

This agenda item was introduced by Mr Peter Pissierssens. He reported that discussions had started with INVEMAR regarding the Host Country Agreement that will be needed for the Session and associated Conference.

12.3 INTERNATIONAL OCEAN DATA CONFERENCE III: PROGRAMME

This agenda item was introduced by Ms Paula Sierra. She informed the Management Group that Mr Taco De Bruin had kindly offered to start up preparations for the Conference and invited Mr De Bruin to provide a brief introduction on his proposed plans.

Mr De Bruin reported that arrangements have just started. He noted that the model of the previous conferences can be used again, as well as the web site. What is needed is: (i) establishment of a planning committee (PC) that will agree on topics, description of sessions etc.; (ii) establishment of the scientific committee (SC) that will review submitted abstracts. In addition, a local organizing committee needs to be established. In the past, the members of the SC and PC were the “usual suspects” who are very active in IODE which is great but to be more inclusive we may want to look beyond our usual community. Mr Pissierssens suggested looking at the Decade WG8 and discuss this with the DCO Data Sharing and members of the WG of the Decade DM strategy.

Mr De Bruin expressed preference for a hybrid model for the conference as we had for the previous conferences.

Regarding the Sessions, Mr De Bruin recalled that we would build on the outcome of the previous sessions which can be the topics of the sessions (we had 4 themes) but

add more: one of the important new developments could be to look at recommendations of the FUST review and discuss some of these as part of the sessions. Also, there should be emphasis on the IODE Programme Components, Decade, Digital Twins, Cloud. Mr De Bruin suggested also “data management for research vessels” as a topic, AI in data processing and management, and look beyond our own community of ocean data managers to e.g. WDS, RDA.

Mr Buttigieg suggested inviting also IEEE Working Group P2890 (<https://standards.ieee.org/ieee/2890/10318/> and <https://www.gida-global.org/ieee-provenance>) and “local context” group. He also suggested to have a more solution-based approach for the conference. Otherwise, the conference will be just another information meeting. So, we should try to identify solutions to address certain problems in data sharing.

Ms Sierra suggested to also include a topic on citizen science.

Ms Mazzuco suggested to have side meetings on data during the conference.

Mr Garcia suggested looking at the private sector (e.g. Decade corporate data group) as well as Blue Economy.

Ms Scott suggested to include a QR code for the conference in the Decade Conference data booth brochure. This could also be done during IMDIS.

The Management Group requested Mr De Bruin to proceed with the programme planning for the IODC-III Conference.

13 ANY OTHER BUSINESS

13.1 GUIDELINES FOR THE USE OF OCEANEXPERT FOR MEETINGS (POSTING OF DOCUMENTS, LIST OF PARTICIPANTS, ETC).

This agenda item was introduced by Ms Sofie de Baenst. She mentioned the following:

Meeting Creation: It is strongly advised to check if the meeting/training was not created yet. This to avoid duplication.

List of Participants: Please update your list of participants in time. Please also encourage participants in your meetings to check and update their records.

Documents:

- Publication of documents: we strongly ask you to upload all documentation that is linked to the meeting. Try to avoid Gsheet links, that may end up broken. If this is a working document and requires input, please make sure the sheet is only editable/viewable by the meeting members. We request to have Glinks not in the OE meetings documentation.
- Please add reports to the meetings afterwards.
- Modification of documents: Do pay attention that if you delete a document, you first need to delete it from the event, before you can delete it from the directory.

- It was noted that documents in OceanExpert are currently not harvested by ODIS

In 2024 the OceanExpert manual will be updated and sent to all administrative users.

13.2 NEW IODE WEB SITE

This agenda item was introduced by Ms Sofie de Baenst. She explained that an external company was contracted to redevelop the IODE website. The launch is planned for mid-February 2024. She noted that all information in the old web site will be archived but not simply copied to the new site.

14 ADOPTION OF THE REPORT

The Management Group adopted the action items (highlighted in yellow) and requested the Secretariat to finalize the report.

15 CLOSING OF THE MEETING

Ms Paula Sierra thanked the members of the Management Group for their active participation in this meeting. She also thanked the Secretariat for all arrangements.

Annex I

Agenda

1. OPENING OF THE MEETING/ ADOPTION OF AGENDA AND TIMETABLE
2. REVIEW OF THE IODE-XXVII ACTION SHEET
 - 2.1 Overview of completed, pending and unimplemented actions
 - 2.2 Review of actions requiring discussion at the MG
 - 2.3 Review of actions requiring deliverable by IODE-28
3. MATTERS ARISEN SINCE IODE-XXVII THAT REQUIRE ACTION BY THE MANAGEMENT GROUP
 - 3.1 Outcome of IOC-32
4. STATUS OF THE NETWORK
 - 4.1 IODE national coordinators status
 - 4.2 Establishment of new (accredited) NODCs, ADUs and AIUs
 - 4.3 Data/information sharing by IODE NODCs, ADUs and AIUs
 - 4.4 IODE data centre health check
5. RESTRUCTURING OF THE IODE PROGRAMME
 - 5.1 Structural elements of the IODE Programme
 - 5.2 Rules of procedure for IODE programmatic elements
6. IODE Quality Management Framework
 - 6.1 Revision of IOC Manuals and Guides No. 67
 - 6.2 SG-QMF
7. REPORTS OF IODE PROGRAMMATIC ELEMENTS
 - 7.1 PROGRAMME COMPONENT ODIS
 - 7.1.1. Programme activity: AquaDocs
 - 7.1.2 Programme activity: GODAR
 - 7.1.3 Programme activity: GOSUD
 - 7.1.4 Programme activity: GTSP
 - 7.1.5 Programme activity: ICAN
 - 7.1.6 Programme activity: IQuOD
 - 7.1.7 Programme activity: OBPS (IODE/GOOS)
 - 7.1.8 Programme activity: ODISCat
 - 7.1.9 Programme activity: OceanExpert
 - 7.1.10 Programme activity: QMF
 - 7.1.11 Programme activity: WOD
 - 7.1.12 Project: Ocean InfoHub (incl OIH extension project)
 - 7.2 PROGRAMME COMPONENT OBIS
 - 7.2.1 Project: PacMAN
 - 7.2.2 EU funded projects
 - 7.3 PROGRAMME COMPONENT: OceanTeacher Global Academy
 - 7.3.1 Project: OTGA2
 - 7.4 REGIONAL ACTIVITIES
 - 7.4.1 Possible re-start of ODINs
 - 7.5 RESULTS OF THE "USER FEEDBACK SURVEY ON IOC/IODE PRODUCTS AND SERVICES"

8. COOPERATION WITH OTHER ENTITIES
 - 8.1 Cooperation with other IOC programmes
 - 8.2 Cooperation with other organizations
9. STRATEGIC ISSUES
 - 9.1 ROLE OF IODE IN THE UN DECADE (ref action 300, 301, 302, 307)
 - 9.1.1 Submitted IODE decade actions
 - 9.1.2 Actions submitted in cooperation with IODE
 - 9.1.3 DCO for data sharing
 - 9.1.4 Other actions (ref action 296)
 - 9.1.5 2024 Ocean Decade Conference
 - 9.1.6 IODE and Sustainable Ocean Planning (SOP)
10. IODE CAPACITY DEVELOPMENT
 - 10.1 Assistance and Mentoring by IODE NODCs, ADUs and AIUs
 - 10.2 IODE implementation of the IOC CD Strategy (2023)
11. REVISED WORK PLAN AND BUDGET 2024-2025
 - 11.1 Overview of revenue UNESCO RP 2024-2025 (UNESCO 42 C/5)
 - 11.2 Contributions from Flanders
 - 11.3 New initiatives and opportunities
 - 11.3.1 NORAD
 - 11.3.2 FUST
 - 11.3.3 European Commission
 - 11.3.4 Other
 - 11.4 Review and approval of revised work plan and budget 2025-2025
12. PLANNING FOR IODE-28
 - 12.1 Candidate hosts, dates
 - 12.2. Required administrative and practical arrangements for IODE-28
 - 12.3 3rd Ocean Data Conference: programme
13. ANY OTHER BUSINESS
 - 13.1 Guidelines for the use of OceanExpert for meetings (posting of documents, list of participants, etc).
 - 13.2 New IODE web site
14. ADOPTION OF THE REPORT
15. CLOSING OF THE MEETING

Annex II

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Annex III

IODE-XXVII ACTION SHEET
(status 2 January 2024)

Para number	Action item	Deadline	Implemented by	Status
34	The Committee called on NODCs and ADUs to apply for accreditation as a "quality seal" demonstrating that the data services provided are of the highest quality standards	continuous	NODCs, ADUs	6/4/2023: email sent to all NODC and ADU contacts no new applications since IODE-27
35	The Committee stressed the importance of hosting an NODC and urged IOC Member States that have not yet established an NODC to do so to ensure their ocean data are shared globally and that their national ocean scientists have easy access to the global ocean data commons.	continuous	IOC Member States	ONGOING no new NODCs established
36	The Committee stressed the importance of hosting an AIU and urged marine libraries and information centres that have not yet established an AIU to do so to ensure their ocean information is shared globally and that their national ocean scientists have easy access to the global ocean information commons.	continuous	Marine libraries and information centres	6/4/2023: email sent to IAMSLIC President 20/10/2023: no change
37	The Committee invited accredited NODCs, ADUs and AIUs to provide assistance and mentoring services to other NODCs, ADUs and AIUs that wish to apply for accreditation	continuous	Accredited NODCs, ADUs, AIUs	should be reported on by NOCDs, ADUs and AIUs at IODE-28 ONGOING
45	The Committee instructed the Secretariat to further investigate this matter [<i>decrease in data centres that report a data discovery portal</i>] and invited data centres to establish data discovery portals	IODE-28	IODE Secretariat	DONE
54	The Committee noted the slow progress on the IODE data centre health check procedures, although a short progress report has been made available very recently, decided to extend the "Inter-sessional working group on the review of NODC health status within the IODE network" for another inter-sessional period and instructed the working group to (i) provide	IODE-MG 2024 and IODE-28	IWG review NODC health status	Ongoing

	a status report on the procedures to the IODE Management Group (2024); and (ii) finalize the procedures for submission to the 28th Session of the IODE Committee (2025).			
55	The Committee instructed the IODE Management Group to take into account the procedures used by the SG-OBIS as a possible model in their deliberations.	IODE-MG 2024 and IODE-28	IODE MG	See 54
57	The Committee further decided that, once a year, the IODE Secretariat should send out an IOC Circular Letter to all IOC Member States, inviting them to designate or update information on IODE national coordinators (data management and information management) and update the list on the IODE web site	End 2023, end 2024	IODE Secretariat	DONE IODE Secretariat sent out CL October 2023
67	The Committee noted with regret the continuing small number of IODE Associated Information Units (AIUs) and requested a concerted recruitment effort be made to increase the number before IODE-XXVIII in close collaboration with ASFA and IAMSLIC.	continuous	IODE Secretariat, ASFA, IAMSLIC	see 36
68	The Committee invited information centres, marine libraries and librarians as well as professional organizations such as IAMSLIC and ASFA to collaborate with IODE activities directly	continuous	information centres, marine libraries and librarians, IAMSLIC, ASFA	To be discussed with IAMSLIC (ongoing through AquaDocs) DONE
69	The Committee, noting the slow and limited establishment of NODCs by Member States, recommended that a statement inviting Member States to actively establish NODCs should be included in the Assembly draft decision on IODE	IOC-32 (prep for April 2023)	IODE Secretariat, IODE Co-Chairs	6/4/2023: DONE
70	The Committee welcomed the steady growth in the number of IODE ADUs and invited organizations that manage oceanographic data currently not involved in IODE, to consider joining IODE as ADUs	continuous	Organizations that manage ocean data	action by organizations ONGOING
82	The Committee instructed all IODE projects and invited Member States to contribute	continuous	IODE projects	6/4/2023: email sent to all project leads

	research and informational documents to AquaDocs			no action reported
83	The Committee invited institutions and organizations, with insufficient capacity to host their own repository, to use AquaDocs.	continuous	Institutions and organizations	see 82
84	The Committee recommended that AquaDocs serve as the repository for reports and documents generated by the Decade Actions	As soon as possible	DCU	6/4/2023: sent email to DCU DONE : documents being entered in AD
109	The Committee invited IQuOD to explore cooperation with other IODE projects such as ODIS/OIH, OTGA and others	As soon as possible	IQuOD, other IODE projects	ONGOING (Discussion between OIH/ODIS with INCOIS ongoing, re linking IQuOD and ODIS)
117	The Committee congratulated the network of OBIS nodes and the Secretariat for the important achievements and reiterated its past requests to the IOC Executive Secretary to create a regular programme position for the OBIS data manager	January 2024 and continued	IODE Co-Chairs	Included in UNESCO 42 C/5. Position to be created in 2024 DONE
124	The Committee urged the IODE community to further document their methodologies and best practices and share them in the Ocean Best Practices System	continuous	IODE community	ONGOING
128	The Committee called on Member States to participate in the Ocean InfoHub Project (OIH) to increase the visibility of their data holdings to the world, and to enable improved and more efficient access to global Ocean data	continuous	Member States	ONGOING first group of NODCs contacted September 2023
138	The Committee expressed its appreciation for the progress made by PacMAN, decided to continue this project and requested Member States to support the Secretariat and partners involved in PacMAN to further build upon and replicate PacMAN in other states, especially developing states and SIDS that are more vulnerable to the socio-economic impacts of marine invasive species. This will directly support Member States in implementing target 6 of the recently adopted CBD COP15 Kunming-Montreal 2030 targets, which aims to reduce	continuous	Member States	to be reported on by PacMAN project ONGOING

	the introduction of new invasive alien species by 50%, and puts emphasis on priority sites, such as islands			
151	The Committee encouraged that IODE activities should be included in the work plans of the IOC Regional Subsidiary Bodies (RSBs) through active participation of IODE national coordinators (data management and information management), NODCs, ADUs and AIUs in meetings of the RSBs, and requested the IODE Secretariat to contact the regional IOC offices to ensure inclusion of data/information in the agenda of RSB meetings	April 2023 and IODE-28	RSBs (IODE Secretariat to RSB Secretariats)	6/4/2023: email sent to RSB Secretariats September 2023: discussions being held with IOCARIBE ONGOING
152	The Committee welcomed the offer by NMDIS (China), as ODINWESTPAC Secretariat, to actively participate in OIH/ODIS in preparation for new future arrangements of ODINs	As soon as possible	NMDIS and OIH/ODIS	To be reported on by NMDIS and OIH/ODIS ONGOING
159	The Committee instructed the IODE Management Group to (i) further clarify and finetune the naming definitions; (ii) propose the designation of all other IODE activities; and (iii) propose procedures to guide applications for new components, activities and projects, and submit these to the 28th Session of the IODE Committee in 2025	(i) 2023 (ii) 2023 (iii) 2024 and by IODE-28	IODE MG	ONGOING (See report)
164	The Committee approved the "Rules of Procedure for IODE Programme Components, Programme Activities or Projects" and instructed all projects to adopt these in their management structure by the next meeting of the IODE Management Group (December 2023/January 2024)	IODE MG (Dec 2023/Jan 2024)	IODE projects	ONGOING All former projects to report at IODE MG February 2024
165	The Committee instructed the Secretariat to publish the "Rules of Procedure for IODE Programme Components, Programme Activities or Projects" in the IOC Manuals and Guides series	End 2023	IODE Secretariat	DONE 25/4/2023: IODE Manuals and Guides No. 91 published
170	The Committee instructed the SG-QMF to revise IOC Manuals and Guides No. 67 (IODE Quality Management Framework for National Oceanographic Data Centres	As soon as possible (2023)	SG-QMF	DONE IODE Manuals and Guides No. 67 rev 2 published (2/10/2023)

	and Associate Data Units (Revised edition)) to include the changes to the accreditation process			
171	The Committee invited Member States to nominate suitably qualified experts with experience in implementing quality management systems for management of oceanographic data to the SG-QMF for the next intersessional period and instructed the Secretariat to send out the call for experts as soon as possible	As soon as possible	Member States/ IODE Secretariat	17/4/2023: Email sent to IODE NCs for DM and ADUs 2/8/2023: new membership established DONE
187	The Committee encouraged Member States, NODCs and ADUs to support the development of GO2DAT financially and in-kind	continuous	Member States, NODCs, ADUs	no action reported
192	The Committee invited NODCs and ADUs, as well as relevant existing regional networks, to participate in the upcoming data collection calls	Continuous	NODCs, ADUs, regional networks	ONGOING to be reported by IOC OSS Secretariat
197	The Committee instructed its Co-Chairs to engage with the OCG Data Strategy Implementation Plan to ensure that it is fit for purpose from the ocean data management community standpoint	As soon as possible	IODE Co-Chairs	ONGOING to be reported on by IODE Co-Chairs at IODE MG 2024
198	The Committee urged IODE experts to participate in (online) OCG meetings	As soon as possible	IODE experts	ONGOING to be reported on by IODE Co-Chairs at IODE MG 2024
199	The Committee noted with appreciation the ambitious plan for a BioEco Data Portal that is an integrated resource for national, regional and global ocean observing system monitoring and planning, and instructed IODE OBIS to identify the resource needs to fulfil this in a 2023-2025 planning proposal	As soon as possible	IODE/OBIS Secretariat	DONE Covered through EU projects: MARCO-BOLO, BioEcoOcean, DTO-BioFlow
201	The Committee took note of the activities undertaken with the TSR (tsunami resilience section) and invited TSR to consider more extensive collaboration through relevant IODE activities	As soon as possible	IOC/TSR	ONGOING (cooperation with OTGA)
208	The Committee noted the concerns expressed by the WESTPAC Secretariat and recommended that discussions	As soon as possible	WESTPAC Member States, NODCs, ADUs and AIUs in that region	ONGOING Secretariat contacted NMDIS to request

	should be held between the WESTPAC Member States, NODCs, ADUs and AIUs in that region, to identify needs and possible supporting measures			starting discussions (20/11/2023)
211	The Committee urged IOC Member states to work on closer collaboration on interoperability between IOC/IODE OIH/ODIS and WMO WIS 2.0	As soon as possible	IOC Member States	ONGOING (regular cooperation meetings are being held)
212	The Committee instructed the Secretariat to invite WMO to join IODE activities under the Ocean Decade	As soon as possible	IODE Secretariat	ONGOING see 211
216	The Committee invited IODE NODCs, ADUs and AIUs to report (as part of the reporting in preparation for IODE Committee meetings) on projects, programmes and other initiatives in which they are involved and relevant to IODE	IODE-28	NODCs, ADUs and AIUs	no action to be done in preparation for IODE-28
220	The Committee strongly recommended NODCs and ADUs in Europe to consider involving IOC/IODE as a partner in future EU project proposals	IODE-28	NODCs, ADUs in Europe	ongoing
225	The Committee proposed that the ASFA Secretariat impact study explores further cooperation between OpenASFA and AquaDocs assessing the impact on user communities and identifying any actions to support SDGs, the Ocean Decade and joint market opportunities	As needed	ASFA	ONGOING (ODIS is in the process of linking to OpenASFA. As of 25 Oct this was basically completed but not indexed yet)
227	The Committee recommended IODE and IAMSLIC to continue their relationship and create a new MOU of activities of mutual interest, including the provision of ongoing support by IOC/IODE and IAMSLIC to ensure the continuity of the AquaDocs Repository	As soon as possible	IODE, IAMSLIC	done no new MoU established. AquaDocs hosting cost shared by IODE and IAMSLIC (October 2023)
237	The Committee instructed the IODE Co-Chairs to prepare a brief statement for the 32nd Session of the IOC Assembly (June 2023) on the outcome of IODC2	April 2023	IODE Co-Chairs	DONE
238	The Committee instructed the IODE Management Group to prepare a proposal on the way forward to take the recommendations from IODC1	2023	IODE MG	NO ACTION

	and IODC2 into consideration in the work plan of IODE during the next inter-sessional period (April 2023 – March 2025) as well as in the preparations for IODE-XXVIII			
267	The Committee encouraged NODCs/ADUs/AIUs to explore ways and opportunities to streamline their CD activities utilizing the Ocean CD-Hub	Continuous	NODCs, ADUs, AIUs	ONGOING
271	The Committee instructed the working group (to draft the new structure of the IODE web site), to restart the discussions on the restructuring of the website and the IODE Secretariat to proceed with the redevelopment by end of 2023	End of 2023	working group to draft the new structure of the IODE web site	ONGOING new web site to be launched January 2024
295	The Committee urged IODE NODCs, ADUs and AIUs to also submit projects, preferably as IODE actions or including IODE as a “partner” in projects	Continuous	NODCs, ADUs, AIUs	no action reported
296	The Committee invited the IODE World Ocean Database (WOD) project to submit a Decade Action proposal via the IODE Secretariat	As soon as possible	WOD project	DONE submission 20/9/2023
297	The Committee requested the DCU to keep the IODE Secretariat updated on any funding opportunities for the submitted Decade Actions and instructed the IODE Secretariat to update the IODE Management Group and IODE Committee on progress in this regard	continuous	DCU, IODE Secretariat	no action reported by DCU
300	The Committee instructed the “IODE Intersessional Working Group (IWG) to identify the IODE contribution to the UN Decade of Ocean Science for Sustainable Development (2021-2030)” to focus its work on elements 2 and 3 of its terms of reference	IODE-28	IWG to identify the IODE contribution to the UN Decade of Ocean Science for Sustainable Development (2021-2030)”	no action
301	The Committee welcomed the numerous submissions of Decade Actions by IODE and involvement in several other Decade Actions but called on the DCU for pro-active action to attract funding to enable the implementation of the submitted actions	continuous	DCU	see 297
302	The Committee called for the Decade’s more active	Continuous	DCU	ONGOING

	participation in IODE programme elements such as ODIS, OBIS, OTGA and others as these can all contribute substantially to the data and information requirements of the Decade			
307	The Committee instructed the IODE Co-Chairs to contact the IOC Executive Secretary and DCU management to inform them about the potential benefits of OceanExpert to the Ocean Decade and extend the offer again	As soon as possible	IODE Co-Chairs	ONGOING (IODE Co-chairs contacting IOC Exec Sec and DCU in October/ November 23)
317	The IODE Committee, taking into account the 2022 events and their global impact, decided (i) not to proceed with the establishment of the IODE Partnership Centre for ODIS during the next inter-sessional period and (ii) to consider this matter again at the 28th Session of the IODE Committee in 2025	IODE-28	IODE Committee	to be discussed at IODE-28
338	The Committee called on Member States to participate in the Ocean Data and Information System (ODIS), the Ocean InfoHub Project (OIH) and OceanData-2030 to increase the visibility of their data and information holdings to the world, and to enable improved and more efficient access to global Ocean data and information	Continuous	Member States	ONGOING to be reported on by IOH/ODIS at MG2024
344	The Committee called on UNESCO Member States to approve one of the Base Case scenarios noting that the ZNG scenario would bring IODE below the minimum level of viability	2023	UNESCO Member States	ONGOING substantial budget increase requested in 42 C/5, requested by UNESCO Executive Board to UNESCO General Conference (November 2023)
352	The Committee urged the IOC Executive Secretary to provide additional staff to IODE.	2024	IODE Co-Chairs	DONE additional P-3 to be established in 2024 (see 117)
354	The Committee called on Member States, philanthropic organizations or private companies to consider seconding, either at the IOC Project Office for IODE, in Oostende, Belgium or in-kind (working from their usual place	Continuous	Member States, philanthropic organizations or private companies	no action reported

	of work) in order to strengthen the IODE Secretariat			
358	The Committee thanked the Government of Flanders (Kingdom of Belgium) and Flanders Marine Institute (VLIZ) for their support as an essential contribution to the resources needed by the IODE Programme, and called on the Government of Flanders (Kingdom of Belgium) and VLIZ to continue their support	2024	Government of Flanders (Kingdom of Belgium)	ONGOING proposals to be submitted in 2024 when next FUST is established.
360	The Committee strongly urged IOC Member States to follow the Government of Flanders (Kingdom of Belgium) example and establish structural funding agreements to support IODE.	Continuous	IOC Member States	ONGOING (agreement being discussed with NORAD)
361	The Committee called on its members and parent institutions to involve IODE in any project proposal that includes data or information management elements	Continuous	IODE Committee members and parent institutions	no action reported
366	The Committee requested that relevant events should be included in the OceanExpert calendar.	Continuous	IODE Committee members and IODE Secretariat	ONGOING, based on information received
367	The Committee invited IOC regional offices to inform the IODE Secretariat on relevant events in their region	Continuous	IOC regional offices	ONGOING
368	The Committee recommended to the Ocean Decade Strategic Communication Group, to promote the importance of data and information inviting IODE and to join with the Ocean Decade events, among others, in which the Ocean Science community participates	Continuous	Ocean Decade Strategic Communication Group,	ONGOING
372	The Committee adopted the work plan and budget for the next inter-sessional period and invited Member States to provide additional support to IODE.	Continuous	Member States	no support received
376	The Committee instructed the Secretariat to send out a Circular Letter to invite additional members of the Inter-sessional working group on the review of IODE structure and working methods	As soon as possible	IODE Secretariat	ONGOING preliminary discussions in April 2023. No further action.
397	The Committee requested its Co-Chairs and the IODE Secretariat to make editorial corrections as necessary, taking	As soon as possible	IODE Secretariat	DONE

	into account the discussions held during the session			
398	The Committee requested the IODE Co-Chairs to present the Executive Summary to the Thirty Second Session of the IOC Assembly that would take place in June 2023	IOC-32 (June 2023)	IODE Co-Chairs	DONE

ANNEX IV: REVISED WORK PLAN AND BUDGET 2024-25

	RP 2024	2024 exb mobilization target (green=confirmed)	RP 2025	2025 exb mobilization target (green=confirmed)	sum 2024-2025 RP	Comments
PROGRAMME COMPONENTS						
ODIS						
REGULAR PROGRAMME						
OD1 programme manager (consultant, 100%, 5m)	40,000		80,000			
OD2 Graph Operations / Digital engineer / Backend developer (consultant)	35,000		30,000			
OD3 Tech support and CD (incl for Africa) (consultant)	35,000		30,000			African OIH Hub
OD4 Technical support for Africa front end portal (consultant/contractor)	40,000		30,000			African OIH hub
OD5 Travel	15,000		5,000			
OD6 Communications (contractor)	10,000					
OIH FUST Project (until 6/2024)		100,000				
NORAD 2023: An ODIS/OIH Hub for BBNJ (1/2024/12/2024) - submitted 23/11/2023		85,000				
ODX25.1 Technical partnership lead(s) and assistance				80,000		
ODX25.2 Graph Operations / Digital engineer / Backend developer(s)				30,000		
ODX25.3 Digital Architecture and Strategist / Steering consultant (s)				30,000		
ODX25.4 Project support				25,000		
ODX25.5 Development of front end portal/s				80,000		
ODX25.6 Communication materials, outreach and translation				50,000		
ODX25.7 Technical support and capacity development for three additional regions (\$25,000 per region)				75,000		
ODX25.8 Steering group meeting				40,000		
ODX25.9 Travel / other meetings				20,000		
Total for ODIS	175,000	185,000	175,000	430,000	350,000	
OTGA						
OT 1 Organize and host training courses relevant to the Regions	5,000		5000			
OT 2 Provide travel grants to facilitate learner attendance at training courses	30,000		35000			
OT 3 Provide technical support eLearning platform	0		10000			
OT 4 Confirm certification of the Project Office as LSP (April)	0		3500			
OT 5 Design and develop new course	25,000		15000			

content to address the capacity needs of IOC Programmes						
OT 6 Update existing OTGA content to ensure it meets current OTGA course management guidelines	20,000		5000			
OT 7 Upload training resources on the OTGA e-Learning Platform	2,500		2500			
OT 8 Liaise with content providers on course design and presentation	2,000		2000			
OT 9 Publish regular CD communication through social media, newsletters and other communication	2,000		2000			
OT 10 Provide project governance framework through a steering group			20000			
OT 11 Create and deliver online training for RTC/STC personnel			2000			
OT 12 Update and publish OTGA Guidelines and Best Practices documentation			2000			
OT 14 Participate in conferences, meetings to promote OTGA	5,000		5000			
FUST OTGA2 project 2024 allocation		257,000		0		terminating in 2024
NORAD OceanTraining Internships to enhance global human capacity in the operationalization of information systems and delivery of specialized training. (together with IOC CD)		85,000				
IOC-IEEE Organization of Blue Cloud training course		16,111				
Total for OTGA	91,500	358,111	109,000	0	200,500	
OBIS						
OB 1 SG-OBIS meeting	15,000		15,000			
OB 2 OBIS coordination group workshops (data & products),	20,000		20,000			
OB 3 OBIS conference			40,000			
OB 3 Part-time consultant, community engagement officer, to assist the various OBIS Coordination Groups and partnerships	30,000		30,000			
OB 4 Cloud, software and hardware	15,000		20,000			
OB 5 OBIS branding material development and distribution	5,000		5,000			
FUST PacMAN		180,000		0		terminating in 2024
FUST eDNA exp		126,000		0		terminating in 2024
EU MARCO-BOLO		185,000		173000		
EU MPA Europe		200,000		182000		
EU eDNAquaplan		70,000		73000		
EU DTO-BioFlow		135,000		135000		
EU BioEcoOcean		230,000		200000		
EMODNET		5,000		5000		
Total for OBIS	85,000	1,131,000	130,000	768,000	215,000	

PROGRAMME ACTIVITIES						
AquaDocs						
hosting and maintenance expenses AquaDocs (contract)	25,000		25,000			
participation in IODE-28			4,000			
Total AquaDocs	25,000	0	29,000	0	54,000	
GODAR						
GODAR/WOD workshop at Regional Training Center (RTC) INVEMAR, Colombia.	12,000	0				
Digitizing historical Dutch oceanographic data in Indonesian waters.	3,000	0				
GODAR/WOD workshop in Asia (TBD).			12,000	0		
Digitizing historical oceanographic data			3,000	0		
Participation in IODE-28			3,000			
Total GODAR	15,000	0	18,000	0	33,000	
GOSUD						
Expand GOSUD variables to include biogeochemical variables, such as pCO ₂ , O ₂ , PH,...	5,500					
Continue to improve data management and the FAIRness of the data			11,000			
participate in IODE-28			3,300			
Participate to SOT (Ship Observations Team) bi-annual meetings 2025			3,300			
Total GOSUD	5,500	0	17,600	0	23,100	
GTSP						
Hold in-person biennium steering group meeting.	25,000	0	0	0		
Participation in IODE-28			3,000			
Total GTSP	25,000	0	3,000	0	28,000	
ICAN						
IC1 ICAN Tech: ACMA Training Workshop, Mombasa (April 2024)	6,000					
IC2 ICAN Summer Scholar Projects & ICAN Steering Group Virtual meeting (June 2024)	3,500					
IC3 ICAN 10 virtual workshop with translations (October 2024 and October 2025)	12,000		6,000			
IC4 ICAN Special Interest Group meeting at Coastal GeoTools (January 2025)			1,000			
IC5 ICAN Steering in-person meeting co-located with Coastal GeoTools conference (January 2025)			18,000			
Total ICAN	21,500	0	25,000	0	46,500	
IQuOD						
IQ1 IQuOD-2023 data description/evaluation paper	3,100		0			
IQ3 Update and expansion of manual QC web application (AWS)	2,000		3,000			
IQ4 In person meeting late 2024, potentially at Scripps Institute of Oceanography, USA	15,000		0			

(SG+others)						
IQ5 Participation in IODE28			3,000			
IQ6 SG-IQuOD			9,000			
Total IQuOD	20,100	0	15,000	0	35,100	
OBPS						
OBP1 project manager/ repository manager	27,500		27,500			
OBP2 technology maintenance	8,500		10,000			
OBP3 AWS	3,500		4,000			
IOC/NORAD ADAPT (decentralized to IOCARIBE)		99,000				
SG-OBPS		9,000				
Total OBPS	39,500	264,000	41,500	162,500	81,000	
OceanExpert						
OE1 redesignOE mailing system and testing (contractor)	5,000					
OE2 redesign of privileges (users rights) (contractor)	5,000					
OE3 upgrade to latest Symfony framework (contractor)	7,500		7,500			
OE4 improve the visibility of the OceanExpert Programme activity	5,500		5,500			
OE6 cleanup database			7,000			
OE 7 Training IT manager on PhP updates			6,500			
Total OceanExpert	23,000	0	26,500	0	49,500	
QMF						
no cost	0	0	0	0		
Total QMF	0	0	0	0	0	
WOD						
WO 1 IODE-28 participation			5,000	0		
Total WOD	0	0	5,000	0	5,000	
PROGRAMME MANAGEMENT COSTS						
PM1 IODE Management Group Meeting (February 2024)	23,000		0			
PM2 IT purchases and software	15,000		17,000			
PM3 IODE project office operational costs	5,000		5,000			
PM4 IODE officers/staff travel	22,000		22,000			
PM5 IODE regional coordination (participation in regional events)	10,000		11,000			
PM6 IODE communication	15,000		15,000			
PM7 Decade contributions - booth, materials shipping, staff travel not on exb	5,000		0			
PM8 IODE-28 costs	0		40,000			
PM9 admin staff cost (essential)		40,000		80,000		

Total Programme Management Costs	95,000	40,000	110,000	80,000		
GRAND TOTALS	621,100	1,978,111	686,600			
REVENUE EXPECTED	648,540		648,540			
BALANCE	27,440		-38,060			
after c/f 2024-2025			-10,620			