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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Twenty-seventh Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE-XXVII)

UNESCO Headquarters, Paris, 22-24 March 2023

IODE Annual Projects and Activities Reports 2021-2022

All existing projects and activities must submit annual project reports, describing activities implemented, problems experienced, and measures taken, results achieved, and deliverables produced.

The following projects and activities are reported in this document (preceded by the IODE-XXVII agenda item number). For each item there are 2 reports included: 2021 and 2022.

Reports were not received from ODINAFRICA and ODINCINDIO.

1. IODE Annual Project Report: AquaDocs

1. Title of project/activity and acronym

AquaDocs

2. Project established by (provide reference to IODE Committee session and Decision)

IODE-XXVI. 2021. Decision IODE-XXVI.8.2: ESTABLISHMENT OF THE AQUADOCS PROJECT

3. Annual report submitted by [name] on [date]

Sally Taylor and Ekaterina Kulakova, AquaDocs co-Project Managers on November 29 2022

4. General overview of the project status/ Executive summary

AquaDocs is the joint open access repository of the UNESCO/IOC International Oceanographic Data and Information Exchange (IODE) and the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC) with support from the FAO Aquatic Sciences and Fisheries Abstracts (ASFA).
AquaDocs has more than 36,000 publications covering the natural marine, coastal, estuarine/brackish and freshwater environments, and was created by merging content from two repositories (OceanDocs and Aquatic Commons). AquaDocs serves as a repository for more than 130 organizations and projects to make aquatic and marine science information Findable, Accessible, Interoperable, Reusable (FAIR). Since its launch on August 17, 2021, the repository has grown by almost 1000 publications.

5. Assumptions and risks

- Ongoing funding from IODE with additional financial contribution from ASFA
- Ongoing support from IAMSLIC for volunteer repository operations, training and promotion

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Make aquatic and marine science information FAIR (Findable, Accessible, Interoperable, Re-usable) for all	
O2. Make grey literature more easily and equitably available	
O3. Offer a repository platform to organizations and individuals without the infrastructure to support their own	
O4. Offer repository training and support	
Performance Indicators (2-5 maximum)	**Status**
PI1. Increase in Number of records available on Open access to all	567 records added January 1 - November 1, 2022. 936 records added since Jun 25, 2021 when OceanDocs and Aquatic Commons were merged. 36124 total records as of November 1, 2022. Note: total has decreased since last report because duplicate records (as a result of merger) were deleted.
PI2. Increase in AquaDocs Communities and Collections	New communities, sub-communities and collections added January 1 - November 1, 2022. ● Colombian Ocean Commission (CCO) > Colombian Oceanographic Data and Information Coordination Committee (CTN Diocean) > CTN Diocean Publications ● Centre National de Recherche et de Développement de la Pêche et de l'Aquaculture (CNRDPA) > CNRDPA Infos : le Bulletin d'Information du CNRDPA ● Centre National de Recherche et de Développement de la Pêche et de l'Aquaculture (CNRDPA) > HIPPOCAMPUS: Algerian journal of fisheries and aquaculture research ● Direction des Industries de Transformation de la Pêche > DITP Publications ● IOC: Intergovernmental Oceanographic Commission > IOC Other publications ● IOC: Intergovernmental Oceanographic Commission > IOC Ocean Decade Publications ● Russian Federal Research Institute of Fisheries and Oceanography (VNIRO) Renewed activity from Aquatic Commons communities following migration to AquaDocs: ● Bachand & Associates > Bachand & Associates Publications ● International Collective in Support of Fishworkers (ICSF) > Samudra Report ● Louisiana Universities Marine Consortium > Louisiana Universities Marine Consortium Data Report ● National Fisheries Research and Development Institute, Philippines > The Philippine Journal of Fisheries

	● Secretariat of the Pacific Regional Environment Programme (SPREP) ● United States National Marine Fisheries Service ● United States National Ocean Service > United States National Ocean Service Publications
PI3. Training and support offered	3 training sessions (see below for details) 29 depositors/users supported via email between January 1 - November 1, 2022
Status of Workplan Implementation	
WP1: Project Management and Coordination	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: AquaDocs report 2021 submitted to IODE	completed January 19, 2022
A1.2: Progress report (March-June 2022) for FAO-VLIZ agreement (ASFA Trust Fund) submitted	completed July 20, 2022
A1.3: AquaDocs report submitted to IAMSLIC	completed October 23, 2022
A1.4: Steering Group selection (additional representative from Oceania added in Nov 2022)	completed January 2022
A1.5: First SG-AquaDocs meeting	completed February 17, 2022
A.1.6: Ocean Decade Project Proposal submission (in 2022)	postponed to 2023
A.1.7: AquaDocs report 2022 submitted to IODE	completed November 30, 2022
Report on status of activities. Problems experienced and measures taken:	
A1.4: SG selection - SG member from Latin America resigned; recruitment underway for a replacement.	
WP2: Technology Development and Maintenance	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1: Renew contract with DSpace-certified vendor for hosting AquaDocs, and providing development and maintenance (Oct 1, 2022 - Sept 30, 2023)	complete - renewed contract with Atmire for Open Repository hosting solution which provides additional features beyond standard DSpace software
A2.2: Enhance user experience of interface by improving simple item and results display	complete
A2.3: Address issue of increase server traffic caused by bots	complete (ongoing)
A2.4: Improve Analytics	in progress
A2.5: Improve loading of ASFA vocabulary	in progress
A2.6: OpenASFA harvesting	in progress
Report on status of activities. Problems experienced and measures taken	
A2.1: Atmire contract - renewal cost included additional bandwidth and storage to accommodate traffic and repository growth respectively. To minimize budgetary impact, the Metadata Quality Module was cancelled. A2.3: Increased server traffic - Atmire blocked bots. OpenRepository subscription renewed with more bandwidth. A2.4: Analytics - Ticket submitted to Atmire. Google limits the number of calls by API on server. May need to use Google Dashboard directly. A2.5: ASFA vocabulary extremely slow to load - Ticket submitted to Atmire. Work-around suggested. Issue may not be resolved until OR is upgraded to use DSpace 7 which has a new modern front-end.	
WP3: Content Sourcing and Curation	
Activities	**Status (completed, in progress, postponed, cancelled)**
A3.1: Editorial Review Team Curation	in progress (open-ended)
A3.2: Onboard new communities and collections	in progress (open-ended)
A3.3: Historic IOC documents deposited into AquaDocs (part of ASFA Trust Fund project)	Deposit completed
Report on status of activities. Problems experienced and measures taken	
WP4: Training and Capacity Development	
Activities	**Status (completed, in progress, postponed, cancelled)**

A4.1: Translation of user guides for Depositors, Editors, Collection administrators, and Searching (part of ASFA Trust Fund project)	in progress
A4.2: Individual training sessions: ● Training for the ASFA Trust Fund legacy deposits	ongoing
A4.3: Joint AquaDocs-Open ASFA Training (part of ASFA Trust Fund project)	completed Aug 29 - Sept 2, 2022 (70+ participants)
A4.4: Other group training ● AquaDocs-ASFA training for all branches (14 research institutions) of Russian Federal Research Institute of Fisheries and Oceanography (VNIRO) - anticipated date: 6-9 December 2022	ongoing
Report on status of activities. Problems experienced and measures taken	
WP5: Communication, Users Marketing, and Feedback	**Status (completed, in progress, postponed, cancelled)**
A5.1: International Ocean Data Conference presentation	completed Feb 2022
A5.2: Joint AquaDocs-OpenASFA Conference (part of ASFA Trust Fund project)	completed Sept 15 2022 (250+ participants)
A5.3: IAMSLIC conference presentation	completed Oct 19, 2022 (50 participants)
Report on status of activities. Problems experienced and measures taken	

*7. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period (April 2023-Mar 2024).*

Project Outcomes			
O1. Make aquatic and marine science information FAIR (Findable, Accessible, Interoperable, Re-usable) for all			
O2. Make grey literature more easily and equitably available			
O3. Offer a repository platform to organizations and individuals without the infrastructure to support their own			
O4. Offer repository training and support			
Performance Indicators (2-5 maximum)	**Status**		
PI1. Increase in Number of records available on Open access to all			
PI2. Increase in AquaDocs Communities and Collections			
PI3. Training and support offered			
Workplan & Budget			
WP1: Project Management and Coordination			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: In-kind support from IAMSLIC for project management, repository operations, training and promotion	Co-Project managers, Co-chairs & SG	0	0
A1.2: In-kind support from IODE Project Office for vendor contract renewal	IODE Administrative Services Manager	0	0
A1.3: Second SG-AquaDocs meeting to be held online (early 2023)	Co-chairs	0	0
A1.4: Ocean Decade Project Proposal submission (2023)	Co-Project managers, Co-chairs & SG	0	0
A1.5: Submit AquaDocs report to IAMSLIC (Oct 2023)	Co-Project managers	0	0
A1.6: Submit AquaDocs report to IODE (Nov 2023)	Co-Project managers	0	0
Assumptions and risks			

● Ongoing in-kind support from IAMSLIC for project management, repository operations, training and promotion ● Ongoing in-kind support from IODE Project Office for administrative support			
WP2: Technology Development and Maintenance			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: Renew contract with DSpace-certified vendor for hosting AquaDocs, and providing development and maintenance (Oct 1, 2023 - Sept 30, 2024)	IODE & co-Project managers	ESTIMATED COST 20,000 USD +VAT	ESTIMATED COST 20,000 USD +VAT
A2.2: In-kind support from IODE Project Office for AquaDocs.org domain renewal, technical advice, email domain administration	IODE IT advisor	0	0
A2.3: Additional interface languages (included in annual subscription)	Co-Project managers, host vendor	0	0
A2.4: Investigation of opportunity to harvest AquaDocs metadata into ProQuest database Earth, Atmospheric & Aquatic Science Database	Co-Project managers, AquaDocs SG	0	0
Assumptions and risks			
● Ongoing funding from IODE with additional financial contribution from ASFA ● Ongoing in-kind support from IODE Project Office for technical and administrative support			
WP3: Content Sourcing and Curation			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A3.1: Editorial Review Team Curation	Editorial Team	0	0
A3.2: Onboard new communities	Co-Project managers, Editorial Team	0	0
A3.3: Explore Author profiles feature which includes author-related fields such as name variants, ORCID, position, degrees, biography, personal web page. Investigate possible linking to OceanExpert records.	Co-Project managers, AquaDocs SG	0	0
Assumptions and risks			
WP4: Training and Capacity Development			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A4.1: Translation of user guides for Depositors, Editors, Collection administrators, and Searching (part of ASFA Trust Fund project)	AquaDocs SG	0	0
A4.2: Individual training	AquaDocs SG	0	0
A4.3: Group training	AquaDocs SG	0	0
A4.4: Asynchronous training (videos, presentations)	AquaDocs SG	0	0
Assumptions and risks			
WP5: Communication, Users Marketing, and Feedback			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	

		2023	2024
A5.1: IAMSLIC conference presentation (2023)	Co-Project managers, Co-chairs	0	0
A5.2: Other opportunities to promote AquaDocs repository	Co-Project managers, Co-chairs	0	0
A5.3: Survey AquaDocs users to assess demand and solicit feedback for future development (January 2023)	Co-Project managers, Co-chairs	0	0
Assumptions and risks			
Total budget (requested from IODE)		ESTIMATED COST 20,000 USD +VAT	ESTIMATED COST 20,000 USD +VAT

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

AquaDocs is the joint open access repository of the UNESCO/IOC International Oceanographic Data and Information Exchange (IODE) and the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC) with support from the FAO Aquatic Sciences and Fisheries Abstracts (ASFA).

AquaDocs has more than 36,000 publications covering the natural marine, coastal, estuarine/brackish and freshwater environments, and was created by merging content from two repositories (OceanDocs and Aquatic Commons). AquaDocs serves as a repository for more than 130 organizations and projects to make aquatic and marine science information Findable, Accessible, Interoperable, Reusable (FAIR). Since its launch on August 17, 2021, the repository has grown by almost 1000 publications.

The AquaDocs Steering Group seeks IODE funding for hosting costs (approximately 20,000 USD per year + VAT).

Benefits of partnership

- IAMSLIC members manage the AquaDocs project. Experienced information professionals volunteer hundreds of hours of their time to manage the project, operate the repository, onboard new depositors, provide training and promotion, curate records, and contribute content.
- IODE funds the hosting of the repository by an external DSpace-certified vendor. External hosting offers a robust, streamlined interface with technical support. In addition, the IODE Project Office offers technical advice to the AquaDocs Steering Group, and administrative support for contract renewal.
- In 2022 under the ASFA Trust Fund Project, Aquadocs (through IODE PO) undertook a contract (LOA) with ASFA to contribute 200 IOC legacy documents to OpenASFA (a primary search tool for aquatic publications) via AquaDocs. In addition, a joint conference was hosted and joint training sessions organized for the promotion of both products. The LOA contributed toward the operational costs of AquaDocs which utilizes the ASFA thesaurus, and in the near future AquaDocs records will be harvested by OpenASFA.

Benefits to IODE

- AquaDocs serves as a repository platform for IOC and IODE publications, providing access to documents such as manuals and guides, national and project reports, meeting reports, etc. AquaDocs offers persistent identifiers called handles (similar to DOIs) which simplifies citing and linking to documents, and ensures access if the IODE website or OceanExpert are re-developed.
- AquaDocs can serve as a repository for other oceanographic data projects and organizations. Recent examples include the Partnership for Observation of the Global Ocean (POGO) and Scientific Committee on Oceanic Research (SCOR). In addition, other emerging data products (e.g. Harmful Algal Information System) could link to specific documents already available in AquaDocs.
- AquaDocs is part of the ODIS/OIH ecosystem which increases discoverability of IODE documents. Next year the Steering Group will explore author profiles, and the possibility of linking to OceanExpert records, further contributing to the ODIS/OIH data ecosystem.

Benefits to external hosting

- IT support needed from IODE project office is minimal
- Full-solution with additional features not available in standard DSpace installation (e.g. user export of results, harvesting, usage statistics including Altmetrics, author profiles, content management tools offering WYSIWYG editors and static page creation)
- Support guaranteed within an agreed time
- No network security risks
- Consistent maintenance
- Automatic update to DSpace 7
- Contract can be terminated and content exported back to the self-hosting model

Signed by Project Leader.
Date. November 29, 2022

For IODE use only.
Date received: 30 Nov 2022

2. IODE Annual Project Report: GODAR

1. Title of project/activity and acronym

Global Oceanographic Data Archaeology and Rescue (GODAR)

2. Project established by (provide reference to IODE Committee session and Decision)

The GODAR project was established by the 14th Session of the IODE Committee (1992) through Recommendation IODE-XIV.DR.3 (Global Data Archaeology and Rescue Project). https://www.iode.org/index.php?option=com_content&view=article&id=18&Itemid=57#iode14rec3

3. Annual report submitted by [name] on [date]

Dr. Hernan Garcia on Nov 28, 2022

4. General overview of the project status/ Executive summary

The goal of GODAR is to increase the volume of historical oceanographic data available to climate change and other researchers by locating ocean profile and plankton data sets not yet in digital form, digitizing these data, and ensuring their submission to national data centers and the World Data Center System. In addition, data on electronic media that are at risk of loss due to media degradation are also candidates for rescue. Considerable global historical oceanographic data were and continue to be added to the World Ocean Database for global open access (FAIR-compliant). The majority of data are from discrete observations.

5. Assumptions and risks

COVID-19 pandemic impacts

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. GODAR continued to acquire oceanographic data worldwide into the World Ocean Database (IODE Project).	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Number of new and updated data sets added to the NCEI archive and merged into WOD	Successful
PI2.	
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Increase GODAR data acquisition and use of the World Ocean Database (WOD)	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: Conducted IMARPE course on implementing a working WOD version and continued exchange of information	Completed
A1.2: Led a successful OPBS workshop 2022 session to discuss community adoption of routine data quality control procedures for ocean databases such as WOD.	Completed
A1.3: Provided an overview on the utility of the World Ocean Database as a global source of open access data, the importance of open data sharing, and quality control procedures. Virtual course; Chile 2022	Completed
Report on status of activities. Problems experienced and measures taken:	
Increase the global visibility and support of GODAR activities. No major problems to report.	
Milestone/deliverable/work package	
M2:	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1:	
A2.2:	
A2.3:	

Report on status of activities. Problems experienced and measures taken

7. ***Annex II Part B****. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1. GODAR historical ocean profile data digitation and rescue effort.			
Performance Indicators (2-5 maximum)			
PI1. Number of new and/or updated data sets added to the NCEI archive and merged into WOD			
PI2. IODE community response.			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1: Work with the IODE Project Office Secretariat to extend an invitation to all member states to identify and report global historical oceanographic profile data sets in non-digital formats that could be digitized. The emphasis is on routine physical and chemical oceanographic casts.			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	
A1.1: Draft a letter to be sent to IOC members states identifying datasets that could be digitized thought the IODE secretariat. Letter to be develop in QRT2 2023 and again announced at the IODE 27th session.	Hernan Garcia and IODE Secretariat		
A1.2: Conduct online meetings to identify historical oceanographic data sets to be added to WOD. Catalogued and prioritized data digitation requests. Identify costs to digitize relevant data within budget. Identify Crowdsourced Weather opportunities. Travel for data rescue workshops.	Hernan Garcia	$5000	
A1.3:			
Assumptions and risks			
Crowdsourcing and cost-effective data digitation services availability			
Milestone/deliverable/work package			
M2/D2/WP2			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		20xx	20xx
A2.1:			
A2.2:			
A2.3:			
Assumptions and risks			
Total budget (requested from IODE)			USD $5000

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

The IODE Global Oceanographic Data Archaeology and Rescue (GODAR) project is tasked to identify historic ocean profile data which are not

readily available publicly and may be in danger of disappearing from the public record, and adding it to the World Ocean Database (WOD) for preservation and open public access. WOD is an IODE project. Historic in this context means any oceanographic data taken more than five years from the present date. The GODAR project added historic oceanographic profile casts to the WOD over the last two years. GODAR expects to continue and expand communications with oceanographic data centers worldwide to increase data access including the World Data Service for Oceanography. IODE is urged to continue to facilitate this communication and continue to remind member states of the great need to share historic data in danger of obsolescence to the WOD for sustained open availability. GODAR will continue to devote resources to this digitization effort and to work closely with atmospheric and marine meteorological data rescue efforts.

Signed by Project Leader. Hernan Garcia
Date. November 28, 2022

For IODE use only.
Date received: 29 November 2022

3. IODE Annual Project Report: GOSUD

1. Title of project/activity and acronym

Global Ocean Surface Underway Project (GOSUD)

2. Project established by (provide reference to IODE Committee session and Decision)

Following recommendation IODE-XVI.10 (Lisbon November 2000)

3. Annual report submitted by [name] on [date]

DROUINEAU Ludovic on 28/11/2022

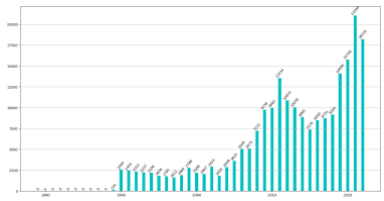
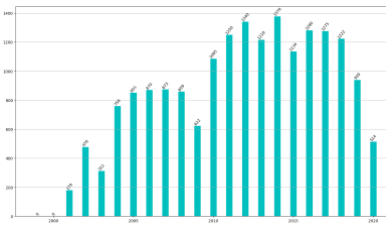
4. General overview of the project status/ Executive summary

Following recommendation IODE-XVI.10 (Lisbon November 2000): "… to acquire, quality control, store in standard format, and disseminate the collected underway sea surface salinity data …the Global Ocean Surface Underway Data (GOSUD) Project was established. Since then, GOSUD has aimed at assembling in-situ observations of the world ocean surface collected by a variety of ships and at distributing quality controlled datasets. Sea surface temperature and salinity data from 356 (?) platforms collected between 1990 and 2022 have been quality controlled and managed by GOSUD and distributed freely in netCDF format. GOSUD data is archived monthly at National Centers for Environmental Information (NCEI), NOAA for long-term preservation. GOSUD previous project leader Loïc Petit de la Villéon retired in 2020. A new GOSUD steering group was formed in 2022 to continue daily routine operations and future data management. DROUINEAU Ludovic was selected as the new project leader with support from co-leaders Denis Pierrot and Zhankun Wang by the steering group. A series of steering group meetings will be organized to ensure the operation and improvement of the GOSUD.

5. Assumptions and risks

Lack of funding support and man power(s) for the operation and further improvement of the dataset and website.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Acquire, quality control, store and disseminate collected underway sea surface temperature and sea surface salinity data and metadata..	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Number of days per platform where data was collected until 2022-01-01	 **202,373**
PI2. Total Number of vessel collecting data in RT	**356**
PI3. Number of days per platform where data was collected in delayed mode until 2022-01-01	 **18,431**
PI4. Total Number of vessels collecting data in delayed mode	**15**

Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Maintain the group active	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: Organise steering group meetings	**completed**
A1.2: Review the term of reference	**completed**
A1.3: Revision of the website www.gosud.org	**completed**

Report on status of activities. Problems experienced and measures taken:	
Milestone/deliverable/work package	
M2: . Continued GOSUD daily routine operations to collect, process and distribute both near real-time and delayed mode sea surface salinity and temperature data from ships	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1:New data added daily	**in progress**
A2.2:	
A2.3:	
Report on status of activities. Problems experienced and measures taken	

7. ***Annex II Part B****. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1. Acquire, quality control, store and disseminate collected underway sea surface temperature and sea surface salinity data and metadata..			
Performance Indicators (2-5 maximum)			
PI1. Number of days per platform where data was collected			
PI2. Number of days per platform where data was collected in delayed mode			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1: M1: Review the NetCDF format and propose some evolution to fit recent NetCDF CF convention D1: Release of the yearly GOSUD repository (https://www.seanoe.org/data/00363/47403/) D2: Continue GOSUD daily routine operation and maintenance to collect, process, quality control and distribute GOSUD data to the community			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1:Real-time data acquisition and distribution		0	0
A1.2:Process elaborated delayed mode datasets and release them		0	0
A1.3:Archive data at NCEI, NOAA for long-term preservation		0	0
Assumptions and risks			
Milestone/deliverable/work package			
M2/D2/WP2: M2: Review RTQC to propose an homogenisation			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: Organise steering group meetings and assist to meeting that		5,000	5,000

could improve GOSUD project			
A2.2:			
A2.3:			
Assumptions and risks			
Total budget (requested from IODE)		5,000	5,000

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

GOSUD previous project leader Loïc Petit de la Villéon retired in 2020.
In 2021, GOSUD project was still in an operational mode and relied on the operations done in the frame of Coriolis and in the frame of the EU funded Project Copernicus and its in situ component of the Marine Service.
Tim Boyer (NOAA) has started the process of contacting everyone that should be interested in being part of the steering group.
A new GOSUD steering group was formed in 2022 to continue daily routine operations and future data management. The first steering group meeting was held in March 2022. The objectives of this meeting were to expose the status of GOSUD.
The second steering group meeting was held in June 2022. The objectives were both to elect chair people and to review the Terms of reference. Zhankun Wang (NOAA), Denis Pierrot (NOAA) and Ludovic Drouineau (Ifremer) were designated.
The third meeting in September 2022 approved the new terms of reference.

Signed by Project Leader.
Date. 11-28-2022

For IODE use only.
Date received: 29 November 2022

4. IODE Annual Project Report: GTSPP

1. Title of project/activity and acronym

Global Temperature and Salinity Profile Program (GTSPP)

2. Project established by (provide reference to IODE Committee session and Decision)

Established through Recommendation IODE-XIII.4
(https://iode.org/index.php?option=com_content&view=article&id=310:iode-steering-group-for-gtspp&catid=10&Itemid=58)

3. Annual report submitted by [name] on [date]

Christopher R. Paver, 2022-11-29

4. General overview of the project status/ Executive summary

The program's mission is to acquire, synthesize, and generate data products for near-real time and delayed mode (i.e. science quality) water temperature and salinity profiles. The main sources of the data are the Global Telecommunications System (GTS) mostly for near real time data and directly from contributing SOT SOOP regional Data Assembly Centers (DACs) for delayed mode data. US NOAA/NCEI continues to maintain the synthesized profile database, and generate operational Real Time and Best Copy data products. Canada DFO continues to acquire data from the GTS and process for submission to US NOAA/NCEI. The regional DACs (i.e. US NOAA/AOML, University of California San Diego - SCRIPPS, Australia CSIRO) continue to submit delayed mode data to US NOAA/NCEI.

Due to staffing and IT issues within some of the contributing organizations over the past couple of years, gaps in data acquisition and processing has become an issue. For example, data being made available over the GTS in the relatively newer GTS file format BUFR, are not being acquired, save the near-real time Argo data. Canada DFO is suffering from both staff shortages and IT issues that have precluded them from developing the software needed to regularly acquire data in the BUFR format. There is currently no backup facility to acquire this data. US NOAA/NCEI has reduced staffing in support of the program. As a result, data submitted by the DACs are not being included into the synthesized database or in the resulting operational products, however they are being included into the World Ocean Database and subsequent products. Some DACs have administrative issues precluding the submission of data, which included France - IFREMER and Japan - JODC.

5. Assumptions and risks

Assumptions:

1. Each contributing institution is able to maintain proper staffing and infrastructure from their base (in-kind) funding pool.
2. GTSPP is the only program that provides access to near real time profile data from the GTS. This is no longer the case, and some SOT SOOP subcommittees are starting to work with other GTS data access providers.

Risks:

1. Staffing and infrastructure funding continues to be insufficient to keep up with changes to acquisition and access requirements.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Maintain system that acquires, synthesizes, and generates public products for real-time and delayed mode salinity and water temperature profile data.	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Maintain timely and complete data and information of ocean temperature and salinity profile data.	Automated systems continue to update the synthesized database with new data.
PI2. Implement data flow monitoring system for improving the capture and timeliness of real-time and delayed-mode data.	postponed
PI3. Improve and implement agreed and uniform quality control and duplicate management systems.	postponed
PI4. Facilitate the development and provision of a wide variety of useful data analyses, data and information products, and data sets.	Continue to regularly generate Real Time and Best Copy data products that contain QC flags.

Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Continued GTSPP daily operations to process and load both real-time and non-real-time temperature and salinity data into the GTSPP Continuously Managed Database (CMD).	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: Acquire real-time and delayed mode data from the GTS. (Canada DFO)	**in progress**
A1.2: Generate Science Quality data from applicable real time data.	**in progress**

(Regional DACS)	
A1.3: Merge supplied real time and delayed mode data into CMD. (US NOAA/NCEI)	**in progress**
Report on status of activities. Problems experienced and measures taken:	
A1.1: Some data on the GTS are in BUFR format, for which the group has not integrated into the program, save a work around for the Argo data. The group is working on two potential solutions: 1) Canada DFO is developing capacity to process BUFR data, and 2) The group is looking for a backup supplier of GTS data. A1.2: Some DACs have not submitted delayed mode data in some time (e.g. IFREMER, Japan JODC, and Canada DFO). DACs are suffering from resource issues and have not been able to give timeframes for submission. A1.3: Delayed mode data submitted to NCEI for inclusion into the CMD are instead being merged into the WOD. Attrition at NCEI has reduced resources needed to manually load delayed mode data to CMD, and is currently working on finding assistance.	
Milestone/deliverable/work package	
M2: Maintain the project web sites.	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1: IODE - https://www.iode.org/index.php?option=com_content&view=article&id=19&Itemid=58	**in progress**
A2.2: US NOAA/NCEI - https://www.nodc.noaa.gov/GTSPP/	**in progress**
A2.3: Canada DFO - http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/gtspp/index-eng.htm	**in progress**
Report on status of activities. Problems experienced and measures taken	
Lack of resources/staff have precluded timely updates to web sites. The group is discussing possible solutions to better maintain web sites with reduced personnel.	

7. ***Annex II Part B****. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1. Continue to maintain the system that acquires, synthesizes, and generates public products for real-time and delayed mode salinity and water temperature profile data.			
Performance Indicators (2-5 maximum)			
PI1. Maintain timely and complete data and information of ocean temperature and salinity profile data.			
PI2. Facilitate the development and provision of a wide variety of useful data analyses, data and information products, and data sets.			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1: Include GTS BUFR formatted profile data into the operational pipeline.			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: Develop software to manage BUFR data.	Canada DFO	0	0
A1.2: Find GTS sources for redundancy.	NCEI	0	0
Assumptions and risks			

Milestone/deliverable/work package			
M2/D2/WP2: Hold in-person biennium steering group meeting.			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: Travel support		35,000	0
A2.2: Book venue	NCEI	15,000	0
Assumptions and risks			
Total budget (requested from IODE)		50,000	

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

GTSPP's mission is to acquire, synthesize, and generate data products for near-real time and delayed mode (i.e. science quality) water temperature and salinity profiles. The main sources of the data are the Global Telecommunications System (GTS) mostly for near real time data and directly from contributing SOT SOOP regional Data Assembly Centers (DACs) for delayed mode data. US NOAA/NCEI continues to maintain the synthesized profile database, and generate operational Real Time and Best Copy data products. Canada DFO continues to acquire data from the GTS and process for submission to US NOAA/NCEI. The regional DACs (i.e. US NOAA/AOML, University of California San Diego - SCRIPPS, Australia CSIRO) continue to submit delayed mode data to US NOAA/NCEI.

Due to staffing and IT issues within some of the contributing organizations over the past couple of years, gaps in data acquisition and processing has become an issue. For example, data being made available over the GTS in the relatively newer GTS file format BUFR, are not being acquired, save the near-real time Argo data. Canada DFO is suffering from both staff shortages and IT issues that have precluded them from developing the software needed to regularly acquire data in the BUFR format. There is currently no backup facility to acquire this data. US NOAA/NCEI has reduced staffing in support of the program. As a result, data submitted by the DACs are not being included into the synthesized database or in the resulting operational products, however they are being included into the World Ocean Database and subsequent products. Some DACs have administrative issues precluding the submission of data, which included France - IFREMER and Japan - JODC.

Signed by Project Leader. Christopher R. Paver
Date. 29 November 2022

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Date received: 30 November 2022

5. IODE Annual Project Report: ICAN

1. Title of project/activity and acronym

International Coastal Atlas Network

2. Project established by (provide reference to IODE Committee session and Decision)

ICAN is an IODE project since 2013, the activity started 2006 and is ongoing

3. Annual report submitted by [name] on [date]

Kathrin Kopke, Tanya Haddad (co-chairs of the ICAN Steering Group)

4. General overview of the project status/ Executive summary

The 2022 year was a good one for ICAN activities and community engagement. Overall, we had a very productive programme, with high participation from steering group members and a very successful summer work programme.

5. Assumptions and risks

For 2023 we are under the assumption that the global pandemic and recovery is still affecting travel and will remain challenging for many participants. Nevertheless, our project has always operated to some degree via remote participation, we are confident that we can continue to plan for additional remote programming.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Network stewardship is active and healthy	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Participation Numbers	Participation from > 60 members
PI2. Participation Geography	Participation from > 24 countries
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: ICAN Governance	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: ICAN Steering meetings	9 meetings completed in 2022
A1.2: ICAN Co-Chairs	38 meetings completed in 2022
Report on status of activities. Problems experienced and measures taken:	
ICAN Co-Chair meetings The ICAN co-chairs meet weekly. This arrangement has worked well to respond to action items, prepare materials for Steering Group meetings, and keep work moving. Anyone who would like to work with ICAN is invited to participate by contacting an ICAN co-chair with information about what week they would like to join us. **ICAN Steering Group Meetings** The ICAN Steering group generally meets once per month. The Steering Group was energized by the activities of the ICAN summer scholars, and had several productive conversations about future ICAN activities.	
Milestone/deliverable/work package	
M2: ICAN Outreach and Network Activities	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1: ICAN Tech Activities	4 meetings completed 2022
A2.2: Regional and Individual Atlas Outreach & Assistance	6 meetings completed 2022
A2.3: ICAN Website, Social Media and Newsletters	Ongoing / In Progress
A2.4: Publications and Conference Participation	As needed / Requested
Report on status of activities. Problems experienced and measures taken	

ICAN Tech
ICAN Tech has not met as a group on a regular schedule in 2022, however members have participated in multiple meetings to assist specific local or regional atlases with techincal topics such as software selection and deployment, and catalogue development. In particular, ICAN Tech members continue to be involved in support related to the ongoing renewal of the African Coastal and Marine Atlas, and the migration of content from previous versions of the African Marine Atlas into the new system.

Regional and Individual Atlas Outreach & Assistance
ICAN Tech and Steering Group members continue to participate at both the local Atlas project scale, as well as at regional scale. In many cases, this included participation in OIH regional and other meetings, as well as traditional ICAN outreach and assistance. For example, in addition to the previously mentioned work with the African Coastal and Marine Atlas community, in 2022, this work included extensive research by ICAN Sea Grant summer scholars on individual Atlas characteristics and outreach with Atlas owners to conduct interviews and write articles regarding local Atlas work for the ICAN web directory and newsletter. This work serves to elevate the visibility of local Atlas work, and to draw attention to innovative projects and solutions, in addition to contributing to training the next generation of Atlas builders around the world.

ICAN Website, Social Media and Newsletters
ICAN continues to manage and update the project website (https://ican.iode.org/), which provides a wide variety of news articles, technical discussions, and profiles of coastal and marine atlas projects and portals as published in the ICAN directory. In 2022 over 35 articles were published on the ICAN website, and over 95 directory entries were made. ICAN social media (Twitter: @ICANAtlas) is growing and with 459 followers as off Nov 2022. ICAN received in 2022 737 ICAN Twitter profile visits and generated 1,210 Tweet impressions (number of times a tweet appeared on twitter user timelines), driving additional traffic to the ICAN website. ICAN newsletters are widely distributed via the ICAN email lists and in ICAN partners networks, in addition to being available to view and download from the project website and the AquaDocs system. Previous newsletters continue to cover a wide range of articles about diverse coastal web atlas and other relevant geospatial resources, in addition to promoting and documenting events of interest to ICAN audiences and the wider network. Discussions are underway as to how to reformat the newsletter in 2023 in order to increase this form of information sharing and further increasing engagement with end users.

Publications and Conference participation
In October 2022, a much anticipated peer-reviewed paper authored by ICAN Steering member David Hart was published in the journal Coastal Management. The paper, with a citation of: "David A. Hart, Timothy Prestby & Robert E. Roth (2022) Design and Evaluation of Coastal Web Atlases: Best Practices and Future Opportunities for Map Representation, Interaction, and Usability, Coastal Management, DOI: 10.1080/08920753.2022.2126271" can be accessed online at: https://www.tandfonline.com/doi/full/10.1080/08920753.2022.2126271

Also in October 2022, ICAN presented at the Geo Blue Planet Symposium in Accra Ghana, via 2 presentations (including one technical workshop of ~40 attendees) The topics of the presentations covered updates and introductions to the African Coastal and Marine Atlas, ocean data sharing, and participation in the Ocean InfoHub project.

*7. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1. Network stewardship is active and healthy			
Performance Indicators (2-5 maximum)			
PI1. Steering Group Vacancies filled; Steering Group Co-Chairs refreshed			
PI2. Participation Numbers and Geography			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1: During the past biennium ICAN Steering group experienced some reduction in numbers as some steering members left their institutions for retirement or new jobs elsewhere. We would like to make it a priority to refresh the ICAN SG during the upcoming work program by reaching out to the wider Coastal Atlas network for potential new steering members. As part of this effort, we will seek to balance the steering group membership geographically, and in terms of types of institutional representation. Additionally, ICAN will also work to replace one of the Steering group Co-chairs in order to add capacity for support of network activities throughout the upcoming biennium. We seek to complete these additions in year 1 of the work plan, in anticipation of an in-person Steering group meeting in year 2 of the work plan, which will enable continued strengthening of the leadership team.			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: Recruitment of new SG members incl a co-Chair	ICAN SG	0	0
A1.2: In-Person Steering Group meeting	ICAN SG	0	20,500

Assumptions and risks
Our assumption is that the ICAN SG will continue online meetings throughout 2023 to progress recruitment and stewardship of the network, and with refreshed ICAN SG membership we will build towards an in-person meeting of the SG in 2024. ICAN would like to avoid the risk of stagnation and sees this investment in a refresh of the leadership team as important to the continued health of the network.
Milestone/deliverable/work package
M2/D2/WP2: Build upon the successes in the previous biennium via continued engagement of the ICAN community. We will do this by hosting a second online ICAN conference (including translation into multiple languages) and by once again participating in the Sea Grant summer scholar program to enable more continual engagement of network members. During the second year of the biennium we hope to once again team up with the CoastGIS conference to offer an in-person ICAN workshop. Finally, throughout the biennium ICAN will engage in various regional engagement activities by providing opportunities for participation in local & regional events on an as-requested basis.

Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: Sea Grant Summer Scholar participation	ICAN Co-Chairs	3,500	3,500
A2.2: Online ICAN Workshop (Hosting and Translation services)	ICAN SG, ICAN Tech, ICAN members	12,500	0
A2.3: In-person conference in conjunction w CoastGIS	ICAN SG, ICAN Tech, ICAN members	0	2,000
A2.4: Expert Travel	ICAN SG, ICAN Tech, ICAN members	4,000	4,000
Assumptions and risks			
We view investment in both in-person and web participation as an excellent value given the global scope of the ICAN network. This work package seeks to address that investment, and to develop additional mechanisms and resources for more continual engagement with the ICAN community.			
Total budget (requested from IODE)		20,000	30,000

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

The International Coastal Atlas Network (ICAN) has had a productive 2021-2022 work period. During this time the project built upon its investments in an improved web platform to reinvigorate its outreach to the worldwide Coastal Atlas community with a very productive programme. This included high participation from steering group members throughout the biennium, and a very successful ICAN workshop in September of 2021, and summer scholar programme in 2022. The ICAN 9 workshop involved over 35 invited speakers over the course of 3 days, was attended by over 150 participants from over 40 countries, and live streamed in 4 languages. Each day focused on a specific topic relevant to the overarching theme: Local to Global - Benefits of Coastal Web Atlas Sharing & Connectivity where day 1 was dedicated to introduce new and established resources and connect with the wider coastal web atlas (CWA) community, day 2 explored how our CWA's can contribute to and link in with the UN Decade of Ocean Sciences and the Sustainability Goals and day 3 explored how Atlases can share their content more effectively and make connections to the OceanInfoHub project. In 2022, ICAN built upon the success of the 2021 workshop by hosting two Sea Grant Summer Scholars to continue engagement of ICAN members around the globe. These scholars conducted research and updates to the ICAN online directory of coastal atlas projects, conducted interviews with many Atlas owners and developed a series of articles for the ICAN website (35+ articles and 95+ directory entries) and newsletter to improve the sharing of information between Atlas owners around the world. In addition, the ICAN Tech team members participated in a variety of OceanInfoHub activities and contributed to various OIH outreach efforts, particularly within the African Coastal and Marine Atlas community, and remain committed to assisting Atlas owners with making interoperable connections to the global OIH effort. ICAN Steering Group members remain committed to supporting this effort into the coming 2023-2024 biennium.

Signed by Project Leader.

Date. 29/11/2022

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Date received: 30 November 2022

6. IODE Annual Project Report: IQuOD

1. Title of project/activity and acronym

International Quality-controlled Ocean Database (IQuOD)

2. Project established by (provide reference to IODE Committee session and Decision)

The IODE-IQuOD project was established by IODE-XXIII (2015) through Recommendation IODE-XXIII.3

3. Annual report submitted by [name] on [date]

Submitted by the Co-Chair(s) of the Steering Group: Catia Domingues (Brazil/Australia/UK), Simon Good (UK) on 24/11/2022

4. General overview of the project status/ Executive summary

The aim of the project is to produce, freely distribute and curate the highest quality, most complete and consistent global ocean subsurface temperature profile repository for Earth system, climate and ocean studies, with (intelligent) metadata and an uncertainty estimate for every observation. This aim will be achieved through coordination of resources and expertise into a single best practice international community effort. IQuOD maintains a collection in the Ocean Best Practices Repository (https://repository.oceanbestpractices.org/handle/11329/1590) and version 0.1 of the IQuOD dataset is available to users from through the DOI https://doi.org/10.7289/v51r6nsf and on the NCEI THREDDS server https://www.ncei.noaa.gov/data/oceans/iquod/. As of 10/11/2022, IQuOD v0.1 updates had been performed 3 times in 2022: January 22, May 17 and August 13.
In recent years, the IQuOD collaboration has been maintained through remote meetings. Despite the challenges brought by the COVID pandemic, the project published a paper on assignment of uncertainties to the ocean profile data in 2021, a paper on quality control using machine learning, and has recently submitted a paper on automatic quality control.

5. Assumptions and risks

IQuOD members contribute through support from their individual institutions. Each member might typically contribute 0.1FTE. However, this support is not guaranteed and has recently been under pressure due to factors such as the COVID pandemic which has put timescales for completing objectives at risk.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Paper on optimal automatic quality control for ocean temperature profiles submitted (October 2022). O2. IQuOD dataset (v0.1) available to users and updated throughout the year.	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Number of users of the IQuOD data	3 papers cite the dataset (1 in 2022) as of 04/11/2022 according to Google Scholar
PI2. Number of papers published by the project and number of citations	4 papers (1 in 2022) with an additional 1 submitted; 14 citations (8 in 2022) as of 04/11/2022 according to Google Scholar
Status of Workplan Implementation	
Milestone/deliverable/work package	
WP1: Automatic quality control	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: Finalisation, submission and publication of the automatic quality control benchmarking tests in an open access journal	In progress
A1.2: Implement automatic quality control procedures identified in A1.1 at NCEI	In progress
A1.3: Apply the automatic quality control procedures to the historical profile database and release to users	In progress
Report on status of activities. Problems experienced and measures taken:	
The paper has been submitted to Frontiers in Marine Science and at the time of writing (24/11/2022) is under review.	
Milestone/deliverable/work package	
WP2: Expert quality control	

Activities	Status (completed, in progress, postponed, cancelled)
A2.1: Continued development of the IQuOD expert quality control tool	In progress
A2.2: Migration of the expert QC system to AWS infrastructure supported by IODE	Completed
A2.3: Publication of a paper on using machine learning to quality control oceanographic data	Completed
Report on status of activities. Problems experienced and measures taken	
IODE has provided an AWS account on which to host the IQuOD expert quality control tool. The migration from the previous infrastructure was initiated in 2021 and is completed, with further work proceeding on a best efforts basis. That migration and subsequent improvements were delayed due to the COVID-19 pandemic and work-related constraints. The paper was published in 2021: Castelao, G. P. (2021). A machine learning approach to quality control oceanographic data. *Computers & Geosciences*, 104803. doi: https://doi.org/10.1016/j.cageo.2021.104803.	

*7. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1. Automatic quality control paper published. O2. IQuOD dataset updated to include new automatic quality control flags.			
Performance Indicators (2-5 maximum)			
PI1. Number of users of the IQuOD data			
PI2. Number of papers published by the project and number of citations			
Workplan & Budget			
Milestone/deliverable/work package			
WP1: Automatic quality control			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: Publication of the automatic quality control benchmarking tests in an open access journal	Simon Good	-	-
A1.2: Implement automatic quality control procedures identified in A1.1 at NCEI	Tim Boyer	-	-
A1.3: Apply the automatic quality control procedures to the historical profile database and release to users	Tim Boyer	-	-
Assumptions and risks			
Milestone/deliverable/work package			
WP2: Expert quality control			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: Continued development of the IQuOD expert quality control tool	Gui Castelão	1000	1000
Assumptions and risks			

Assumes continued access to AWS to run the expert quality control system. The budget request is to fund the existing AWS account.			
Milestone/deliverable/work package			
WP3: Duplicate checking			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A3.1 Develop an improved and efficient algorithm to identify potential temperature duplicate pairs	Zhetao Tan	-	-
A3.2 Identify the potential reasons for duplication	Zhetao Tan	-	-
A3.3 Flag the duplicate pairs in the IQuOD dataset, and release to users	Zhetao Tan	-	-
A3.4 Compare the accuracy between different duplicate checking systems/algorithms from different organizations/datasets.	Zhetao Tan	-	-
Assumptions and risks			
None			
Milestone/deliverable/work package			
WP4: In person IQuOD workshops			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A4.1: Workshop in 2023 (Berlin).	IQuOD leadership	15000	-
A4.2: Workshop in 2024 (location TBD)	IQuOD leadership	-	15000
Assumptions and risks			
Assumes travel restrictions continue to lift and IQuOD members are able to travel.			
Total budget (requested from IODE)		16000	16000

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Through coordination of resources and expertise into a single best practice international community effort, the IQuOD project aims to produce, freely distribute and curate the highest quality, most complete and consistent global ocean subsurface temperature profile repository for Earth system, climate and ocean studies, with (intelligent) metadata and an uncertainty estimate for every observation.
Major recent activities included:

- Progression of automatic quality control work to a submitted paper..
- Continued implementation of the expert quality control system on AWS infrastructure.
- Spin up of a task team on duplicate detection.

Signed by Project Leader. Simon Good
Date. 24/11/2022

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Date received: 25 November 2022

7. IODE Annual Project Report: OBIS

1. Title of project/activity and acronym

Ocean Biodiversity Information System (OBIS)

2. Project established by (provide reference to IODE Committee session and Decision)

IOC Resolution XXV-4 (June 2009) and IODE-XXI.2 (March 2011)

3. Annual report submitted by [name] on [date]

Ward Appeltans, 30 Nov 2022

4. General overview of the project status/ Executive summary

Since the previous IODE Committee session (April 2021) OBIS published 37.64 million new taxon occurrence records from 16,600 marine species previously not in OBIS integrated from 796 new datasets, and 17 million new measurements or facts. OBIS now has a total of 108 million records of 170,000 marine species, and 185 million measurements or facts, integrated from 4,665 datasets. This is the same amount of records OBIS normally published in a decade. A large part of this (exponential) growth can be assigned to the new capability at OBIS to deal with DNA derived data, which accounts for almost 22 million records. We also saw a duplication of the number of sessions/visitors to our website since Oct/Nov 2021 and 85% more papers citing OBIS are published compared to previous years.

The OBIS secretariat grew from 3 to 5 staff members (albeit 4 of them on a temporary basis), which means we now have more capacity to (i) support the various OBIS task teams, (ii) develop more training resources, (iii) actively support local science capacity building with two eDNA projects (one in Pacific Islands to monitor marine invasive species and a global one in UNESCO's World Heritage marine sites to monitor biodiversity and vulnerability to climate change) and (iv) support the Global Ocean Observing System by providing a portal and helpdesk to monitor the status of the biological ocean observing system. These extrabudgetary projects also provided necessary resources for further technological developments of the global data system, such as a bioinformatics pipeline to manage species occurrences based on DNA sequences. The increase in capacity also attracted new funding and we are therefore pleased to report that OBIS managed to obtain two new grants as part of two new large European Horizon projects:

- **MARine COastal BiOdiversity Long-term Observations (MARCO-BOLO)** which was submitted under call HORIZON-CL6-2022-BIODIV-01-01. The MARCO-BOLO project aims to structure and strengthen European coastal and marine biodiversity observation capabilities, linking them to global efforts (e.g., MBON, GOOS, OBIS and UN Ocean Decade Programmes Marine Life 2030, OBON, ODIS, Ocean Practices for the Decade) to understand and restore ocean health, and ensuring outputs respond to explicit stakeholder needs from policy, planning, and industry. OBIS will lead the task on Essential Ocean Variable (EOV) data delivery and will contribute to other tasks e.g., setting up data flows into long term archives, and the creation of data and metadata specifications. OBIS will summarise and optimise current data resources, including assessing the robustness of genetic reference databases, bioinformatic pipelines and eDNA data integration into databases such as OBIS. OBIS will also coordinate the development of a Community of Practice (CoP) and support the project with co-design/ co-creation and knowledge transfer events. We will organise two major CoP meetings, which are planned in the beginning and end of the project where we will measure the impact of MARCO-BOLO on improving the effectiveness of the current marine biological observing system. The OBIS secretariat will receive 1.5 FTE for 4 years. Also, EurOBIS, MedOBIS and UK-OBIS are partners in this consortium.
- **Marine Protected Areas Europe (MPA Europe)** which was submitted under call HORIZON-CL6-2021-BIODIV-01-12. MPA Europe would map the optimal locations for Marine Protected Areas (MPA) in European seas using measures covering the range of biodiversity from species to ecosystems, including habitats. An atlas will provide transparency, traceability and enable reproducibility of the results. Its synthesis will show stakeholders (MSP, NGO, students, researchers) why areas have been prioritised. The use of decision support software will enable alternative network designs based on stakeholder preferences and could thus support wider MSP beyond the subject and study area. OBIS would be involved in the modelling and data distribution (OBIS will receive 1 FTE for 3 years).

Furthermore, 44 participants from 23 countries representing 26 OBIS nodes participated in the 10th session of the IODE Steering Group for OBIS (SG-OBIS) on 17-20 May 2022. The session was held online. The OBIS steering group adopted the 2022 work plan. Among many other things, OBIS will submit a UN Ocean Decade project proposal for which a writing workshop took place in October 2022 at the new premises in Ostend. OBIS will develop recommendations for historical data and data from archaeological and paleontological sources through a new OBIS Historical Data Project Team (HDPT). GBIF is currently exploring a new data model for a unified common model capable of supporting expanded data-publishing capabilities. Therefore, a new OBIS Grand Unified Data Model Project Team (GUMPT) has been formed to provide direction and guidance into how the model can best represent OBIS community data and an opportunity for OBIS to prepare for this new direction. The OBIS steering group stressed the importance of being recognized as the marine network in GBIF as well as having all marine biodiversity data published in both GBIF and OBIS. It agreed on a single publishing workflow, which should lead to a better synchronization of marine data in both GBIF and OBIS.

The OBIS steering group regretted the severe budget cuts to our parent programme IODE, which also impacts the ability to execute our work and ensure the network stays connected and requested Member States and donors to provide financial support to OBIS including the OBIS nodes. The OBIS secretariat is currently unable to support the network and maintain the system without dedicated staff and we urge Member States to provide the necessary resources for a training officer and a data manager.

5. Assumptions and risks

The lack of funding for OBIS core activities continues to put a lot of pressure on the secretariat, especially on the data manager who needs to combine project work with maintenance of the system and providing help desk support to OBIS nodes. This is not sustainable and has been lingering now for many years. More positive is the fact that OBIS has been successful in attracting extra-budgetary funding through projects that help support the further development of the OBIS infrastructure. However, even after several repeated requests for more support and a regular programme position for the OBIS data manager, there are still no funds to cover daily maintenance and help-desk support to users and OBIS node managers. Finding a solution for this problem has now become critical. In addition, many OBIS nodes have no national funding and as such the network heavily relies on the voluntary commitment of OBIS node managers and experts. Furthermore, the various OBIS task teams are struggling to find chairpersons that have the time to coordinate the activities, and over the years some task teams have made little to no progress. The recent budget cuts at IODE also means OBIS will no longer be able to sponsor the travel and subsistence of OBIS node managers to attend SG-OBIS meetings. About one third of the OBIS nodes indicated they can cover their participation in the next SG meeting, which means that most of the OBIS nodes will only be able to participate remotely. This will likely have an impact in keeping the entire network together and engaged. The budget cut at the IODE project office also means we need to seek financial resources elsewhere to cover basic costs for hardware and cloud services, which previously were paid for by the IODE Project Office.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. To be the most comprehensive gateway to the world's ocean biodiversity and biogeographic data and information required to address pressing coastal and world ocean concerns.	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Number of species occurrence and measurement or fact records in OBIS	108M presence records and 185M MoF records
PI2. Number of datasets	4,665 datasets
PI3. Number of active OBIS nodes	33/34
PI4. Number of papers citing OBIS	1,907 papers
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Annual session of the IODE Steering Group for OBIS and OBIS Executive Committee	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: SG-OBIS session organized, report including workplan agreed and published	**completed**
A1.2: OBIS Executive Committee meeting	**completed**
Report on status of activities. Problems experienced and measures taken:	
Due to COVID-19, the 10th session of the SG-OBIS had been postponed to 17-20 May 2022 and was organized as an online meeting, the report is available at https://www.oceanexpert.org/document/30481. The 4th OBIS-EC meeting was held on 26-27 May 2021 also as an online meeting, the report is available at https://oceanexpert.org/document/28655.	
Milestone/deliverable/work package	
M2: OBIS Decade Project Proposal	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1: OBIS Decade project writing workshop, 6-7 Oct 2022	**completed**
A2.2: Final OBIS Decade project proposal submitted	**In progress**
Report on status of activities. Problems experienced and measures taken	
18 members of the SG-OBIS participated in the OBIS Decade proposal writing workshop, which was held on 6-7 Oct 2022 in Oostende. We used the template that was provided to us by the DCU, but this appeared to be a guiding document for the new data call, not the final template for new proposals. We are now moving the content into the right template and once ready will submit our proposal.	
Milestone/deliverable/work package	
M3: New OBIS training course material (OBIS Capacity Development Task Team)	
Activities	**Status (completed, in progress, postponed, cancelled)**
A3.1: Development of at least 50 OBIS online tutorials	**In progress**
A3.2: Development of a step-by-step guide to OBIS life cycle	**In progress**
A3.3: Update of the OBIS manual	**In progress**
Report on status of activities. Problems experienced and measures taken	

With financial support from NORAD, we have been able to recruit a training officer, Dr Elizabeth Lawrence, for one year (until March 2023) to improve the OBIS training material. Based on two online surveys (training alumni and user survey) and input from the OBIS network, she has compiled a list of 64 topics that needed training efforts. Dr Lawrence is now developing the content of these training topics and will convert them into online video tutorials or notebook scripts and will publish these as part of a step-by-step guide in OceanTeacher. She is also consistently updating the OBIS manual were needed. This is a work in progress with a deadline of 14 March 2023, when her contract ends.

Milestone/deliverable/work package

M4: OBIS infrastructure and technology stack

Activities	**Status (completed, in progress, postponed, cancelled)**
A4.1: Development and maintenance of the OBIS system	**In progress**

Report on status of activities. Problems experienced and measures taken

Several new versions of the robis R package have been published, with improvements in error handling and performance, and new features such as filtering by Darwin Core (DwC) extension type. The ability to export DwC extension records was also added to the mapper (previously only occurrence downloads were available). Several reports were added to https://reports.obis.org/, including reports on data duplication, datasets added to the OBIS network in the GBIF registry, and the list of names without a WoRMS match. Work was started on a Python package for exporting Darwin Core datasets with DNADerivedData from EBI's MGnify microbiome metagenomics platform. The OBIS manual is now hosted on GitHub at https://manual.obis.org/.

Milestone/deliverable/work package

M5: OBIS node network and health status report

Activities	**Status (completed, in progress, postponed, cancelled)**
A5.1: Establishment of new OBIS nodes	**In progress**
A5.2: Review of OBIS node health status	**Completed**

Report on status of activities. Problems experienced and measures taken

During the previous intersessional period, one new OBIS node was added to the network. The International Seabed Authority became an OBIS node on 10 June 2021 (news item: https://obis.org/2021/06/10/isa/).

Based on the 6 criteria agreed during SG-OBIS-7, the SG-OBIS-10 listed four OBIS nodes as inactive: AfrOBIS, Arctic OBIS, OBIS Kenya and OBIS Senegal. Of those AfrOBIS, OBIS Kenya and OBIS Senegal were already listed as inactive at SG-OBIS-9 in November 2020. The SG-OBIS requested the Arctic OBIS node to submit a plan with actions, deliverables, and timelines to improve their performance within 3 months to the OBIS secretariat. Because AfrOBIS, OBIS Kenya and OBIS Senegal were already listed as inactive at the previous session, the SG-OBIS requested the secretariat to submit a recommendation to IODE-27 to remove those nodes from the OBIS network unless they publish new datasets before the end of November 2022.

The Arctic Node did not submit an action plan but meanwhile published one new dataset. AfrOBIS followed the new data flow agreement and published new datasets to OBIS by selecting marine African datasets from GBIF IPTs. OBIS Kenya at KMFRI one new dataset and updated an older dataset. OBIS Senegal at CRODT did not publish new data.

OBIS is glad that AfrOBIS an OBIS Kenya reactivated but also regrets that this was not the case for Senegal. We are now asking the IODE Committee to agree with the removal of OBIS Senegal from the current list of OBIS nodes and suggest that if they have the capacity to run an OBIS node in the future, they are welcome to re-join the network.

Milestone/deliverable/work package

M6: Ensure maximum taxonomic quality of OBIS data through matching taxonomic names with the World Register of Marine Species (OBIS Taxonomic Task Team)

Activities	**Status (completed, in progress, postponed, cancelled)**
A6.1: Development of a tool to list unmatched taxonomic names and keep a track of annotated (bad) names.	**Completed**
A6.2: Reviewing unmatched names by the WoRMS data management team and its editorial board.	**In progress**

Report on status of activities. Problems experienced and measures taken

In 2021, with funds from the IODE PO, a summer job student reviewed 6,402 names. Of those, 3,489 names matched with the World Register of Marine Species (WoRMS); 2,034 names could not be matched with WoRMS, for a variety of reasons (ambiguous, fossil, terrestrial, no scientific name, ...) and 879 names should be further looked at by the WoRMS team (=missing from WoRMS, probably valid name, to verify with editors).

In 2022, VLIZ/WoRMS developed an online name annotation tool which was used by 2 summer job students in 2022 and many more unmatched names from OBIS were reviewed and annotated.

There is now an automated workflow that builds the OBIS list of non-matching names on a weekly schedule, see GitHub. It generates two files: (i) one list of names that have a matching annotation in WoRMS which currently has 11,705 names and (ii) one list of names that do not have a matching annotation with currently 31,326 names.

In conclusion, a lot of work has already gone into reviewing and annotating taxonomic names from OBIS which could not be mapped with WoRMS, and there are still over 31,000 names left which still needs to be reviewed. The support we receive from VLIZ/WORMS through LifeWatch Belgium, and the WoRMS taxonomic editors is extremely valuable and important for OBIS.

Milestone/deliverable/work package

M7: Increased public visibility of OBIS (OBIS Communication and Outreach Task Team)

Activities	**Status (completed, in progress, postponed, cancelled)**
A7.1: Maintenance of OBIS website and social media.	**In progress**
A7.2: OBIS e-newsletter.	**In progress**
A7.3: Participation in events.	**In progress**

Report on status of activities. Problems experienced and measures taken

Last year we had 250,000 sessions on our website which is twice as much compared to previous years. The increase started after UNESCO systematically began to promote OBIS as part of the UNESCO eDNA expeditions project, which might explain this substantial increase. OBIS now has 3,600 followers on FaceBook; 2,300 on Twitter and 173 followers on LinkedIn.

Since April 2021 we have issued 12 e-newsletters sent to 1,437 subscribers.

The OBIS secretariat participated in about 30 meetings including recurrent meetings of the MBON SC, the GOOS BioEco panel and the MarineLife2030 coordination team, the PacMAN and eDNA expedition project team meetings. The list of meetings as well as those in which the OBIS nodes participated is too long to include here but is available in the SG-OBIS-10 meeting report: https://www.oceanexpert.org/document/30481.

Milestone/deliverable/work package

M8: Increased OBIS data quality (OBIS Data Quality Assessment and Enhancement Project Team)

Activities	**Status (completed, in progress, postponed, cancelled)**
A8.1: Document the QC checks in OBIS and report on the quality of data in OBIS.	**Completed**
A8.2: Regular OBIS QC team meetings to discuss and exchange experiences dealing with quality issues.	**In progress**

Report on status of activities. Problems experienced and measures taken

The quality checks/flags are now documented and explained in the OBIS manual: https://manual.obis.org/dataquality.html, and a data quality report per dataset is available from https://r.obis.org/quality/. Each dataset page also has a link to all the quality issues.

The OBIS QC team organizes monthly online meetings to discuss any QC issues, to improve the data quality process and exchange best practices. In addition, two online data laundry events were organized by the task team with support from the OBIS secretariat: 8-12 November 2021 and 20-22 April 2022. The goal of the data laundry events is for OBIS nodes to resolve the quality issues of datasets in OBIS. Nine OBIS nodes investigated datasets from their nodes in each of these events. Four sessions of data laundry meetings were organized in each event where node managers discussed data quality issues with the task team. In 2021, actions were taken on more than 20 datasets while 34 datasets were being investigated in 2022. Discussions of all the issues and solutions provided were recorded in the data laundry report. The report is then shared with all the OBIS nodes. During these events, the task team has identified several needs from OBIS nodes: (i) more guidance is needed for data which has limited information on required fields for OBIS and (ii) better documentation of OBIS QC pipelines. The discussions are shared with other task teams to improve training materials that will be developed as well as for new content in the OBIS manual.

Yi-Ming Gan (AntOBIS) chairs this task team and from 2023 will be supported by Ruben Perez (EurOBIS).	
M9: Increased data interoperability by mapping Measurement terms of sampling facts with the BODC NERC vocabulary (OBIS Vocabulary Infrastructure Project Team)	
Activities	**Status (completed, in progress, postponed, cancelled)**
Develop guidelines for mapping most used MoF terms with preferred BODC vocab.	**In progress**
Report on status of activities. Problems experienced and measures taken	
The OBIS Vocabulary Infrastructure Project Team met monthly but did not finish the guidelines (decision tree) to assist data providers in mapping the most used MoF terms with the preferred BODC vocab. Upon request from the vocab team, the OBIS data manager developed a new Datasets report, derived from the MoF filtering tool (https://mof.obis.org), which details the currently used measurementType and associated measurementTypeIDs for a given dataset, if measurementType was used. Guidelines on how to use the report filtering tool were outlined in the OBIS manual https://manual.obis.org/mofreports. The team also worked on identifying datasets containing measurementOrFacts related to biomass/abundance or length terminology to identify ambiguous terminology and common terms missing measurementTypeIDs. This will aid in the potential creation of new BODC vocabulary. New terms or issues can be requested and discussed on the BODC GitHub repository for OBIS: https://github.com/nvs-vocabs/OBISVocabs/issues. The OBIS Vocabulary Infrastructure Project Team no longer has as chair, and our training officer Dr Elizabeth Lawrence assumed the coordination of the team a.i..	
Milestone/deliverable/work package	
M10: Develop capacity to deal with Genetic Data	
Activities	**Status (completed, in progress, postponed, cancelled)**
A10.1: Develop and document data standards for Genetic Data.	**Completed**
A10.2: Develop technical capability at the OBIS central infrastructure to deal with genetic data.	**Completed**
Report on status of activities. Problems experienced and measures taken	
A DNA derived data extension for Darwin Core, which incorporates MIxS terms into the Darwin Core standard has been created and documented in a guide entitled Publishing DNA-derived data through biodiversity data platforms which has been published by GBIF with input from OBIS. OBIS has fully incorporated this new extension and two example datasets have been documented in the OBIS manual: https://manual.obis.org/examples.html#edna-dna-derived-data. We organized a webinar on 28 October 2021 (https://obis.org/2021/10/13/gendatawebinar) introducing the DNA derived data extension, its use and access to the genetic data via OBIS, and was attended by >100 participants. The OBIS system is now able to harvest, index and provide access to the DNA derived data via the mapper, R package and API. The dataset pages display the number of DNADerivedData records by marker gene. A notebook explaining how to access and explore data published to OBIS using the new DNADerivedData extension is available from the OBIS manual: https://iobis.github.io/notebook-dnaderiveddata/.	

7. ***Annex II Part B****. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes
O1. To be the most comprehensive gateway to the world's ocean biodiversity and biogeographic data and information required to address pressing coastal and world ocean concerns.
Performance Indicators (2-5 maximum)
PI1. Number of species occurrence and measurement or fact records in OBIS
PI2. Number of datasets
PI3. Number of active OBIS nodes
PI4. Number of papers citing OBIS
Workplan & Budget

Milestone/deliverable/work package			
M1 Annual session of the IODE Steering Group for OBIS and OBIS Executive Committee			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: Two annual SG-OBIS sessions organized, report including workplan agreed and published (May 2023 and 2024)	OBIS Sec + Co-Chairs	25,000	25,000
A1.2: OBIS Executive Committee meetings, every 3 months	OBIS Sec + Co-Chairs	0	0
Assumptions and risks			
The SG-OBIS sessions will be organized as hybrid meetings. Only 10 (out of 34) OBIS nodes indicated they can self-fund their travel, which means that although remote participation will be made possible, most of the OBIS nodes including from developing countries and those in remote time zones will not be able to fully participate in the discussions. We request financial support of 20,000 USD to cover travel of at least 10 OBIS nodes and 5,000 USD to cover catering (lunch). The SG-OBIS decided that the OBIS executive committee meets online on a more regular basis (every 3 months) using the IODE zoom account, which could be replaced by free alternatives is necessary.			
Milestone/deliverable/work package			
M2: Development of OBIS training course material (OBIS Capacity Development Task Team)			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: OBIS training material and OBIS manual maintenance and organize regular webinars or online workshops.	OBIS Sec	60,000	60,000
Assumptions and risks			
The OBIS training activities are currently supported by both the OBIS training officer and GOOS BioEco data manager. Funding for both positions end in March 2023 and June 2023 respectively. If no new funding becomes available, it means that we will not be able to further develop and keep updating the OBIS manual and training material. Also providing helpdesk support to OBIS nodes is a continuous activity of the secretariat. In addition, the SG-OBIS requested the secretariat to organize regular webinars or short online workshops to train the OBIS nodes and/or OBIS data providers in the data processing and management. OBIS is also often asked to teach at OBIS related training courses. The OBIS network absolutely needs a training/capacity development officer as part of the secretariat. The annual cost of a consultant is approx. 60,000 USD. A more permanent or project appointment would be better, but also more expensive.			
Milestone/deliverable/work package			
M3: Increased public visibility of OBIS (OBIS Communication and Outreach Task Team)			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A3.1 Maintenance of OBIS website content and social media	OBIS Sec + COTT	0	0
A3.2: OBIS e-newsletter	OBIS Sec + COTT	0	0
A3.3: Participation in events	OBIS Sec + COTT	0	0
Assumptions and risks			
Maintenance of the OBIS website content and participation in events is now done by the project manager (covered by RP) with support from the GOOS BioEco officer. Within the current budget constraints, participation in events will be reduced and likely limited to those events covered by projects or when remote participation is possible. The OBIS Communications and Outreach Task Team is actively encouraging the network to participate in these activities and increase the visibility of OBIS and its network activities especially at local/regional events.			

Milestone/deliverable/work package			
M4: Increased OBIS data quality (OBIS Data Quality Assessment and Enhancement Project Team)			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A4.1 Monthly OBIS QC meetings	OBIS Sec + QC project team	11,000	11,000
A4.2 Report on OBIS survey results, early May 2023	OBIS Sec + QC project team	0	0
Assumptions and risks			
The SG-OBIS-10 developed a list of questions to collect feedback on what would help improve the quality control currently implemented for datasets in OBIS and to guide the development of quality control measures and protocols including the fitness for use profiles. The OBIS user survey has been online since July 2022. A results report is expected before the SG-OBIS-11 meeting. Through monthly meetings and data laundry events, the OBIS QC team aims to provide recommendations and respond to GitHub tickets related to QC issues and will review tests and assertions from TDWG and OBIS QC pipelines with the aim to improve the overall quality of the data in OBIS. The status of data quality can be accessed via the automated reports at https://r.obis.org. This activity depends on the active participation of the OBIS nodes, the members and chairs of the OBIS QC project team as well as secretariat support from the OBIS project manager (covered by RP) and OBIS data manager (1 month/year or 11K USD currently not covered by XB projects). The OBIS QC team is currently chaired by Yming Gan (AntOBIS) and from 2023 will be co-chaired by Ruben Perez (EurOBIS).			
Milestone/deliverable/work package			
M5: Increased data interoperability by mapping Measurement terms of sampling facts with the BODC NERC vocabulary (OBIS Vocabulary Infrastructure Project Team)			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A5.1 Develop guidelines for mapping most used MoF terms with preferred BODC vocab.	OBIS Sec + OBIS VIP team	0	0
Assumptions and risks			
The OBIS Vocabulary Infrastructure Project Team needs a chair to coordinate the activities. If new funding becomes available, the OBIS training officer (Dr Elizabeth Lawrence) could continue as acting chair a.i. (current contract ends 14 March 2023).			
Milestone/deliverable/work package			
M6: Increased capability to incorporate historical and paleontological data in OBIS (OBIS Historical Data Project Team)			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A6.1 Implement chronometric data into the OBIS platform (due May 2023).	OBIS Sec + HDPT	11,000	0
Assumptions and risks			
An OBIS Historical Data Project Team (HDPT) has been established to develop guidelines towards incorporating Chronometric data into the OBIS platform so that early historical data (i.e., BCE period) and data from Archaeological and Paleontological sources can be published to OBIS. The new project team will meet regularly online (bi-monthly) with the aim to conclude at the SG-OBIS-11 (May 2023). The implementation of this will require technical resources (1 month or 11K USD of the OBIS Data manager, currently not covered by XB funds).			
Milestone/deliverable/work package			
M7: Explore a new data model to support expanded data publishing capability			

Activities (include start-end date if applicable)	Responsible	Budget (requested from IODE), USD	
		2023	2024
A7.1 Explore early adoption and testing of the new data model	OBIS Sec + GUMPT	0	0

Assumptions and risks

GBIF is currently exploring a new data model for a unified common model capable of supporting expanded data-publishing capabilities. OBIS has provided textual content to the use cases such as the environmental and community measurements. This model represents an opportunity for OBIS to provide direction and guidance into how the model can best represent OBIS community data and an opportunity for OBIS to prepare for this new direction.
As such, an OBIS Grand Unified Data Model Project Team (GUMPT) has been established to explore early adoption and testing of the new data model to assess how well it works for OBIS community data, noting and sharing back to the GBIF data model team any problems encountered, suggestions for improvements, and feasibility of uptake. The GUMPT will meet online bi-monthly and is supported by the OBIS secretariat (project manager and data manager).

If recommended, implementing the new data model will require adapting the OBIS infrastructure. A budget to cover this is not defined yet and will depend on the outcomes of this exploratory work.

Milestone/deliverable/work package

M8: OBIS infrastructure and technology stack

Activities (include start-end date if applicable)	Responsible	Budget (requested from IODE), USD	
		2023	2024
A8.1 Development and maintenance of the OBIS system	OBIS Sec	60,000	60,000

Assumptions and risks

Keeping the OBIS infrastructure and technology stack running and healthy (i.e. up-to-date, secure, performant) requires continuous attention from the data manager. In addition, evolving requirements from the OBIS network as well as the OBIS data users (e.g. new data types, increasing data volumes, better quality control, better data access through web services and software libraries) require frequent updates to the software stack.
In terms of infrastructure, OBIS currently runs mainly on public cloud infrastructure which entails costs for virtual machines, block storage, object storage, and continuous backups. For some of these services we expect to reach the currently allocated capacity (this goes for storage as well as compute) during the next period, so expansion will be necessary. The current cloud service costs is approximately 5,000 USD, but will likely increase to 7,000 USD/year. To keep the system running 0.4 FTE OBIS data manager is indispensable (53,000 USD/year currently not covered by XB funding).

Milestone/deliverable/work package

M9: OBIS node network and health status report

Activities (include start-end date if applicable)	Responsible	Budget (requested from IODE), USD	
		2023	2024
A9.1 Establishment of new OBIS nodes	OBIS Sec	11,000	11,000
A9.2 Review of OBIS node health status	SG-OBIS	0	0
A9.3 Helpdesk support to existing OBIS nodes and users	OBIS Sec	53,000	53,000

Assumptions and risks

The establishment of new OBIS nodes and the review of the status of OBIS nodes is a supported by the OBIS secretariat. New OBIS nodes will need training for which resources are required (staff time). It is difficult to estimate the budget required as it depends on the number of new OBIS nodes but is approximately one month of our data manager per node. Assuming that we will add one new node per year, then this is 11,000 USD/year (currently not covered by XB funding).

Providing helpdesk support to existing OBIS nodes and OBIS users is a continuous task of the OBIS data manager. In order to provide this support a 0.4 FTE OBIS data manager is needed (53,000 USD/year currently not covered by XB funding).

Total budget (requested from IODE)	2023	2024

	231,000	220,000

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Since the previous IODE Committee session (April 2021) OBIS published 37.64 million new taxon occurrence records from 16,600 marine species previously not in OBIS integrated from 796 new datasets, and 17 million new measurements or facts. OBIS now has a total of 108 million records of 170,000 marine species, and 185 million measurements or facts, integrated from 4,665 datasets. This is the same amount of records OBIS normally published in a decade. A large part of this (exponential) growth can be assigned to the new capability at OBIS to deal with DNA derived data, which accounts for almost 22 million records. We also saw a duplication of the number of sessions/visitors to our website since Oct/Nov 2021 and 85% more papers citing OBIS are published compared to previous years.
The OBIS secretariat grew from 3 to 5 staff members (albeit 4 of them on a temporary basis), which means we now have more capacity to (i) support the various OBIS task teams, (ii) develop more training resources, (iii) actively support local science capacity building with two eDNA projects (one in Pacific Islands to monitor marine invasive species and a global one in UNESCO's World Heritage marine sites to monitor biodiversity and vulnerability to climate change) and (iv) support the Global Ocean Observing System by providing a portal and helpdesk to monitor the status of the biological ocean observing system. These extrabudgetary projects also provided necessary resources for further technological developments of the global data system, such as a bioinformatics pipeline to manage species occurrences based on DNA sequences. The increase in capacity also attracted new funding and we are therefore pleased to report that OBIS managed to obtain two new grants as part of two new large European Horizon projects: MARine COastal BiOdiversity Long-term Observations (MARCO-BOLO) and Marine Protected Areas Europe (MPA Europe).

One new OBIS node was added to the network, the International Seabed Authority joined OBIS in June 2021. Unfortunately, CRODT/OBIS Senegal has not been able to reactivate its activities (see project report) and the OBIS steering group requests the IODE Committee to remove OBIS Senegal from the list of OBIS nodes. If OBIS Senegal has the capacity to become active again, they are welcome to re-join.

On 17-20 May 2022, 44 participants from 23 countries representing 26 OBIS nodes participated in the 10th session of the IODE Steering Group for OBIS (SG-OBIS). The session was held online. The OBIS steering group adopted the 2022 work plan. Among many other things, OBIS will submit a UN Ocean Decade project proposal for which a writing workshop took place in October 2022 at the new premises in Ostend. OBIS will develop recommendations for historical data and data from archaeological and paleontological sources through a new OBIS Historical Data Project Team (HDPT). GBIF is currently exploring a new data model for a unified common model capable of supporting expanded data-publishing capabilities. Therefore, a new OBIS Grand Unified Data Model Project Team (GUMPT) has been formed to provide direction and guidance into how the model can best represent OBIS community data and an opportunity for OBIS to prepare for this new direction. The OBIS steering group stressed the importance of being recognized as the marine network in GBIF as well as having all marine biodiversity data published in both GBIF and OBIS. It agreed on a single publishing workflow, which should lead to a better synchronization of marine data in both GBIF and OBIS. The OBIS steering group regretted the severe budget cuts to our parent programme IODE, which also impacts the ability to execute our work and ensure the network stays connected. OBIS therefore urged Member States and donors to provide financial support to OBIS including the OBIS nodes. Without a dedicated training officer and a data manager, the OBIS secretariat is currently unable to support the network and maintain the system.

Signed by Project Leader. W.A.
Date. 30 Nov 2022

For IODE use only.
Date received: 01 December 2022

8. IODE Annual Project Report: OBPS

1. Title of project/activity and acronym

IOC Ocean Best Practices System (OBPS)

2. Project established by (provide reference to IODE Committee session and Decision)

IODE-XXV item 7.1.1 - Decision of the 30th Session of the IOC Assembly; (Decision IOC-XXX/7.2.1)

3. Annual report submitted by [name] on [date]

Pauline Simpson on 08 December2022

4. General overview of the project status/ Executive summary

'Best Practices' (and standards) are now a necessary discussion in any research proposal or ocean science meeting, in part due to the effort the Steering Group of the Ocean Best Practices System has invested in increased engagement with diverse marine observation, data management and application communities.
Ocean Practices for the Decade, the OBPS Ocean Decade Programme, has been recognized as important across all programmes which has resulted in discussion on cross linking and collaboration of some initiatives; Decade OBPS Ambassadors - ECOP and a Community of Practice are in place using the Ocean Decade platform as a global forum; however, as with other Programmes, additional resources and personnel are needed to take the expanding programme to its full potential. Communication and outreach is essential to share the OBPS message, in 2022 via conference presentations (14) and journal publications (11) and supported by a bi-monthly NewsFlash as well as a new redesigned website in planning . The newly produced suite of training courses on OBPS itself has been completed this year complementing the capacity development and training work in conjunction with OTGA and other training providers. The Annual community OBPS workshop VI was held online in Oct 2022, with over 500 active participants and 19 Theme Sessions that gratifyingly continue after the workshop ends.

OBPS task teams are addressing key areas of engagement and use of best practices including metrics, adapting best practices to regions of limited infrastructure, decision making in the use of best practices ("decision trees") and biological eDNA. These task teams are led predominantly by non SG-OBPS ocean scientists and engineers. These leaders are motivated by the successful impacts of our OBPS such as a newly published USACE Coastal and Hydraulics Laboratory Quality Controlled, Consistent Measurement Archive journal paper that was republished within the Ocean Best Practices Repository received 2533 page visits and 874 pdf views/downloads in just three weeks!

The repository, an important component of OBPS, continued to expand with some 1742 methodologies and is attracting new communities to deposit eg. NASA PACE, EAF-Nansen Project, EU PolarNet and Pacific Community (SPC). Additional support comes from such organizations as IMOS (Australia) who now make it mandatory that best practices produced under contracts funded by them must be deposited into OBPS. Expanded repository content includes more training courses and acceptance of multi-lingual methods including practices from indigenous communities. With the acceptance of multi-language methodologies OBPS is investigating how it can offer some level of translation at least for endorsed practices. The alternative is machine translation but that will always require validation by a researcher. The repository was also due to submit an application for certification but changing requirements not yet published by the certification authority has delayed that process until 2023.

One of the main questions to OBPS is how can users know which is the 'best' practice. OBPS introduced an endorsement procedure which matured in 2022, and so far 6 practices have been endorsed by GOOS Expert Panels. Recruitment of other recognized agencies to offer endorsement panels is ongoing. Demands of users for ever more sophisticated search parameters have progressed through technology contracts. Discussions on the OBPS strategy to build a federated network of methodology management systems, has commenced in collaboration with OIH/ODIS.

OPBS contributes to international projects, EuroSea, JERICO S3, CAPARDUS, the OceanObs RCN and ILIAD, and soon to come Blue Cloud.

The Steering Group meets monthly online and held its annual meeting (hybrid) in Paris, 30 Nov-02 Dec. The most significant change factor for OBPS in 2022 is the succession of co-chairs with Johannes Karstensen and Jay Pearlman turning over the leadership to George Petihakis and Rene Garello, and the introduction of co-chair-elects positions. Diverse new SG members added in 2022, will support the globalization of OBPS even further.

5. Assumptions and risks

Assumptions:
Continued foundational funding;
Additional resource mobilization, OceanPractices Decade Programme funding;
Community adoption and expert endorsement;
An engaged, energetic and renewed Steering Group,

Risks: Cessation of funding; non-success in grant bids and Decade Programme funding; decrease of community engagement

6. ***Annex II Part A***. *Report on the status of the implementation of the workplan*

Project Outcomes	
Strategic Objective 01: To secure the OBPS as a trusted system through which the ocean community persistently archives and converges their methods, standards, guides, and other methodological content into context-sensitive best practices	
Strategic Objective 02: To accelerate the interoperability of observations, convergence of methodologies, and conventions across ocean communities into trusted, transparently-developed, context-sensitive and interoperable best practices and standards	
Strategic Objective 03: To foster community-led and equitable capacity development in ocean best practice	
Strategic Objective 04: To facilitate the creation of a federated network of interoperating ocean practices systems across all rights-holders and stakeholders	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Number of records in the repository	1742
PI1.1. Number of Endorsed Practices in repository	6 (doubled since 2021)
PI2. OBPS Training Courses on best practices	4
PI3. Number of Community workshop participants 2022	1167 registered (over 500 active)

Status of Workplan Implementation	
Milestone/deliverable/work package and strategic objective (SO)	
PROJECT MANAGEMENT	
Activities	**Status (completed, in progress, postponed, cancelled)**
Steering Group Annual Meeting and report (2022)	**completed** - SG-OBPS-IV (hybrid), Paris, 30 Nov-02 Dec 2022
Steering Group MonthlyMeetings and reports (2022)	**completed -** and monthly reports issued to Nov 2022)
Resource Mobilization	**New project funding - ILIAD**
Contribution to External Projects (EU funding: EuroSea, JERICOS3, CAPARDUS)	**in progress**
Report on status of activities. Problems experienced and measures taken:	
Because of Covid-19 , meetings were totally online until the SG-OBPS-IV (30 Nov-02 Dec 2022)	
OPERATIONS	
Activities	**Status (completed, in progress, postponed, cancelled)**
S0-01.A1:. Secure a CORE Trust Seal (CTS) Repository Certification	**in progress -** delayed because CTS is not publishing new requirements until Jan 2023
S0-01.A1: Secure an ISO Repository Certification	**postponed -** need will be reviewed after CTS certification
S0-01.A2: Continue efficient fit-for-purpose operations of the OBPS repository including user-required technology enhancements	**in progress** -Operational online repository of ocean best practices available 24/7; technology enhancements, new

	metadata collection, endorsement process, export of search results, new vocabularies to be uploaded ongoing;
Report on status of activities. Problems experienced and measures taken	
See Status Column User requirements continue to grow, but OBPS does not have sufficient funding to address many of them	
Milestone/deliverable/work package and strategic objective (SO)	
ADVANCED TECHNOLOGIES AND INTEROPERABILITY	
Activities	**Status (completed, in progress, postponed, cancelled)**
S0-01.A3: Create improved content browsing and discovery functions through decision tree methods. (helping a user decide which options are available for selection of a best practice). (and implementing mobile app)	**in progress** - Task Team on Decision Trees proposal approved at SG-OBPS-IV **postponed** - Mobile app - likely to be cancelled or repackaged as an 'OBPS mobile resource'
S0-02.A3: Expand enhanced search including semantic capabilities to accommodate broader range of disciplines, languages and cultures	**completed /in progress**- search functionality to enable easy discovery of endorsed practices. Non-English methods accepted including indigenous practices.
SO-03A4.1. Design a federation approach, to a global collection of independent methodology management systems	**in progress -** despite being a deliverable for 2025, concepts already being discussed with OIH/ODIS
A4.2. Develop a pilot demonstration of a federated system so that queries across partner systems enable access to best-practices methodology content hosted elsewhere	as A4.1
Milestone/deliverable/work package and strategic objective (SO)	
PUBLICATIONS, REVIEW AND ENDORSEMENT PROCESSES	
Activities	**Status (completed, in progress, postponed, cancelled)**
SO-02.A1: Provide guidance to communities on process for endorsing BP / develop rigorous OBPS criteria for endorsement acceptance	**in progress -** recruitment of other recognized endorsing entities eg. IMOS, GOOS GRAs, etc
SO-02.A6: Increase contributions to the Frontiers in Marine Science: Research Topic Best Practices in Ocean Observation	**in progress** - 57 manuscripts have been submitted, 48 accepted (12 in 2022), 6 rejected, and 3 are currently in different stages of review. There were about 150,000 site visits in 2022.
Report on status of activities. Problems experienced and measures taken	
see status column no problems	
Milestone/deliverable/work package and strategic objective (SO)	
COMMUNICATION, OUTREACH AND COMMUNITY LIAISON	
Activities	**Status (completed, in progress, postponed, cancelled)**
SO-02.A4: Expanded communication plans to broaden engagement of ocean communities in creation and use of BP	**in progress** - 15 new engagement opportunities arranged, joint aquaculture workshop in 2022 a tangible result
SO-02.5: Host annual workshops	**completed** October 2022. Virtual with over 500 active

	participants
Report on status of activities. Problems experienced and measures taken	
see status column no problems	
Milestone/deliverable/work package and strategic objective (SO)	
TRAINING AND CAPACITY DEVELOPMENT	
Activities	**Status (completed, in progress, postponed, cancelled)**
SO-03.A1: Expand the OBPS portfolio of courses available from the Repository on best practice development and submission	**completed** - 4 Training Modules in 2022
SO-03.A2: Support external training and capacity development activities	**in progress -** project proposal to NORAD for *Capacity Development in Ocean Best Practices Pilot in the Caribbean*
SO-03.A3: Engage formal and informal education institutions and sponsors to advance incorporation of best practices for ocean observing into education curricula	**in progress** -contacts required in the academic community are being initiated - There are other discussions about getting ocean data management included in university curricula and OBPS should join with that initiative
Report on status of activities. Problems experienced and measures taken	
see status column More staff to address SO-03.A3	
Milestone/deliverable/work package and strategic objective (SO)	
OCEAN PRACTICES FOR THE DECADE PROGRAMME	
Activities	**Status (completed, in progress, postponed, cancelled)**
SO-02: Identification of WP8 (co-)lead/s and OceanPractices Programme Coordinator	**completed** - additional SG members and co-chair-elect structure is expected to kick start this Decade Programme. Ocean Practices Community of Practice has been implemented. SG Members are members of other Decade programmes, so cross linking and merging of some initiatives being developed
SO-02: Survey of OceanPractices Partners on continued commitment and contribution	**completed** - 70% response with all responding affirming continuing interest - now developing a plan
SO-02: Identification of OceanPractices pilot projects through coordination with other programmes, projects and activities	**in progress -** OceanPractices now included as a hosting programme
Report on status of activities. Problems experienced and measures taken	
See status column More staff to address Decade programme and funding	

7. ***Annex II Part B***. *Submission of new workplan and budget for the next intersessional period.*

Project Outcomes
O1 Increase efficiency, reproducibility and interoperability across the ocean value chain by providing the community with a unified, sustained and readily accessible knowledge base of interdisciplinary best practices; O2 Provide coordinated and sustained global access to best practices across the ocean value chain to foster innovation and excellence by developing a system and engaging communities across the ocean value chain in a joint and coordinated effort in producing, reviewing and sustaining best practice documents including multimedia.

Performance Indicators (2-5 maximum)
PI1.Increase the creation of best practices
PI2 Increase number of submissions to the OBPS Repository
PI3 Increase the number of Endorsing Agencies
PI4 Convergence process in place
PI5 Increase the number of endorsed practices

Workplan & Budget				
Milestone/deliverable/work package and strategic objective (SO)				
WP1: PROJECT MANAGEMENT			**Budget (requested from IODE) USD**	
Activities	**Work Plan 2023**	**Responsible**	**2023**	**2024**
Steering Group Annual Meeting and report (2023)	Annual Meeting and report- Complete by Dec 2023	WP1	0	0
Steering Group MonthlyMeetings and reports (2023)	Steering Group MonthlyMeetings and reports- completed by Dec 2023	WP1	0	0
Resource Mobilization	Blue Cloud commences next year and activity seek to add new project funding; investigating AISBL option	WP1	0	0
Contribution to External Projects (EU funding: EuroSea, JERICOS3, CAPARDUS)	Completion of EuroSea, (Oct 2023) JERICO S3 (Feb 2024) and CAPARDUS (May 2023)	WP1	0	0
Project Manager	Topup	SECRETARIAT	5,500	13,750
Travel (Co-Chair and PM)	2023 IODC-II/IODEXXVII (Co-Chair) 2024 Workshop/conference (PM)	WP1	1,500	1,000
WP 2: OPERATIONS (Repository)				
S0-01.A1:. Secure a CORE Trust Seal Repository Certification	CTS application for certification by 2024	WP2 & 3	0	1,000
S0-01.A2: Continue efficient fit-for-purpose operations of the OBPS repository including user-required technology enhancements	AWS subscription/use Development: Dspace metadata work (2023)	WP2 & 3	8,000	3,000
WP3: ADVANCED TECHNOLOGIES AND INTEROPERABILITY				
S0-01.A3: Create improved content browsing and discovery functions through decision tree methods. (helping a user decide which options are available for selection of a best practice).	• Develop method for decision tree • Assess the value of the Decision Tree to community • Implementation of decision tree after assessment	WP3	0	0
SO-01.4.1. Implement a user-tested automated metadata submission system	autoingest contract by 01 Aug 2023	WP3	5,000	0
SO-01.5.1a. Update existing BP document templates and generate	Create a Template Collection and populate with OBPS and external template examples. 01.03.2023	WP2	0	0

new topics with community advice				
SO-01.5.1b. Design and implement machine readability of templates	Progress with machine readable templates or machine readable metadata sheet (with SOCIB). 01.12.2023	WP2 & 3	0	5,000
S0-02.A3: Semantic capabilities to accommodate broader range of disciplines including contractor changes and additional vocabularies	Search logic upgrade; maintenance Upload AGROVOC and WoRMS	WP2 & 3	10,000	12,500
SO-03,A4.1. Design a federation approach, to a global collection of independent methodology management systems	Define the Network Federation and then include it in the Ocean Practices Programme webpage. Work being carried out under OIH contractors by 01.12.2024	WP3	0	0
SO-03.A4.2. Develop a pilot demonstration of a federated system so that queries across partner systems enable access to best-practices methodology content hosted elsewhere	Pilot demonstration of Federated Network by 01.1.2.2025	WP3	0	2,500
WP4: PUBLICATIONS, REVIEW AND ENDORSEMENT PROCESSES				
SO-02.A1: Provide guidance to communities on process for endorsing BP / develop rigorous OBPS criteria for endorsement acceptance	Document the OBPS Repository endorsement process followed once an endorsement certificate is issued Translation Trial of selected endorsed practices	WP2	0 2,500	0 0
SO-02.A6: Increase contributions to the Frontiers in Marine Science: Research Topic Best Practices in Ocean Observation	Recruit specialist editors eg. Modelling	WP4	0	0
WP5: COMMUNICATION, OUTREACH AND COMMUNITY LIAISON				
SO-02.A4: Expanded communication plans to broaden engagement of ocean communities in creation and use of BP	Abbreviated communication plan released with scoping for full communication plan Advocacy - infographic and video	WP5	0 2,000	0 1,000
SO-02.5: Host annual workshops	Organize Annual Workshop 2023	ALL WP	0	0
WPUSER COMMUNITIES				
SO-02 Expand regional engagement	Ambassadors to begin working with their regional communities	WP6 & 8	0	0
CAPACITY DEVELOPMENT AND TRAINING				
SO-03.A1: Expand the OBPS portfolio of courses available from the Repository on best practice development and submission	ongoing	WP7	0	0
SO-03.A2: Support external training and capacity development	Work with Caribbean CD and also TT Coastal Observations in Under Resourced Countries	WP7	0	0

activities				
SO-03.A3: Engage formal and informal education institutions and sponsors to advance incorporation of best practices for ocean observing into education curricula	• Discuss with OTGA embedding in curriculum and also with Steve Diggs • Trial at Geomar (JK)_ provide 5 slides for BP to university lecturers • survey OTGA users and POGO training course/lecturer	WP7	0	0
OCEAN PRACTICES FOR THE DECADE PROGRAMME				
SO-02: Identification of WP8 (co-)lead/s and OceanPractices Programme Coordinator	01.01.2023 Rebecca Zitoun and Aileen Hwai Tan are WP8 co-leads		0	0
SO-02: Survey of Ocean Practices Partners on continued commitment and contribution	Repeat survey of 2021 in first quarter 2023		0	0
SO-02: Identification of OceanPractices pilot projects through coordination with other programmes, projects and activities	ongoing		0	0
Assumptions and risks				
Assumptions Continued foundational funding; Additional resource mobilization, OceanPractices Decade Programme funding; Community adoption and expert panel endorsement; An engaged, energetic and renewed Steering Group, **Risks:** Cessation of funding; non-success in grant bids and Decade Programme funding; decrease of community engagement				
			2023	**2024**
Total budget (requested from IODE)			**$34.500**	**$39,750**

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Pauline Simpson, Project Manager Ocean Best Practices System (**or one of the co-chairs)** reported that OBPS continues to expand its support across disciplines as it moves further in its strategy of providing visibility and discovery of known methods, facilitating transparency of information and improved global level interoperability. Understanding the flow from data to information to knowledge leading to decision-making will make ocean management more effective. But there are challenges. Each discipline has its own vocabulary and customs. So during 2022, OBPS supported workshops that included aquaculture, fisheries, modelling as well as observation sciences and data management. The OBPS 2022 Workshop V I (1152 registrations, 500 active global participants), included a broad range of 19 Theme Sessions over the two-week workshop period expanding OBPS global reach further into ocean value chain communities. However, the OBPS Steering Group is concerned that impetus will be curtailed by the regretted severe budget cuts to IODE, which will impact the OBPS ability to progress its work and to take forward user recommendations.
This year has seen the addition of seven new Steering Group Members bringing a diverse global heritage to OBPS work of propagating best practices. In addition, the new Co-Chairs, George Petihakis and Rene Garello, bring extensive project and management experience and understanding of best practices on ocean observation, data and information and applications. They take over the co-chair lead from Johannes Karstensen and Jay Pearlman who have guided the growth of OBPS as an IOC project under the sponsorship of IODE and GOOS.

9. IODE Annual Project Report: OceanExpert

1. Title of project/activity and acronym

IODE-OceanExpert - www.oceanexpert.org

2. Project established by (provide reference to IODE Committee session and Decision)

The 23rd Session of the IODE Committee (2015) established OceanExpert as a Project through Recommendation IODE-XIII.2

3. Annual report submitted by [name] on [date]

Project manager Sofie de Baenst and Technical Manager Arno Lambert – 29 November 2022

4. General overview of the project status/ Executive summary

Bug fixing and improvements: Arno Lambert invested a lot of time to this in 2022. The bug fixing list can be checked in the GitHub repository. Main improvement was the switch to a new server as the old server was EOL. To achieve this the underlying framework (Symfony) had to be upgraded which was only possible by moving the complete codebase to the latest LTS version of the PHP language. By doing this we can now provide a better bug fixing and developing cycle as we are no longer relying on the live server to test bug fixes or new features.
SSO (single sign on): OceanTeacher Global Academy (OTGA) platform (www.oceanteacher.org) is now using OceanExpert to authenticate it's users. By doing so OTGA can now retrieve user information from the OceanExpert directory, freeing the users from maintaining their profile on different interlinked sites. Together with implementing the OTGA SSO, a new API was created to enable OTGA to automatically create events in OE when new courses are created on the OTGA Moodle platform. In 2023 the next phase is that OceanTeacher can push even more information into OceanExpert.
OceanDecade: The OceanExpert team invested a possible collaboration with the OceanDecade team for the Decade roster. While the advantages were very clear and the cost would have been very low, this was not approved, and another option was chosen by the OceanDecade team.
QC: continued in 2022 by Sofie de Baenst
The OceanExpert website is through an API linked with +/- 18 IOC website (e.g. Ocean Literacy, IOC site, Ocean Infohub, IOCaribe, ODINAfrica, IODE, GOOS, …). The OceanExpert directory is very well integrated in the storage/management of IOC events (documents, participants list, general information, …) since this was decided this is well used by all IOC programmes.
Weekly/2-weekly meetings on Wednesday (Arno-Sofie) to manage the tickets/issues recorded in GitHub and check together for improvements/solving problems.
Statistics as per 25 Nov 2022:

- Experts:22554
- Institutions:7523
- Events:3038
- Documents:30151

5. Assumptions and risks

There are still functions that OceanExpert misses compared to Paperclip. Not all are solved yet. Continuous bug fixing. The further investigation for connection to other 3rd parties' website has not been taken up yet (ResearchGate, …).

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. To become the focal database for IOC events (documents, participants)	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Look into the possible linkage to other online data and information systems	Not checked the possibility yet of a possible collaboration with ORCID, ResearchGate, … The Alumni system with the OTGA project was successful. The SSO works well and is well appreciated amongst the 8000 users of the OTGA platform.
PI2. . Check current GDPR and UN regulations on storing personal data	Awaiting the new data policy to be approved in 2023.
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: During the first Steering Group meeting (Nov 2021) it was decided to create a workplan and volunteers to assist. This will be handled in the first months of 2022	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1:	this has not been dealt with
A1.2:	

A1.3:	
Report on status of activities. Problems experienced and measures taken:	
Milestone/deliverable/work package	
M2: create a manual- guidelines	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1:	Work in progress- this has been started but not finished yet
A2.2:	
A2.3:	
Report on status of activities. Problems experienced and measures taken	

*7. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1. To become the focal database for IOC events (documents, participants)			
Performance Indicators (2-5 maximum)			
PI1. Linkage to IOC websites			
PI2Linkage to 3rd parties' websites			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1: Further work on the bug fixing and upgrading the use of the directory			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		20xx	20xx
A1.1: overview/ management of the GitHub tickets	Sofie		
A1.2: technical solutions	Arno		
A1.3:			
Assumptions and risks			
Limited available staff time towards this project to solve all the difficulties and to work in the continuous improvement			
Milestone/deliverable/work package			
M2/D2/WP2: create manual guidelines			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		20xx	20xx
A2.1: create this manual	Sofie - Arno - Forest		
A2.2: check with administrators where they need more guidance	Sofie		

A2.3:			
Assumptions and risks			
Total budget (requested from IODE)		0	0

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Signed by Project Leader. Sofie de Baenst
Date. 29 November 2022

For IODE use only.
Date received: 30 November 2022

10. IODE Annual Project Report: ODIS

1. Title of project/activity and acronym

Ocean Data and Information System (ODIS)

2. Project established by (provide reference to IODE Committee session and Decision)

Twenty-sixth Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE-XXVI)online, 20-23 April 2021

3. Annual report submitted by [name] on [date]

Arno Lambert 29/11/2022

4. General overview of the project status/ Executive summary

In august a steering group was formed in a meeting that was organized back-to-back with OIH SG. This was mainly a formality as most/all the work that has to be done for ODIS is now still done within the OIH project. As there was no real candidate to chair this SG, Pier Luigi Buttigieg volunteered to do this ad hoc with the help of Arno Lambert.

5. Assumptions and risks

Main concern about this projects are:

- Funding
- Relation to OIH
- Relation to ODISCat

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. No workplan was defined for this year as most/all the work that has to be done for ODIS is now still done within the OIH project.	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1.	
PI2.	
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1:	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1:	
A1.2:	
A1.3:	
Report on status of activities. Problems experienced and measures taken:	
Milestone/deliverable/work package	
M2:	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1:	
A2.2:	
A2.3:	
Report on status of activities. Problems experienced and measures taken	

*7. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1.			
Performance Indicators (2-5 maximum)			
PI1.			
PI2			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1:			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		20xx	20xx
A1.1:			
A1.2:			
A1.3:			
Assumptions and risks			
Milestone/deliverable/work package			
M2/D2/WP2:			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		20xx	20xx
A2.1:			
A2.2:			
A2.3:			
Assumptions and risks			
Total budget (requested from IODE)			

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Signed by Project Leader. Arno Lambert

Date. 29/11/2022

For IODE use only.
Date received: 30 Nov 2022

11. IODE Annual Project Report: ODIScat

1. Title of project/activity and acronym

ODIS Catalogue of Sources ODISCat

2. Project established by (provide reference to IODE Committee session and Decision)

IOC/IODE-XXV/5.2.1

3. Annual report submitted by [name] on [date]

Arno Lambert on 29/11/2022

4. General overview of the project status/ Executive summary

Mr. Cristian Muñoz has been working on the following items during 2022 in follow up of last year

- New entries: steep growth of the number of entries but that also means there are a lot of records that still need some editing to be relevant. There are now about 3000 entries in the database (from around 900 by the end of 2020).
- Dashboard showing what countries are owning most of the records/resources in the database.
- QC: 71% should be finished but still a lot to do to improve/complete the quality of the records.
- Graph db: Mr. Cristian Muñoz also made an export from the current db to a graph db which gives us the possibilities to show the relations between the different records in the database.
- API: Mr. Cristian Muñoz created an API to the database

No software development or changes to the database structure has been done during 2022. The mains focus has been on how to further integrate the content of the database into the OIH/ODIS project.

5. Assumptions and risks

The concerns from last year have not been solved yet:

- Dashboard created by Mr. Cristian Muñoz is showing what countries are owning most of the records/resources in the database.
  - none/very few entries owned by African counties
  - Asian countries seem to be underrepresented
- Imbalance between the different categories in the database. About half of the records belong to 3 categories (Data systems/portal, Data products and Data catalogues). An effort is needed to cure that.
- Imbalance is also to be seen with the themes, where half of the records is about Physical, Biological or Chemical oceanography (DS03, DS01 and DS02).
- Gaps:
  - Scope of the categories must be (better) defined.
  - List of categories must be redefined.
  - Standardize list of metadata standards and M2M tech.
  - Africa and Asia are underrepresented.
  - Add ECV, EBV and EGV.
- New concerns are the further integration of the catalogue in the complete flow and indexing of the OIH.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Workplan should be defined in the SG meeting that should take place in 2013.	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1.	
PI2.	
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1:	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1:	
A1.2:	
A1.3:	

Report on status of activities. Problems experienced and measures taken:	
Milestone/deliverable/work package	
M1:	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1:	
A2.2:	
A2.3:	
Report on status of activities. Problems experienced and measures taken	

7. ***Annex II Part B****. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1.			
Performance Indicators (2-5 maximum)			
PI1.			
PI2			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1:			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		20xx	20xx
A1.1:			
A1.2:			
A1.3:			
Assumptions and risks			
Milestone/deliverable/work package			
M2/D2/WP2:			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		20xx	20xx
A2.1:			
A2.2:			
A2.3:			

Assumptions and risks		
Total budget (requested from IODE)		

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Signed by Project Leader. Arno Lambert

Date. 29/11/2022

For IODE use only.
Date received: 30 NOV 2022

12. IODE Annual Project Report: ODP

1. Title of project/activity and acronym

IODE Ocean Data Portal

2. Project established by (provide reference to IODE session)

IODE-XIX.1 (THE IODE OCEAN DATA PORTAL PROJECT) (2007)

3. Project leader(s)

Tobias Spears, Sergey Belov

4. Members of the project Steering Group (provide link to IODE project page)

http://www.iode.org/index.php?option=com_oe&task=viewGroupRecord&groupID=244&Itemid=100011

5. Objectives of the project

The objective of the IODE Ocean Data Portal is to facilitate and promote the exchange and dissemination marine data and services.

Expected outcome (result) of the Project:

The Ocean Data Portal will provide seamless access to collections and inventories of marine data from the NODCs in the IODE network and will allow for the discovery, evaluation (through visualisation and metadata review) and access to data via web services. The system architecture will use Web-oriented information technologies to access non-homogeneous and geographically distributed marine data and information. The IODE stakeholder community will be supported through software infrastructure maintained by the Partnership Centre for the IODE Ocean Data Portal and training provided by the Partnership Centre and through the IODE Ocean Teacher facilities.

With the establishment of the IOC Ocean Data and Information System (ODIS), the IODE ODP Project will also contribute to the higher level ODIS objectives:

The IOC Ocean Data and Information System (ODIS) will be an e-environment where users can discover data, data products, data services, information, information products and services provided by Member States, projects and other partners associated with IOC.

IODE will work with existing stakeholders, linked and not linked to the IOC, to improve the accessibility and interoperability of existing data and information. It will contribute to the development of a global ocean data and information system, to be referred to as the IOC Ocean Data and Information System, leveraging established solutions where possible.

6. Activities implemented and accomplished milestones

The activities completed during this period focused on the following work areas:
- Support for the core IODE Ocean Data Portal technology
- Support for existing ODP nodes

At the operational level, a number of advanced have been made in regards to the core ODP technology and registered content, including:
- Maintenance and support for the ODIP Metadata Catalogue in IODE ODP (82000 metadata records from WIS, SeaDataNet, AODN and US NCEI, 700 data sets from ODP technology)
- Operational support continues to be provided for the ODP technology, including enhancements to the software maintained by the Partnership Centre for the ODP, along with upgrades to the off-the-shelf software on which ODP is built. New versions of the webGIS (on-fly WMS publication and addition to WMS catalogue), DataCache (data checks against vocabulary before writing to database). SemanticWeb services (SPARQL, RDF, OWL) have been implemented for vocabulary usage and interoperability within ODP components.

-ODP Global node - 24/7 monitoring capabilities in place with 5x8 support. Node has been disabled since March 2022 due to constant DDoS attacks and hack attempts.

7. Problems experienced and measures taken

The following problems have been experienced:
- Expiration of the Memorandum between UNESCO and Roshydromet on Parthership Centre for IODE ODP - as a result no funding provided in 2019 by Roshydromet. Measures taken - draft Memorandum created, discussions in progress.
- Massive hacker attacks on the ODP central node led to the need to temporarily disconnect the node from the Internet. The information security system of the node is being developed

8. Results achieved

Key results achieved this period include:

None

9. Deliverables produced

Deliverables produced include, but are not limited to:

- Maintenance and technical support for ODP nodes (ODP Global node, IODE ODP ODINAfrica and IODE ODP ODINWESTPAC regional nodes)
- Draft version of the updated Memorandum between UNESCO and Roshydromet on Parthership centre for IODE ODP

10.Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

The workplan for the ODP team focused on supporting existing regional ODP nodes, operational maintenance and enhancement of the underlying technology used to implement the global and regional ODP nodes. The project scope has to be revisited in order to contribute OIH and ODIS instead of standalone impementations.

11.Work plan and budget for the next intersessional period

Budget requested from IODE during the next biennium (starting after the next IODE Committee Session) (US$)
Workplan activities will focus on operational support for the existing global and regional ODP nodes, MoU reneval under the auspices of UN Decade.
Expected IODE Project Office management staff time requested during the next biennium (persons-months) 0
Other resource contributions identified (financial or in-kind including staff): Support for the core ODP technology will be provided as an in-kind contribution to the project as this is used operationally by the NODC of Russia .

13. IODE Annual Project Report: OIH

1. Title of project/activity and acronym

Ocean InfoHub Project (OIH)

2. Project established by (provide reference to IODE Committee session and Decision)

I'm not sure which IODE Session (IODE XXV perhaps?)

3. Annual report submitted by [name] on [date]

Lucy Scott and Harrison Ong'Anda

4. General overview of the project status/ Executive summary

The Ocean InfoHub Project is a four-year project that will support the initial development of the Ocean Data and Information System (ODIS) architecture, as well as develop communities of practice (information systems and their end users) in three pilot regions; Africa, the Latin America and Caribbean region and the Pacific Island Developing states.

The Ocean Data and Information System (ODIS) will provide an interoperability layer and supporting technology to allow existing and emerging ocean data and information systems, from any stakeholder, to interoperate with one another. This will enable and accelerate more effective development and dissemination of digital technology and sharing of ocean data, information, and knowledge. As such, ODIS will not be a new portal or centralised system, but will provide a collaborative solution to interlink distributed systems for common goals. Together with global project partners and partners in the three regions, a process of co-design will enable a number of global and regional nodes to test the proof of concept for the ODIS.

The Ocean InfoHub Project will therefore provide an opportunity for partners and users to contribute to, and access the UN Ocean Decade global data ecosystem while also offering capacity development opportunities to all to participate equitably in the UN decade data ecosystem.

5. Assumptions and risks

It is assumed that the enhanced and centralized availability of ocean data and information content will contribute to the development of ocean products.
There are risks that decision makers will be unaware of the system or not prepared to use it as a trusted source.
These risks will be managed through a combination of project Steering Group, communications and outreach, and training and capacity development to ensure the relevance, community awareness and usability of the Ocean InfoHub.
There is a risk that certain data and information (of commercial and/or military importance) may be restricted.
This risk will be mitigated by respecting mandatory organizational controls. This would include promoting the sharing information on the existence of data and instructions for requesting access when direct access is not available. This would also include promoting the sharing of data at levels allowed without contravening operational policies (e.g. providing aggregated data, removal of personally identifying information and other standard practices).
It is assumed that national/regional/international data/information systems are willing to develop the integrated interoperability products/services.
There is a risk that invited data systems may not be willing to collaborate.
In cases where the system is part of a higher-level network, this risk will be mitigated to the extent possible through collaboration at the network level, thus seeking opportunities to limit the incremental effort required on the part of the contributing systems. This risk will also be managed through the development of the specifications for interoperability services, etc. by seeking input from the community in order to create specifications deemed relevant and useful.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. *Number of partners who are contributing and sharing continuously content to the Ocean InfoHub*	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. *Number of content items shared through the system (target 1000)*	Over 500,000 content items https://schema.org/Person 345127 https://schema.org/Organization 87007 https://schema.org/CreativeWork 41058 https://schema.org/Event 40393 https://schema.org/Dataset 8509 https://schema.org/ResearchProject 3354 https://schema.org/CourseInstance 1651 https://schema.org/Course 1282 https://schema.org/Vehicle 85
PI2. *Number of Ocean InfoHub users which have reported collaborative initiatives stimulated by their use of the system (target 10)*	Reports have not yet been requested of partners
Number of ODIS integrated products/services developed (target 5)	18 nodes; 23 services INVEMAR has 5)

Number of nodes participating in the Ocean InfoHub (target 4)	18 nodes active; 48 partner institutions engaged
Number of trainees trained in content submission (target 100)	Training course: 53 enrolled, 16 completed, bilateral capacity development ongoing with 48 partners.
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: WP1 Project Management and Coordination	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: Project manager monthly and annual reports	**Completed to date**
A1.2: Steering Group meetings	**Completed to date**
A1.3:External evaluation	
A1.4:Project wrap up meeting	
Report on status of activities. Problems experienced and measures taken:	
All activities are on track	
Milestone/deliverable/work package	
M1: WP2 Technology development	
Activities	**Status (completed, in progress, postponed, cancelled)**
2.1 Global Hub Development	In progress
2.2 Further development of ODISCat	In progress
2.3 ODIS development	In progress
2.4 ODIS technical meetings	In progress
2.5 EurOcean service integration	Completed
2.6 MarineTraining.eu service integration	Completed
Report on status of activities. Problems experienced and measures taken:	
Milestone/deliverable/work package	
M1: WP3: Establishment and initial support of the nodes	
Activities	**Status (completed, in progress, postponed, cancelled)**
3.1 Global node establishment and operation	Completed, ongoing development continues
3.2 LAC (IOCARIBE+) node	Completed, ongoing development continues
3.3 IOCAFRICA node	In progress
3.4 Pacific SIDS node	Completed, ongoing development continues
3.5 Thematic nodes establishment and operation	In progress

3.6 Match-making service development and operation, assisting end users with CD queries	In progress
Report on status of activities. Problems experienced and measures taken:	
Milestone/deliverable/work package	
M1: WP4 Training and capacity development of the nodes	
Activities	**Status (completed, in progress, postponed, cancelled)**
4.1 development of online training modules (6 modules)	Completed
4.2 in-class training courses	Postponed
4.3 online hosting of training materials	Completed
Report on status of activities. Problems experienced and measures taken:	
Milestone/deliverable/work package	
M1: WP5: Communication, users marketing and feedback:	
Activities	**Status (completed, in progress, postponed, cancelled)**
5.1 participation in meeting and workshops (D5.2)	In progress
5.2 community surveys (by global hub and regional nodes)	In progress
5.3 communication services including social media, web site	In progress
5.4 publications and reports	In progress
Report on status of activities. Problems experienced and measures taken	

7. ***Annex II Part B****. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1.			
Performance Indicators (2-5 maximum)			
PI1.			
PI2			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1:			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		20xx	20xx
A1.1:			
A1.2:			

A1.3:			
Assumptions and risks			
Milestone/deliverable/work package			
M2/D2/WP2:			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		20xx	20xx
A2.1:			
A2.2:			
A2.3:			
Assumptions and risks			
Total budget (requested from IODE)			

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Signed by Project Leader.
Date.

For IODE use only.
Date received:

14. IODE Annual Project Report: OTGA

1. Title of project/activity and acronym

OceanTeacher Global Academy-2

2. Project established by (provide reference to IODE Committee session and Decision)

The OceanTeacher Global Academy project was formally established by IODE-XXIII (2015) through Decision IODE-XXIII.4

3. Annual report submitted by [name] on [date]

Greg Reed, Claudia Delgado, 30 November 2022

4. General overview of the project status/ Executive summary

During the intersessional period, 56 training courses were delivered by OTGA network of seventeen Regional and Specialized Training Centres with over 2600 learners enrolled in courses which were delivered in English, Spanish and Portuguese. In addition, 20 online training courses were hosted by the OTGA on behalf of partner organizations: Flanders Marine Institute (VLIZ), the Nippon Foundation-POGO Centre of Excellence (NF-POGO), Early Career Ocean Professional Network Programme (ECOP), International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the Marine Environmental Data and Information Network (MEDIN). There are more than 9000 registered users on the OTGA e-learning platform.

During this intersessional period the OTGA Project focused on improving its capability in delivering quality online learning. To this aim, an e-Learning expert was hired, and the following was produced:

- Standard Course Templates in English, Spanish, Portuguese and French
- Training course on *Designing and Teaching Online Courses for RTC/STC administrators and instructors* implemented
- Short tutorial on Copyright
- OTGA Course Design Rubric to evaluate and improve instructor led and self-paced OTGA courses.

The OTGA Alumni System has been developed to incorporate a single sign-on for all OTGA course participants and the IOC OceanExpert (OE) system is used to register the profile data of the OTGA alumni. OE is used to authenticate users using their OE login credentials avoiding multiple subscriptions. The OTGA Alumni System also introduces standard reports to provide accurate statistics for reporting to UNESCO, the IOC and the OTGA donor.

In March 2022 the UNESCO/IOC Project Office for IODE was successfully audited for certification for the new international standard ISO 29993 as a Learning services outside formal education.

The third session of the Steering Group for the OceanTeacher Global Academy took place online between 21-23 November 2022. The OTGA work plan for 2023-24 proposes a total of 30 courses to be delivered by RTCs/STCs and 14 courses to be hosted by RTCs/STCs on behalf of affiliate organisations in 2023. The workplan for 2024 will be discussed between the OTGA Secretariat and the training centres. The Steering Group elected Mr Udaya Bhaskar (RTC-India) and Mr Aidy Muslim as SG Co-Chairs for the next intersessional period.

5. Assumptions and risks

The majority of 2021/22 courses were delivered online. Assumption is most training courses in 2023 will also be delivered online.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Increased capacity and skills by ocean specialists to use standards and best practices tools to achieve SDG 14	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI 1. Percentage of learners applying and implementing standards and best practices	Results of 2021 survey to be evaluated
PI2. Percentage of learners influencing decision making processes	Results of 2021 OTGA Follow-up Survey: 80% agree or strongly agree (influencing decision processes in my organization)
PI3. Percentage of learners advocating use of best practices defining joint initiative	Results of 2021 OTGA Follow-up Survey: 80% agree or strongly agree
O2. Regional and Specialized Training Centres efficiently develop and manage the training programme.	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
P1. Percentage of Training Centres efficiently managed the training programme	65%.
P2. Number of Member States supporting OTGA Training Centres by (i) percentage of trainees funded by their Member States or host institutes, (ii) number of secondments to OTGA network, (iii) direct funding	One F2F/blended course held: 5 trainees self-funded, 20 trainees funded by the RTC, 5 funded by OTGA
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Empower learners to apply the skills learned and influencing the implementation and the use of standards and best practices widely accepted	

Activities	Status (completed, in progress, postponed, cancelled)
A1.1: Organize and host training courses relevant to the Regions (online, blended and face to face)	Training courses delivered by RTC/STC network using the OTGA e-learning platform. Additional online training courses hosted by OTGA on behalf of partner organizations
A1.2: Provide travel grants to facilitate learner attendance at training courses	Travel grants provided for 1 blended course (Ocean Colour Remote Sensing - Data, Processing and Analysis, RTC India) and 1 onsite (onboard) training course (Ocean-Climate-Society: Sustainability Summer course, STC Norway)
Report on status of activities. Problems experienced and measures taken:	
Most courses delivered online which resulted in increased number of learners attending OTGA courses. Some training centres unable to deliver courses or delayed courses due to Covid restrictions.	
Milestone/deliverable/work package	
M2: Produce of new knowledge and training resources	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1: Design and develop new course content to address the capacity needs of IOC Programmes	New self-paced course for Ocean Data Management developed
A2.2: Liaise with content providers on course design and presentation	e-learning instructional designer continued to evaluate online courses and facilitate stakeholder meetings for the effective implementation of LMS.
A2.3: Upload training resources on the OTGA e-Learning Platform	All 2022 course material available on the e-learning platform
Report on status of activities. Problems experienced and measures taken	
Online courses evaluated using the QM Continuing and Professional Education Rubric to improve the overall design of courses. Learning objectives and competencies to be included in all courses	

***7. Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1.			
Performance Indicators (2-5 maximum)			
PI1.			
PI2			
Workplan & Budget			
Milestone/deliverable/work package			
A total of 30 OTGA courses to be delivered by RTCs/STCs and 14 courses to be hosted by RTCs/STCs on behalf of affiliate organisations in 2023. The workplan for 2024 will be discussed between the OTGA Secretariat and the training centres.			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1:		No budget requested	No budget requested
Assumptions and risks			
Total budget (requested from IODE)		0	0

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

During the intersessional period, 56 training courses were delivered by OTGA network of seventeen Regional and Specialized Training Centres with over 2600 learners enrolled in courses which were delivered in English, Spanish and Portuguese. In addition, 20 online training courses were hosted by the OTGA on behalf of partner organizations. There are more than 9000 registered users on the OTGA e-learning platform. The main activities implemented during the intersessional period included:

- Standard Course Templates developed in English, Spanish, Portuguese and French
- Training course on *Designing and Teaching Online Courses for RTC/STC administrators and instructors* implemented
- A short tutorial on Copyright developed
- OTGA Course Design Rubric implemented to evaluate and improve instructor led and self-paced OTGA courses.
- OceanTeacher Global Academy Alumni System developed
- ISO 29993 Certification

The OTGA Alumni System has been developed to incorporate a single sign-on for all OTGA course participants and the IOC OceanExpert (OE) system is used to register the profile data of the OTGA alumni. OE is used to authenticate users using their OE login credentials avoiding multiple subscriptions. The OTGA Alumni System also introduces standard reports to provide accurate statistics for reporting to UNESCO, the IOC and the OTGA donor.

In March 2022 the UNESCO/IOC Project Office for IODE was successfully audited for certification for the new international standard ISO 29993 as a Learning services outside formal education.

Signed by Project Leader. Greg Reed/Claudia Delgado
Date. 30 November 2022

For IODE use only.
Date received: 30 Nov 2022

15. IODE Annual Project Report: PacMAN

1. Title of project/activity and acronym

Pacific Islands Marine Bioinvasions Alert Network (PacMAN)

2. Project established by (provide reference to IODE Committee session and Decision)

Not applicable.

3. Annual report submitted by [name] on [date]

Ward Appeltans 30 Nov 2022

4. General overview of the project status/ Executive summary

The year 2022 has been a testing phase for the protocols defined in the monitoring plan of PacMAN. Field sampling has been extensively tested and full field sampling has been conducted four times throughout the year. This includes the collection of plankton, biofouling on settlement plates and water samples. All DNA extractions have been made from the samples with an optimized extraction protocol, resulting in high quality DNA extracts. Specimens have been sorted and collected from the settlement plates and have been stored ready for genetic analysis at the marine collection at USP. Further laboratory protocols have been delayed however due to issues with the procurement process of the primers, and will be finalised in the beginning of 2023.

Work with the stakeholders of the PacMAN project and the international scientific advisory board has been active throughout the year. An agreement is being set up with the Smithsonian institution to assist in the genetic characterization of the collected specimens. A scientific advisory board meeting was held in October 2022, to go over the modifications made so far to the protocols in the monitoring plan. Overall feedback was very positive, and small changes for the protocols were accepted.

In November 2022 the first on-site local stakeholder meeting was held in Suva, Fiji. The meeting brought together representatives of the major stakeholder institutions in Fiji, and was chaired by Ms. Sandeep Singh, the Director of the Department of Environment at the ministry of environment and waterways in Fiji. The meeting focused on the progress of the PacMAN project so far as well as the initial development of the decision support tool. The major objectives of the meetings were met, including bringing the stakeholders together for the first time in person, and help promoting marine biosecurity to the agenda of the major decision makers in Fiji.

Likewise in November 2022, the scientific training course was held on-site at the University of the South Pacific and the Biosecurity Authority of Fiji in Suva. The training course was a hybrid event with online content available for participants two weeks before the week-long on-site training. 21 participants from 7 major stakeholder institutions in Fiji completed the training course. The training course was the first course on environmental DNA analyses in Fiji, and therefore considerably helped in developing capacity in molecular methods throughout the stakeholder institutions. The course handled all aspects of the PacMAN monitoring program from sample collection and specimen sorting to DNA extraction, PCR and quantitative PCR as well as bioinformatics and data analysis. A member of the PacMAN scientific advisory board, Professor Craig Sherman from Deakin University, Australia, and his post-doctoral student Morgan Ellis joined us as trainers of the course ensuring that all aspects of the training course were according to the latest available scientific knowledge. The training received good feedback from the participants, with more time wanted for bioinformatics and data analysis.

Communication of the PacMAN project has been active also throughout different conferences and workshops throughout the year. This includes the International Conference on Aquatic Invasive Species, the Genomic Standards Consortium workshop, and the International Ocean Data Conference. The PacMAN project manager Joape Ginigini took part in a regional marine invasive species workshop in Tahiti, where the PacMAN project received interest from other regional island states.

5. Assumptions and risks

After the development of the system and Member States have received customized training, they should be able to continue and operate the monitoring system independently. This will still require active maintenance of the bioinformatics pipeline and the decision support system hosted at the IOC Project Office for IODE and run by OBIS.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. An early warning and detection system of marine invasive species for Pacific Islands	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI In-situ monitoring and Early warning system in place	In progress
PI1.1. A national marine invasive species monitoring plan supported by all stakeholders	Completed
PI 1 2. Number of scientists trained to use the monitoring protocol	Completed, 21 scientists trained
PI 1.3. Number of monitoring surveys conducted	Four full surveys conducted during the test phase of 2022, sample analysis still in progress
PI 2.1. Number of marine invasive species risk-assessed and priority-listed for in-situ observations	In progress, concept of the decision support tool and habitat suitability modelling reviewed

PI 3.1. Number of scientists and stakeholders using the early warning and detection system of marine invasive species for Pacific Islands	Not yet relevant

Status of Workplan Implementation	
Milestone/deliverable/work package	
Output 1: Increased capacity of Member States to use international standards and best practices to detect marine invasive species with novel technologies.	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: Coordination and advisory board meetings	In progress, coordination team meetings held bi-weekly, advisory board meetings yearly
A1.2: Development of monitoring plan	Completed
A1.3: Scientific training	Completed
A1.4: Field and Lab work	Field work tested and developed, lab work in progress
Report on status of activities. Problems experienced and measures taken:	
The PacMAN field sampling and stakeholder work is well on-track with hundreds of samples already collected and stored in the laboratory at USP. Stakeholder communication has been active through on-site and virtual meetings, participation in workshops and the scientific training conducted both online on the Ocean Teacher Global Academy (OTGA) platform and on-site at USP in Suva Fiji. Major delays have however been experienced on the procurement of laboratory materials for molecular work, due to issues with the process at USP. The materials were finally ordered through one of the partner institutions in Australia, which will allow to resolve the issue rapidly. In addition, delays in hiring local laboratory assistants were incurred. If USP cannot hire them soon the project needs to look into alternative ways of recruiting the lab support staff.	
Milestone/deliverable/work package	
Output N°2: Increased technical and scientific capacity of Member States in marine invasive species early warning	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1: Development of infrastructure, bioinformatics pipeline and reference database	In progress. The first version of the bioinformatic pipeline is ready, and the sample registration platform is under development
A2.2: Development and evaluation of habitat suitability models based on OBIS occurrences of potentially invasive species.	In progress
A2.3: Development of risk assessment algorithms to inform policy of species that are likely to establish themselves and become invasive in a particular location.	In progress
A2.4: Development of a dashboard application and alerting system to display and disseminate information produced by the risk assessment component.	In preparation
Report on status of activities. Problems experienced and measures taken	
Development of the decision support tool has started with major decisions made on the structure and the models that will be used for the evaluation of the risk level of detected species. The decision support tool has been discussed at both the scientific advisory board meeting as well as the local stakeholder meeting, to ensure that the tool will be developed according to the needs of the local decision makers. The lack of results from the sampling campaigns has delayed the further development of the data management pipeline, but datasets from other studies have been used to test the bioinformatic pipeline for the training course. There was confusion over the fact that the morphological identifications of the specimens on the settlement plates could already be published in OBIS including absences of invasive species. USP and the OBIS data manager are now working on the getting these data and images published in OBIS.	
Milestone/deliverable/work package	
Output N°3: Increased capacity to use the information from the marine invasive species early warning system to implement national and international policies	
Activities	**Status (completed, in progress, postponed, cancelled)**

A2.1: Stakeholder forum, communication and outreach	In progress, the first on-site stakeholder meeting held.
A2.2: Training for scientists/users/stakeholders	In progress. The scientific training course was held.
Report on status of activities. Problems experienced and measures taken	
An onsite stakeholder meeting was held in November 2022, with representation from major stakeholder institutions present. The meeting gave visibility to PacMAN activities and brought marine biosecurity to the agenda as well as all the main actors that are responsible for developing policy around marine invasive species management together. The first training course on the scientific methods used by the PacMAN project was a success, with 21 local scientists trained on all the protocols utilised by PacMAN. Despite issues in receiving all required materials in Fiji, the course was able to be held thanks to the involvement of Deakin university in the preparations and implementation of the course.	

*7. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1. An early warning and detection system of marine invasive species for Pacific Islands			
Performance Indicators (2-5 maximum)			
PI 1. In-situ monitoring and Early warning system in place			
Workplan & Budget			
Milestone/deliverable/work package			
WP1: Project Coordination, Evaluation and Communication			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1 Annual meeting of the Advisory Board	USP	0	0
A1.2 Media/outreach event(s) presenting the results of the project	OBIS + USP	0	0
A1.3. Project final report	OBIS + USP	0	0
Assumptions and risks			
Considering the increased cost of flight tickets and hotels it might be difficult to bring both the international scientific experts as well as the international advisors to Fiji for a final board meeting. We should however try to organize a large outreach event near the end of the project to present the final results. De current end date is 31 Dec 2023, but it is unlikely that we will be able to organize this and have all results ready, so a no-cost extension of the project will be required.			
Milestone/deliverable/work package			
WP2: Research Innovation & Technology			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: Optimization of monitoring plan lab protocols	USP	0	0
A2.2: Testing of qPCR assays	USP	0	0
A2.3: Metabarcoding of environmental samples	USP	0	0
Assumptions and risks			
Final missing lab materials are sourced now. A concern is that USP has not been able to hire the lab assistants.			

Milestone/deliverable/work package			
WP3: Capacity Development, Transfer of Marine Technology and Field Observations			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A3.1: Regular operational field campaigns	USP	0	0
A3.2: Training course for scientists and stakeholders to interpret and communicate analytical results	SPC	0	0
Assumptions and risks			
USP with support from Fiji Ports Corporation Pte Limited (FPCL) has been able to organize 4 test sampling campaigns at 3 sites in Suva Port during last year. The sampling campaigns in the 3rd and operational phase will be intensified with monthly eDNA sampling and qPCR analysis of risk species. A training course on how to use the decision support system will be organized in collaboration with SPC (regional OTGA training centre).			
Milestone/deliverable/work package			
WP4: Data Infrastructure and bioinformatics pipeline			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A4.1. Testing and optimization of the bioinformatics pipeline	OBIS	0	0
Assumptions and risks			
Data flowing from PacMAN samples will be available for testing the final version of the bioinformatics pipeline. The pipeline will be actively developed throughout the project.			
Milestone/deliverable/work package			
WP5: Decision-support tools, products and services			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A5.1. Development of the decision support tool	OBIS	0	0
A5.2. Development and evaluation of habitat suitability models based on OBIS occurrences of potentially invasive species.	OBIS	0	0
A5.3. Development of risk assessment algorithms to inform policy of species that are likely to establish themselves and become invasive in a particular location.	OBIS	0	0
A5.4. Development of a dashboard application and alerting system to display and disseminate information produced by the risk assessment component.	OBIS	0	0
Assumptions and risks			
The development of the decision support system is a major undertaking for the PacMAN system engineer and will require strong interaction with the local stakeholders. A dedicated local person in Fiji might be required to facilitate this interaction.			
Milestone/deliverable/work package			

WP6: Stakeholder engagement, awareness raising			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A6.1. Stakeholder forum	USP	0	0
Assumptions and risks			
Setting up a stakeholder forum in Fiji during the Covid pandemic has been extremely challenging. However, thanks to the first in-person on-site local stakeholder meeting and the training, the engagement with the local stakeholders should now become much smoother.			
Total budget (requested from IODE)		0	0

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

The PacMAN project (Pacific Islands Marine Bioinvasions Alert Network) is developing an early-detection monitoring system for marine invasive species that will provide early warnings based on environmental DNA analyses. During 2022 PacMAN sampling protocols have been extensively tested in the field, at the Suva harbour in Fiji. Coordinated by the University of South Pacific (USP) and in collaboration with the Biosecurity Authority of Fiji (BAF), the project has gained widespread support from major stakeholders dealing with the marine environment in Fiji. Participants from 7 institutions were trained on the optimized PacMAN protocols in the first ever course on environmental DNA in Fiji. With the easing of COVID restrictions in 2022, the first on-site local stakeholder meeting was also held, where all institutions came together to discuss the progress of the project and the needs for a decision support tool. During the following year the project will operationalize the sampling and molecular analysis, perform the data management and develop and test models required to deliver a decision support tool that will empower the local community to interpret the results from the monitoring program in an efficient manner. A training workshop on the decision support tools and a large outreach event will conclude the project likely in first half of 2024.

Signed by Project Leader. W.A.
Date. 30 Nov 2022

For IODE use only.
Date received:

16. IODE Annual Project Report: QMF

1. Title of project/activity and acronym

IODE QUALITY MANAGEMENT FRAMEWORK

2. Project established by (provide reference to IODE Committee session and Decision)

Recommendation IODE-XXII.18

3. Annual report submitted by [name] on [date]

Greg Reed, 1 December 2022

4. General overview of the project status/ Executive summary

The main objectives of this project are to (i) provide the overall strategy, advice and guidance to NODCs /ADUs to establish organizational quality management systems for the delivery of oceanographic and related data, products and services, (ii) initiate and review existing standards and Manuals and Guides with respect to the inclusion of quality management procedures and practices, and (iii) apply the necessary capacity development activities to ensure accreditation of NODCs according to agreed criteria in order to bring all NODCs/ADUs to a minimum agreed level

During the intersessional period,

- one application was received from the South African Marine Information Management System (MIMS) seeking accreditation as an ADU. This was reviewed by the SG-QMF which recommended MIMS be awarded the status of Accredited IODE Associate Data Unit
- one application was received from the Marine Institute, Ireland seeking re-accreditation as and NODC. This was reviewed by the SG-QMF which recommended the Marine Institute retaining accredited NODC status.

in response to an email sent by the IODE Secretariat on 3 August 2022, twelve NODCs and ADUs have expressed interest in accreditation but have not yet taken action.

The Steering Group noted that some NODCs/ADUs have been accredited through another process, namely the Core Trust Seal (CTS) which certifies data repositories. Other data centres are considering CTS certification as has been noted in the responses received from the NODCs/ADUs. CTS certification is very similar to the IODE accreditation (see https://www.coretrustseal.org), however there are a few criteria in the IODE accreditation not covered by CTS, for example, IODE criteria 1.5 (Provide national reports to the IODE Committee) and 2.1 (Adherence to IODE Standards and Best Practice) are IODE specific.

The Steering Group recommended changes to the IODE accreditation process to include certification by an external body, such as CTS, as meeting the requirements for IODE accreditation. Any NODC or ADU which has been certified by CTS will be awarded the status of Accredited IODE National Oceanographic Data Centre or Accredited IODE Associate Data Unit provided they can show evidence of (i) providing national reports to the IODE Committee and (ii) adherence to IODE Standards and Best Practice.

5. Assumptions and risks

Slow uptake of the Quality Management Framework from the IODE community. Small number of new applications for accreditation received.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Provide the overall strategy, advice and guidance to NODCs to establish organizational quality management systems for the delivery of oceanographic and related data, products and services	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Review applications for accreditation submitted by NODCs and ADUs	ongoing
PI2. Provide advice and support for NODCs/ADUs seeking accreditation	ongoing
O2. Initiate and review existing standards and Manuals and Guides with respect to the inclusion of quality management procedures and practices.	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
P1. Ensure QMF guidelines are maintained	ongoing
P2. Provide the necessary capacity development activities to ensure NODCs/ADUs follow QMF requirements and apply for, and maintain, accreditation	ongoing

Status of Workplan Implementation	
Milestone/deliverable/work package	
M1:	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1:	

A1.2:	
Report on status of activities. Problems experienced and measures taken:	
Milestone/deliverable/work package	
M2:	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1:	
A2.2:	
A2.3:	
Report on status of activities. Problems experienced and measures taken	

*7. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1.			
Performance Indicators (2-5 maximum)			
PI1.			
PI2			
Workplan & Budget			
Milestone/deliverable/work package			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: Review applications for accreditation from NODCs/ADUs	SG-QMF, IODE NODCs/ADUs	No budget requested	No budget requested
A1.2 Revise IOC Manuals and Guides 67 Quality Management System Essentials for NODCs and ADUs to include new accreditation requirements	SG-QMF	No budget requested	No budget requested
Assumptions and risks			
NODCs and ADUs submit requests for accreditation.			
Total budget (requested from IODE)		0	0

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

The objectives of the IODE quality Management Framework are to (i) provide the overall strategy, advice and guidance to NODCs to establish organizational quality management systems for the delivery of oceanographic and related data, products and services, (ii) initiate and review existing standards and Manuals and Guides with respect to the inclusion of quality management procedures and practices, and (iii) apply the necessary capacity development activities to ensure accreditation of NODCs according to agreed criteria in order to bring all NODCs to a minimum agreed level

During the intersessional period, one application was received from the South African Marine Information Management System (MIMS) seeking accreditation as an ADU. This was reviewed by the SG-QMF which recommended MIMS be awarded the status of Accredited IODE Associate Data Unit. One application was received from the Marine Institute, Ireland seeking re-accreditation as and NODC. This was reviewed by the SG-QMF which recommended the Marine Institute retaining accredited NODC status.

in response to an email sent by the IODE Secretariat on 3 August 2022, twelve NODCs and ADUs have expressed interest in accreditation but have not yet taken action. The Steering Group noted that some NODCs/ADUs have been accredited through another process, namely the Core Trust Seal (CTS) which certifies data repositories. Other data centres are considering CTS certification as has been noted in the responses received from the NODCs/ADUs. CTS certification is very similar to the IODE accreditation (see https://www.coretrustseal.org), however there are a few criteria in the IODE accreditation not covered by CTS, namely, IODE criteria 1.5 (Provide national reports to the IODE Committee) and 2.1 (Adherence to IODE Standards and Best Practice) are IODE specific. The Steering Group recommended changes to the IODE accreditation process to include certification by an external body, such as CTS, as meeting the requirements for IODE accreditation. Any NODC or ADU which has been certified by CTS will be awarded the status of Accredited IODE National Oceanographic Data Centre or Accredited IODE Associate Data Unit provided they can show evidence of (i) providing national reports to the IODE Committee and (ii) adherence to IODE Standards and Best Practice.

Signed by Project Leader. Greg Reed
Date. 1 December 2022

For IODE use only.
Date received: 1 Dec 2022

17. IODE Annual Project Report: WOD

1. Title of project/activity and acronym

World Ocean Database (WOD)

2. Project established by (provide reference to IODE Committee session and Decision)

IODE Recommendation : IODE-XVI.6 (2000)

3. Annual report submitted by [name] on [date]

Tim Boyer 2022/11/30

4. General overview of the project status/ Executive summary

assemble and disseminate the World's largest unrestricted access dataset of uniformly formatted and quality controlled historic and recent ocean profile data.

5. Assumptions and risks

Free and open exchange of oceanographic profile data between IODE members. Risk – inability to exchange pertinent data due to convention, formatting complications, data management resources

6. Annex II Part A. Report on the status of the implementation of the workplan

Project Outcomes	
O1. Comprehensive historic and recent ocean profile data inventory delivered in a timely and useful manner	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1.Number of oceanographic casts added to the World Ocean Database in 2021	**delivered**
PI2.Number of users utilizing data	**delivered**
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Reach a total of 19 milliion historic and recent oceanographic casts	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1:Enter quarterly updates from Argo, GTSPP, tropical moored buoys into the World Ocean Database	Completed in January, May, August, and November, 2022
A1.2:Enter data from other National Oceanographic Data Centers and Associated Data Units, projects, institutes and primary investigators	Completed as able (see details below)
A1	

Report on status of activities. Problems experienced and measures taken: 860,956 casts of ocean profile data were added to WOD between January, 2022 and November, 2022 to bring the total number of casts to 18.4 million. (A cast is a set of profiles - temperature and/or salinity and/or oxygen and or nutrients. etc. - taken at the same geographic location at the same time. The breakdown by data type:
Bottle/low-resolution CTD/low-resolution XCTD: 831 casts
High-resolution CTD: 11,545 casts
XBT: 10,901 casts
Instrumented pinnipeds: casts60,028
Moored-buoy (daily means): 96,940 casts
Argo profiling floats: 182,181 casts
Arctic drifting buoys: 4.128 casts
Gliders: 494,398 casts
Information on each data type can be found in the World Ocean Database 2018 (WOD18) Introduction: https://www.nodc.noaa.gov/OC5/WOD/docwod.html
Data over a global geographic distribution were added since the last IODE meeting (Figure 1 - attached). The GODAR report for the present IODE meeting will go into more detail on recovery of historic data added to WOD.
Major sources of recent (uploaded within 3 months of measurement) data in WOD continue to be the Global Temperature and Salinity Profile Project (GTSPP, 89,248 casts), the Argo program (171.890 casts), and the Pacific Marine Environmental Laboratory's tropical moored buoy program (NOAA/PMEL, 18,565 casts). [Note that GTSPP casts in WOD are far less than the number of oceanographic stations new to GTSPP for 2022, as the majority of GTSPP stations are single level coastal stations, and not ocean profile casts.) Major sources which are updated quarterly in WOD include the CLIVAR and Carbon Hydrographic Data Office (CCHDO, 1,144 high quality bottle/CTD casts), and the Further discussion of WOD updates can be found in the GODAR report. One major source from years past which has not been available in 2022 is the International Council for the Exploration of the Seas (ICES).

Flow of data to the WOD was impacted by the global pandemic which hindered deployment of instruments from research ships, maintenance of moored buoys, and replenishment of automated observing arrays.
Milestone/deliverable/work package
M1: Distribute for use > 300 million oceanographic casts/month

Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1:maintain WODselect for subsetting and delivering data	Completed
A2.2:distribute data through THREDSS and cloud services	Completed
A2.3:Develop World Ocean Database Cloud as part of the U. N. Decade of the Ocean	In Progress

Report on status of activities. Problems experienced and measures taken WODselect, the subsetting and access tool for WOD: https://www.ncei.noaa.gov/access/world-ocean-database-select/dbsearch.html continued to be heavily used in 202 2 with a minimum of 160 million casts (February) and a maximum of 460 million casts (May) downloaded monthly (Figure 2) in that period Figures 3, 4 breakdown download statistics to give a better idea who is utilizing WODselect.

Access through Amazon Web Services (AWS) cloud has been established and maintained in 2022: . https://registry.opendata.aws/noaa-wod/

The WOD program is as a contribution to the U. N. Decade of the Ocean. The concept of a more participatory data ingest and quality management for the WOD a platform for analysis tools, and a means of free and equitable data distribution and use was initiated and is in progress.

7. Annex II Part B. Submission of new workplan and budget for the next intersessional period.

Project Outcomes
O1. Comprehensive historic and recent ocean profile data inventory delivered in a timely and useful manner
Performance Indicators (2-5 maximum)
PI1. Number of oceanographic casts added to the World Ocean Database in 2022
PI2 Number of users utilizing data
Workplan & Budget
Milestone/deliverable/work package
M1/D1/WP1: Reach a total of 19 million historic and recent oceanographic casts

Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		20xx	20xx
A1.1: Enter quarterly updates from Argo, GTSPP, tropical moored buoys into the World Ocean Database	NCEI		
A1.2: :Enter data from other National Oceanographic Data Centers and Associated Data Units, projects, institutes and primary investigators	NCEI		
A1.3:			

Assumptions and risks
Free and open exchange of oceanographic profile data between IODE members. Risk – inability to exchange pertinent data due to convention, formatting complications, data management resources

Milestone/deliverable/work package			
M2/D2/WP2: Distribute for use > 300 million oceanographic casts/month			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2022	2023
A2.1: maintain WODselect for subsetting and delivering data	NCEI/IODE		
A2.2: distribute data through THREDDS and cloud services	NCEI		
A2.3:continue development of WODc	NCEI/IODE	$50K	$50K
Assumptions and risks Resource availability in the form of IODE cloud space as part of Ocean InfoHub and support for inclusion of WOD in Ocean InfoHub for the WODc, resource availability for development of aspects of the WODc			
Total budget (requested from IODE)		$50K	$50K

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Signed by Project Leader.
Date.

For IODE use only.
Date received: 2 DEC 2022

WOD Annex

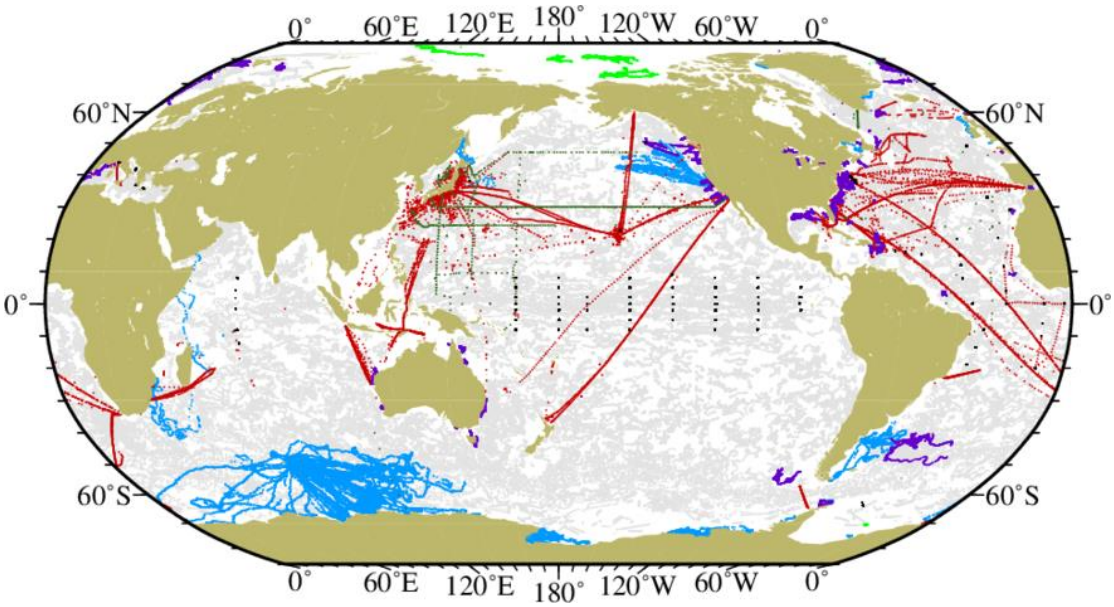

Figure 1. Data added to WOD in 2022 Grey=Argo floats, Dark Green=bottle/CTD, Red=XBT, Blue=instrumented pinniped, Purple=glider, Black=moored buoy, Light Green=Ice Tethered Profilers.

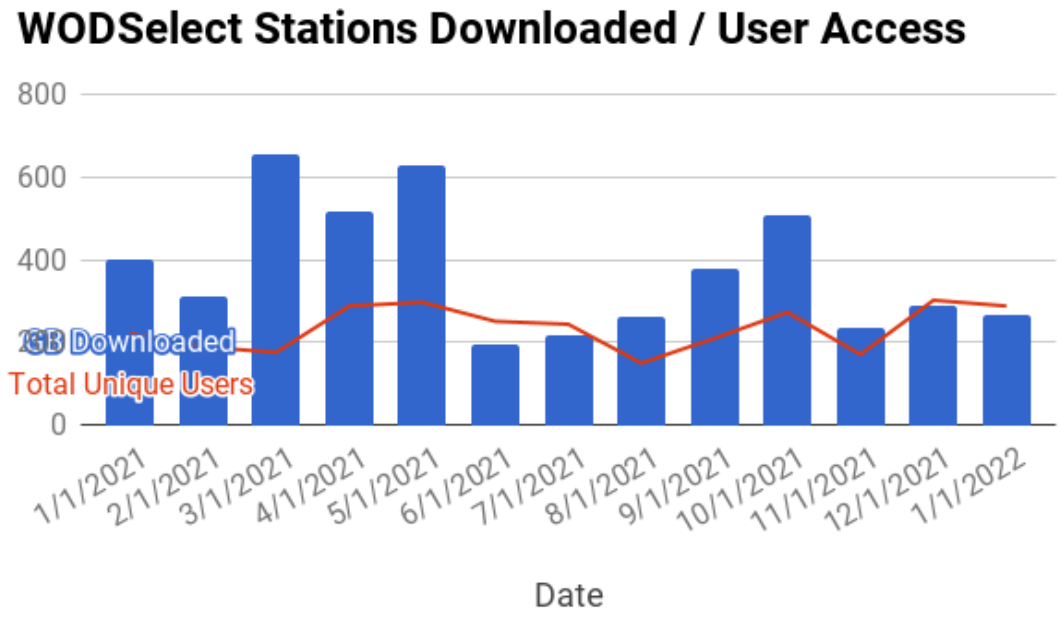

Figure2 Downloads of WOD data through WODselect for year 2021

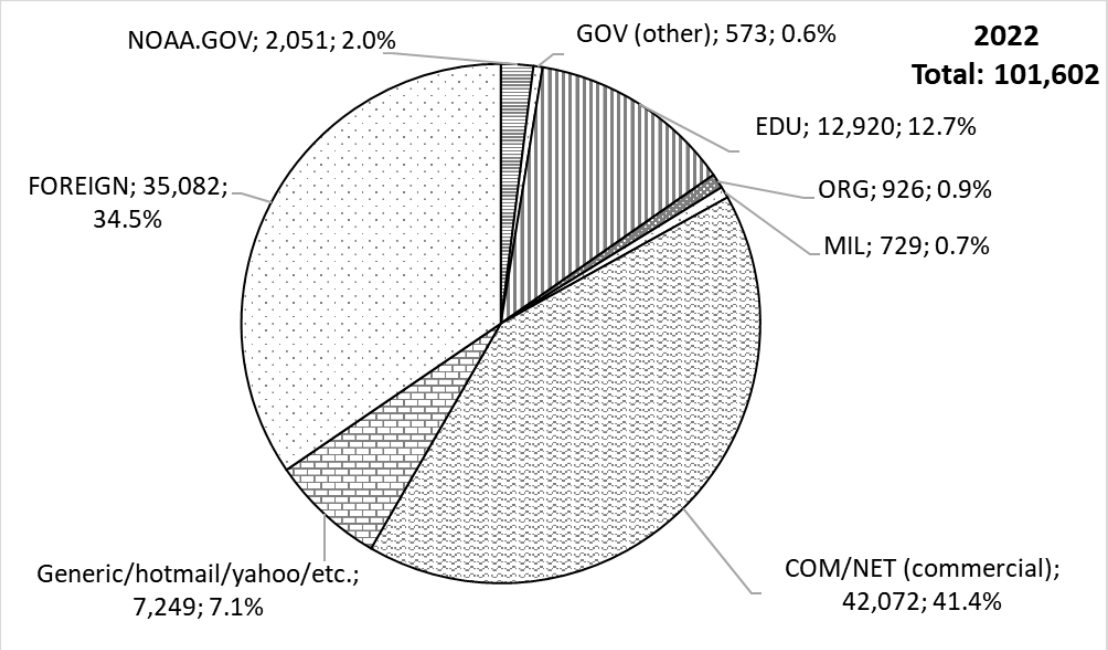

Figure 3: Downloads from WODselect in 2021 by type of user (from email category; foreign are based on country suffix outside United States).

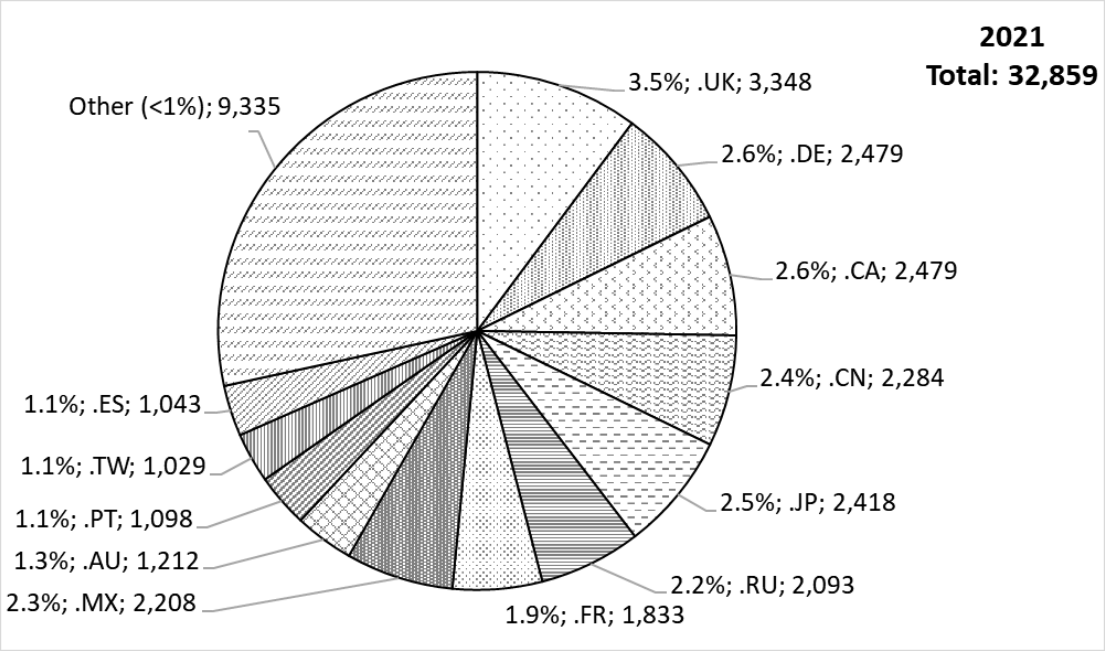

Figure 4: Downloads from WODselect in 2021 by country (based on country suffix from email).

18. IODE Annual Project Report: ODINAFRICA

1. Title of project/activity and acronym

The Ocean Data and Information Network for Africa (ODINAFRICA)

2. Project established by (provide reference to IODE Committee session and Decision)

3. Annual report submitted by [name] on [date]

Mika ODIDO

4. General overview of the project status/ Executive summary

In the past year, the project's activities have been centred on enhancement of stakeholder consultations, updating and undertaking quality control of relevant databases and supporting activities contributing to the Ocean Info Hub project and promoting capacity building initiatives within the region.

Two key meetings were organised to engage stakeholders in planning for the project's activities. In March, UNESCO - IOCAFRICA, in partnership with the Ocean InfoHub (OIH) Project, organised a virtual meeting to allow different stakeholders to deliberate on the reactivation of ODINAFRICA to support the development of the African regional node for OIH project. One of the key outcomes of the meeting was the establishment of an ODINAFRICA Steering Group, with representatives from various member states, as well as the Ocean InfoHub. The steering group has been meeting on a bi-weekly basis to deliberate and formulate the strategic plan for the revitalised ODINAFRICA project. The second workshop was held virtually in September 2022. The session provided stakeholders, including NODCs, marine-affiliated institutions and individual experts with a platform to discuss the draft ODINAFRICA reactivation strategy (developed by the steering team) and agree on the way forward, focusing on its implementation. Further, the workshop enabled different participants to make input and plan for participation in proposed flagship project under the revitalised ODINAFRICA network. The participants endorsed the proposed actions and work plan outlined in the draft strategic plan for the period 2022-2030, in line with UN Decade of Ocean Science for Sustainable Development. As such, the activities in this phase of ODINAFRICA will be in line with three priority areas:

I. Establish and advance the development of a regional 'digital twin' for Africa
II. Establish ODINAFRICA as the African regional node for the Ocean Information Hub (OIH) Project's Ocean Data and Information System (ODIS).
III. Enhancing capacity development for safe and efficient gathering, quality control, processing, dissemination, and preservation of ocean data generated by national and international agencies.

The steering team is preparing the final version of the draft strategic plan, taking into considerations the insights from both meetings.

Further, there has been substantial progress in the redesign of ODINAFRICA website to provide access to IOCAFRICA databases and directories. The main aim of this initiative is to support the development of an integrative data portal and updating of requisite data platforms, including discoverable and accessible catalogues, services/APIs, and databases, so that they are discoverable through the ODIS architecture. The portal will mainly entail interoperable databases under six thematic areas: People and institutions/organizations; Documents and Best practices, Spatial data/maps, Training and Research Opportunities, Vessels (and other observation platforms) and Marine related Projects. Currently, a contractor is working on this initiative and expected to finalise setting up the comprehensive data portal by the end of the year.

Subsequently, we have consolidated data to be uploaded in the respective databases. This includes over 2000 entries for documents and best practices (to be linked to the Aquadocs repository), an up-to-date documentation of research vessels in the region and other ocean observation platforms, a list of 400 marine-related project entries; about 600 entries of marine spatial data (injected the old from old GeoNetwork catalogue into the new GeoNode server).

Two training events have been organised as part of the capacity building initiatives:

- Fundamentals of Ocean Floor Mapping – with the Kenya Marine and Fisheries Research Institute, Mombasa, Kenya.
- Training in partnership with OIH and Geosolutions - IODE/IOC/UNESCO members will gain the knwoledge to upload data and documents, edit data, create maps and styles, share maps and create GeoStories store in the ACMA GeoNode Portal.

5. Assumptions and risks

Assumption(s)

There will be timely access to the requisite resources, both human and material, needed to complete the project.

Risk(s)

The costs of implementing the project were likely to increase

Consolidation of data and setting up of databases would take more time than expected.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes
O1. Increased access to the ocean with open and equitable access to data, information and technology, and innovation

Performance Indicators (2-5 maximum)	Status (empty for new projects)
PI1. Number of stakeholder sessions / meetings conducted	Competed
PI2. Number of interoperable databases developed	In progress
PI3: Number of capacity building initiatives conducted successfully	Completed

Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Support the activities of the Africa region, with reference to the Ocean InfoHub project, including through the collection of relevant content for updating databases and inventories, focusing on: (a) Experts, institutions and organizations, (b) Networks, projects, funding and other opportunities, (c) Regional and national framework and policy documents as well as legislation covering ocean related issues	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: Collect and collate information necessary for revamping the ODINAFRICA website and development of the regional ocean information hub	Completed
A1.2: Develop an integrative ODINAFRICA data portal with interoperable databases for the aforementioned thematic fields	In progress
A1.3: Undertake a comprehensive review and assessment of the capacities available for marine science and technology, and the capacity building needs in Member States of the Sub-Commission	Completed
Report on status of activities. Problems experienced and measures taken:	
The project implementation is underway. There were delays experienced in engaging the contractor to develop the ODINAFRICA data portal as well as the individual databases. Nonetheless, it is expected that this activity will be complete by December. The collected data (currently in CSV files) will be uploaded once the respective database are set up. The review of capacities available for marine science and technology, and the capacity building needs in Member States of the Sub-Commission was undertaken via an online survey, albeit low responses from member states. A second survey will be piloted in the new phase of ODINAFRICA, specifically targeting the NODCs.	
Milestone/deliverable/work package	
M2: Support capacity development initiatives within IOCAFRICA member states	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1: Conduct and promote trainings on data management (including capacity building in configuring metadata, services, and sharing of ocean datasets) among different stakeholder groups	Completed
A2.2:	
A2.3:	
Report on status of activities. Problems experienced and measures taken	
Workshops conducted as planned. No notable problems experienced.	

7. ***Annex II Part B****. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes
O1. Establish and advance the development of a regional 'digital twin' for Africa for centralising marine data acquisition, data management, and interoperability,
Performance Indicators (2-5 maximum)
PI1. Number of interoperable databases developed

PI2: Number of stakeholder groups involved			
PI 3: Number of models developed and calibrated			
PI4: Number of meetings and Sessions organised and held to provide common platform for marine scientists, computer scientists, data scientists, socio-economic scientists and data managers			
PI5: Number of use cases/real user stories (actually used the African node of OIH)			
Work plan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1: Establish and advance the development of a regional 'digital twin' for Africa for centralising marine data acquisition, data handling and management**,**			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: Organise training sessions for marine researchers on developing and utilisation of algorithms for strengthened scalability of big data analysis			
A1.2: Organize joint sessions for trans disciplinary (Marine, computer, data , socio-economic and data) scientists to inform regional design of marine research			
A1.3: Develop community standards, well-designed data management plans and sharable best practices for marine-related data			
Assumptions and risks: **Assumptions:** Partners in the region will express interest to participate in the initiatives There will sufficient resources, both financial and human, to implement the project **Risks** The scope of project activities could change within the implementation period			
Milestone/deliverable/work package			
M2/D2/WP2: Establish ODINAFRICA as the African regional node for the Ocean Information Hub (OIH) Project's Ocean Data and Information System (ODIS)			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: Develop the African Coastal and Marine Atlases (ACMA) and incorporate the mapping of corals, mangroves, natural resources, marine protected areas, waste dumping, dredging and other vital ecosystems and processes.			
A2.2: Support the development and updating of requisite data platforms including discoverable and accessible catalogues, services/APIs, and databases, so that they are discoverable through the ODIS architecture.			
A2.3: Reactivate the African Ocean Biodiversity Information System (OBIS) nodes			
Assumptions and risks			

Assumptions: Partners in the region will express interest to participate in the initiatives There will sufficient resources, both financial and human, to implement the project **Risks** The scope of project activities could change within the implementation period			
Total budget (requested from IODE)			
M2/D2/WP3: Ensure capacity development for safe and efficient ocean data gathering, quality control, processing, summarization, dissemination, and preservation of data generated by national and international agencies			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		20xx	20xx
A3.1: Reactivate the ODINAFRICA network of NODCs to support the regional development of OIH			
A3.2: Conduct and promote trainings on data management (including capacity building in configuring metadata, services, and sharing of ocean datasets) among different stakeholder groups			
A3.3: Work with NODCs to enable their mandate in providing data to inform national processes			
Assumptions and risks			
Assumptions: Partners in the region will express interest to participate in the initiatives There will sufficient resources, both financial and human, to implement the project **Risks** The scope of project activities could change within the implementation period			
Total budget (requested from IODE)			

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

Mr Mika Odido, the IOC Coordinator reported on the actions that have been taken to revitalize the Ocean data and Information Network for Africa (ODINAFRICA). This included the organization of an online workshop in March 2022 with stakeholders to deliberate on the revitalization of the network in order to support the development of an African node for the Ocean Information Hub. The ODINAFRICA Steering Group, established during the workshop developed a Strategic Plan for revitalization of the network, focussing on 3 areas:

(i) Establishment and advancing the development of a regional 'digital twin' for Africa
(ii) Establishment of the ODINAFRICA portal as the African regional node for the Ocean Information Hub (OIH) Project's Ocean Data and Information System (ODIS).
(iii) Enhancement of capacity development for safe and efficient gathering, quality control, processing, dissemination, and preservation of ocean data generated by national and international agencies.

Progress has been made in the development of the ODINAFRICA portal focussing on the six thematic areas for the Ocean Information Hub. The African Coastal and Marine Atlas has been migrated to a new Geonode platform developed with support from ICAN. Linkages have been established with the Seabed2030 project to advance the mapping of the sea floor around Africa.

The focus in the coming biennium will be on populating and quality control of the databases that have been developed, as well as capacity development and the generation of data and information products for sustainable management of the ocean and coastal resources and environment.

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19. IODE Annual Project Report: ODINCARSA

1. Title of project/activity and acronym

ODINCARSA-LA

2. Project established by (provide reference to IODE Committee session and Decision)

Recommandation IODE-XVI.9 / Résolution IOC-XXI.8

9. Annual report submitted by [name] on [date]

Ariel Troisi – JAN 2022

10. General overview of the project status/ Executive summary

The network counts with 10 NODCs, 7 ADUs (5 OBIS) and 1 AIU, and they carry their activities individually. Limited and declining financial resources available from UNESCO RP to fund the ODIN had an impact on the possibility to address common activities, and overcome identified weaknesses as (i) inadequate funding, (ii) lack of focus, (iii) poor communication, and (iv) lack of visibility and coordination. Access to extra budgetary sources allowed continuing actions in specific areas (e.g. OIH and OTGA), thus providing important opportunities for development. In keeping with Decision IODE-XXVI.4.1.2, a closer link was established with IOCARIBE which translated, inter alia, into an active participation in the development of the regional component of OIH. OIH held 15 coordination meetings through the period 2021-2022, hosted one webinar (JUN 2021), and translated training course material into Spanish. The region has 3 RTCs and 1 STC of OTGA. In 2021, 13 training courses were delivered with a total of 490 participants, and 7 courses with 204 participants in 2022 (A/O November). For a complete report on the status of the implementation of the workplan, please refer to the reports of OTGA and OIH.

11. Assumptions and risks

Mobility of ODINCARSA-LA focal points results in a clear challenge on the ability to agree upon, plan and implement coordinated actions. The distribution of experts and infrastructure within the region remains asymmetrical. Main lines of action are currently contained in OTGA and OIH, and supported by local contributions and extra budgetary sources. Closer coordination with IOCARIBE and the Western Tropical Atlantic UN Decade Regional Planning Group may result in increasing activities and benefits for the region. Without appropriate and adequate planning, current activities may be at risk, emerging issues may result unattended, and existing opportunities may be missed.

*12. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Training (ref to OTGA RTCs/STC) O2. OIH-LAC (ref to OIH)	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. Deliver training services	**In progress**
PI2. Meetings and workshops to strengthen work and improve coordination	**In progress, with limitations**
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Providing a programme of training courses related to IOC programmes, contributing to the sustainable management of oceans and coastal areas and relevant to Member States in the region	
Activities	**Status (completed, in progress, postponed, cancelled)**
A1.1: Training courses	20 courses delivered, 694 participants. Activity in progress
Report on status of activities. Problems experienced and measures taken:	
Due to the CoVid 19 pandemic, all training courses were delivered online. This circumstance allowed for wider participation with a sensible reduction of operation costs. RTCs and STC worked in the regional context and language, addressing common goals as well as national goals, taking advantage of local experts and instructors. Details contained in OTGA reporting.	
Milestone/deliverable/work package	
M1: integrate the ODIS-architecture into the CHM-TMT, to enable the CHM-TMT to be a fully functional hub for the Ocean InfoHub, and a demonstration of the ODIS-architecture.	
Activities	**Status (completed, in progress, postponed, cancelled)**
A2.1: Identification of 3 regional partners, report of correspondence, agreed work plan and timeline with each partner.	In progress

A2.2: Implement the ODIS-Arch on CHM LAC to retrieve and expose data from a data provider that implements the Schema.org vocabulary and JSON-LD (Product: Document with architecture description)	In progress

Report on status of activities. Problems experienced and measures taken

OIH held 15 coordination meetings, and hosted one webinar (JUN) in 2021. All activities were carried out online. For a complete report, kindly refer to OIH reporting.

*13. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes

O1. Training (ref to OTGA RTCs/STC)
O2. OIH-LAC (ref to OIH)

Performance Indicators (2-5 maximum)

PI1. Deliver training services

PI2. Meetings and workshops to strengthen work and improve coordination

Workplan & Budget

Milestone/deliverable/work package

M1/D1/WP1: Providing a programme of training courses related to IOC programmes, contributing to the sustainable management of oceans and coastal areas and relevant to Member States in the region

Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: Training courses	OTGA + ODINCARSA	Refer to OTGA workplan	Refer to OTGA workplan

Assumptions and risks

The activity assumes continuation and sustainability of OceanTeacher Global Academy, and support of RTC/STCs in the region.
Training courses to be delivered online, with the option of hybrid mode.
Without appropriate and adequate planning and support, activities may be at risk, emerging issues may result unattended, and existing opportunities may be missed.

Milestone/deliverable/work package

M2/D2/WP2: integrate the ODIS-architecture into the CHM-TMT, to enable the CHM-TMT to be a fully functional hub for the Ocean InfoHub, and a demonstration of the ODIS-architecture.

Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE), USD**	
		2023	2024
A2.1: Meetings and workshops to strengthen work and improve coordination	OIH + ODINCARSA	Refer to OIH workplan	Refer to OIH workplan
A2.2: Implementation of OIH-LAC	OIH + ODINCARSA	Refer to OIH workplan	Refer to OIH workplan

Assumptions and risks

The activity assumes continuation and sustainability of OIH, and continuing support and participation of OIH-LAC partners.
Assumes the further development and implementation of OIH-LAC and early adoption by other stakeholders in the region.

Total budget (requested from IODE)	Refer to OTGA and OIH	Refer to OTGA and OIH

14. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

(reported by Mr Ariel Troisi). The activities implemented, and results achieved during the inter-sessional period are directly associated to Ocean Teacher Global Academy 2 (with its three RTCs and one STC), as well as to OceanInfoHub and the LAC regional node. In keeping with Decision IODE-XXVI.4.1.2, closer links were established with IOCARIBE. Nevertheless, the region continues suffering from extremely limited financial resources to support activities. The asymmetrical distribution of capacities in terms of human resources and infrastructure reported in previous IODE Committee meetings remains a challenge. Despite the efforts made and the activities carried out during the inter-sessional period, several shortcomings persist. Although the critical importance of proper data and information management and associated capacity development remains unchallenged, the continuation of ODINCARSA-LA under its current form and structure requires revision.

Signed by Project Leader. Ariel Troisi
Date. 16NOV2022

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Date received: 17 November 2022

20. IODE Annual Project Report: ODINWESTPAC

1. Title of project/activity and acronym

Ocean Data and Information Network for the Western Pacific Region (ODINWESTPAC)

2. Project established by (provide reference to IODE Committee session and Decision)

Recommendation IODE-XXIV.4 (ESTABLISHMENT OF THE OCEAN DATA AND INFORMATION NETWORK FOR THE WESTERN PACIFIC REGION (ODINWESTPAC) PROJECT) in 2017

3. Annual report submitted by [name] on [date]

Dr SUN Miao on behalf of Dr SHI Suixiang on 28 November 2022

4. General overview of the project status/ Executive summary

The real-time ocean and marine meteorological observation data were operationally collected in 2022. Thematic marine data and information products have been operationally updated and shared through the ODINWESTPAC website. A new thematic service module 'the 21st Century Maritime Silk Road' was developed and deployed at the website by the host centre, NMDIS/China. The 2022 China-ASEAN Countries Training Course on Marine Information Technologies (online) and a satellite event of the UN Ocean Decade 6th laboratory were successfully conducted. ODINWESTPAC was invited and introduced as the regional data sharing best practices on the UN Ocean Conference side event.

5. Assumptions and risks

The COVID-19 pandemic still put risks on regional ocean science and technology cooperation. In 2022, the efforts in promoting the linkage and cross-regional data interoperability between ODINWESTPAC and other international cooperation projects were taken. ODINWESTPAC member states were requested to further improve their participation in the project activities. The high-level events like UN Ocean Decade and Ocean Conference brought ODINWESTPAC new cooperation opportunities and also challenges on how to get involved and improved.

*6. **Annex II Part A**. Report on the status of the implementation of the workplan*

Project Outcomes	
O1. Well-functioning web portal (http://www.odinwestpac.org)	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. 22 marine observational datasets updated online with the volume of 500 GB, and 200GB of marine related data of countries along the Belt and Road collected.	Completed
PI2. 1) 2022 real time analysis data of temperature, geostrophic current, density, sound velocity, salinity; 2) monthly and daily reanalysis data; 3) remote sensing products of Arctic Ocean.	Completed (real time analysis were released online)
PI3. 230 new registered website users and accumulated download volume of 1.2TB	Completed
Project Outcomes	
O2. Capacity building activity on ocean data management and information technology, data interoperability being implemented	
Performance Indicators (2-5 maximum)	**Status (empty for new projects)**
PI1. 2022 China-ASEAN Countries Training Course on Marine Information Technologies (on line) with 18 participants from 6 countries participated in the training.	Completed
P12. UN Ocean Decade 6th laboratory satellite event on expanding ocean data interoperability between Europe and Asia co-hosted by NMDIS and EMODnet with 60 participants from the EU and Asian countries including China, Indonesia, Malaysia the Philippines, and invited experts from IODE.	Completed
P13. ODINWESTPAC participates the UN Ocean Conference side event "interoperable, transparent, and accessible marine data for the UN 2030 agenda, the UN Ocean Decade, and for the benefit of all" as a regional data sharing best practice.	Completed
P14. ODINWEASTPAC was invited to give a report on the workshop "Improving FAIRness of European and Asian marine data and data products for regional and global users" to extend the experiences of WESTPAC regional data sharing.	Completed
Status of Workplan Implementation	
Milestone/deliverable/work package	
M1: Please see more details in the performance of the project outcomes above.	
Activities	**Status (completed, in progress, postponed, cancelled)**

Report on status of activities. Problems experienced and measures taken:
A thematic service module was newly developed and deployed at the ODINWESTPAC website in 2022. The marine data and information were operationally produced, updated and shared online. The online Training Course on China-ASEAN Marine Information Technologies, the UN Ocean Decade laboratory satellite event on expanding ocean data interoperability between Europe and Asia were successfully conducted. Visibility of the project was raised through the active participation in the UN Ocean Conference side event. Positive feedbacks from the participants were received.

*7. **Annex II Part B**. Submission of new workplan and budget for the next intersessional period.*

Project Outcomes			
O1. Well-functioning web portal (http://www.odinwestpac.org)			
Performance Indicators (2-5 maximum)			
PI1. Operational running of ODINWESTPAC website, with observational data and products produced, collected and updated of the 2023 and 2024.			
Project Outcomes			
O2. Implement capacity building activities which relate to data and information management and service			
Performance Indicators (2-5 maximum)			
PI1.OTGA RTC Tianjin Training Course on Marine Information Technologies 2023.			
PI2. Second ODINWESTPAC advisory group meeting.			
Workplan & Budget			
Milestone/deliverable/work package			
M1/D1/WP1: ODINWESTPAC website operationally maintenance and capacity building activities			
Activities (include start-end date if applicable)	**Responsible**	**Budget (requested from IODE) USD**	
		2023	2024
A1.1: OTGA RTC Tianjin Training Course on Marine Information Technologies (May 15-26,2023, Hybrid, Tianjin, China)	International travel of selected participants	$30,000	0
A1.2: Second ODINWESTPAC advisory group meeting (May 27,2023, Hybrid, Tianjin, China)	International travel of AG member upon request	0	$20,000
Assumptions and risks			
Due to the pandemic risks, the capacity building activities exists uncertainties. Hybrid meeting is an optional with both in person and online participates.			
Total budget (requested from IODE)		$30,000	$20,000

8. Draft text for the annotated agenda and summary report (TO BE USED FOR REPORTING TO THE IODE SESSION)

This project was introduced by Dr SHI Suixiang, Project Coordinator of ODINWESTPAC, referring to Document IOC/IODE-XXVI/Ag*-ODINWESTPAC. He reported the operation of ODINWESTPAC regional service platform and a series of efforts that increase the visibility of ODINWESTPAC projects. Dr Shi reported on the following results achieved during the inter-sessional period: (i) the upgraded project web portal (http://www.odinwestpac.org); (ii) regional data and information products service; (iii) collaboration with other projects on enhancing the regional capacity building activities. He ended his report by reaffirming the commitment to ODINWESTPAC in promoting the regional data and information exchange, through specialized data product R&D, ocean knowledge sharing as well as capacity building.

Signed by Project Leader.
Date. 2022/11/23

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Date received: 24 Novemeber 2022

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