Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies

IODE Steering Group for the Ocean InfoHub Project

Report

Final Project meeting (Virtual)
16 May 2024

16 May 2024
English only

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1. Introduction

The final Session of the IODE Steering Group for the Ocean InfoHub Project was convened on 16 May 2024 in two sessions. A virtual format was chosen to facilitate maximum participation of Steering Group members.

Session A: 5-7AM UTC
Session B: 2-4PM UTC

Background documents were prepared and shared with all Steering Group meeting participants in advance of the meeting.

OE event link: https://oceanexpert.org/event/4225

The purpose of the meeting was to provide an overview of progress on the work plan over the past 6 months. All meeting documents will be permanently located at the Ocean Expert link provided above.

2. Opening of the meeting

Mr Peter Pissierssens, Head of the IOC/UNESCO Project Office for IODE welcomed the meeting participants to both Session A and Session B. He thanked the members of the OIH SG for active participation in the project and the donor the Government of Flanders. He thanked our project manager Lucy Scott, Pier Luigi Buttigieg, the Chair of the SG-ODIS , our 24/7 IT consultants Doug Fils and Jeff McKenna, Sofie de Baenst and Arno Lambert at the IODE project and of course last but not least the dedicated partners in our pilot regions - PSIDS, LAC and Africa.

Ocean InfoHub has gone beyond its original objective which was “to address the challenges and complexities of finding and sharing Ocean data and information online” focusing on Latin America and the Caribbean, Africa and Pacific SIDS. The technology that was required to enable OIH is now the foundation for a much larger initiative that is the Ocean Data and Information System currently involving 28 partners with 32 nodes and growing further every day. But OIH has also seen its challenges: while we had planned to meet with stakeholders in-person the Covid pandemic forced us to work fully online. Despite this setback the OIH teams around the world managed to proceed.

The success of OIH together with the realization by Member States that quality data and information is an essential requirement for science-based decision making has now led to a considerable increase in UNESCO funds for IODE. In addition, IODE-27 decided to restructure the IODE programme identifying ODIS as one of three core programme components. This will provide ODIS the necessary stability and sustainability that is essential to inspire trust from its current and prospective partners around the world. OIH received a positive review as part of the review of FUST and the final report of the project will be submitted at the end of June.

But this is not where our joint story ends: while we have enabled a number of data centres in our three regions, many remain unconnected. With the expertise developed within each region we hope that more centres in each region and beyond will join ODIS, build regional portals and therefore build a truly global ocean data and information ecosystem. He thanked participants again, and the meeting commenced.

3. Administrative arrangements

Ms Sofie De Baenst shared some logistical and administrative information for the online meeting in both sessions, including Zoom protocol.

4. Adoption of the Agenda

Ms Lucy Scott (Session A) and Mr Jhonny Garces (Session B) presented the draft agenda which was adopted with no changes.

5. OIH Project overview and final report

A presentation was made by Lucy Scott covering a short update on deliverables since the last SG meeting (six months ago) and plans for the final month.

Details of every work package are not given, as too much would be repeated from the last meeting. Participants are referred to the report of OIH SG-IV for a comprehensive overview (available at the Ocean Expert meeting link).

The work programme remains on track, and we have now completed the last few items in our results framework. As a reminder of our overall objectives:

in April 2020, some of the challenges that were identified then were:

- A proliferation of online sources of data and information (ODISCat currently contains over 3100 records https://catalogue.odis.org/)
- A diversity of online data systems
- Global data and information resources with useful content, but local users might not know about them
- Challenges of trust in some regions
- ODISCat is now an integral part of ODIS, and registering with ODISCat will be the first step in the workflow for joining the ODIS federation.

In response to these challenges, the Ocean InfoHub Project had a number of objectives:

- To develop interoperability between existing information systems, thus improving the flow of information to end users.
- Improve discoverability & access to marine and coastal data for multiple purposes, but especially to inform sustainable management and informed policy development.
- Facilitate equitable access to Ocean information and knowledge products
- Connect independent digital initiatives to form a diverse, but interoperable and inclusive, Ocean Data and Information System.

Our approach, as you'll recall, was to work with a number of founding partners including the University of Ghent, WIOMSA, SPREP, SPC, EUROCEAN, EMODnet and other sister projects within IODE, including:

- Ocean and Data information system Catalogue of data sources (ODISCAT)
- OceanExpert : *People, institutions and events*
- AquaDocs : *Documents and Publications*
- The GOOS/IODE Ocean Best Practices System (OBPS)
- The Ocean Biodiversity Information System (OBIS)
- The World Ocean Database (WOD)

And to work in three pilot regions, in a true exchange of technologies in a co-design process between partners.

OIH developed the first phase of the Ocean Data and Information System architecture.
The Ocean InfoHub Project has developed the **Ocean Data & Information System (ODIS)** that can help any organisation or individual to share their ocean (meta)data with the world, as well as to access a growing ecosystem of Ocean data. The system is lightweight, easy to implement, and resilient to gain/loss of parts.

Partners aligned to ODIS are also discoverable by Google Dataset search and others.
Partners retain their own data and complete control over what they share through their node or nodes. All documentation is online, free and open
https://book.oceaninfohub.org/index.html

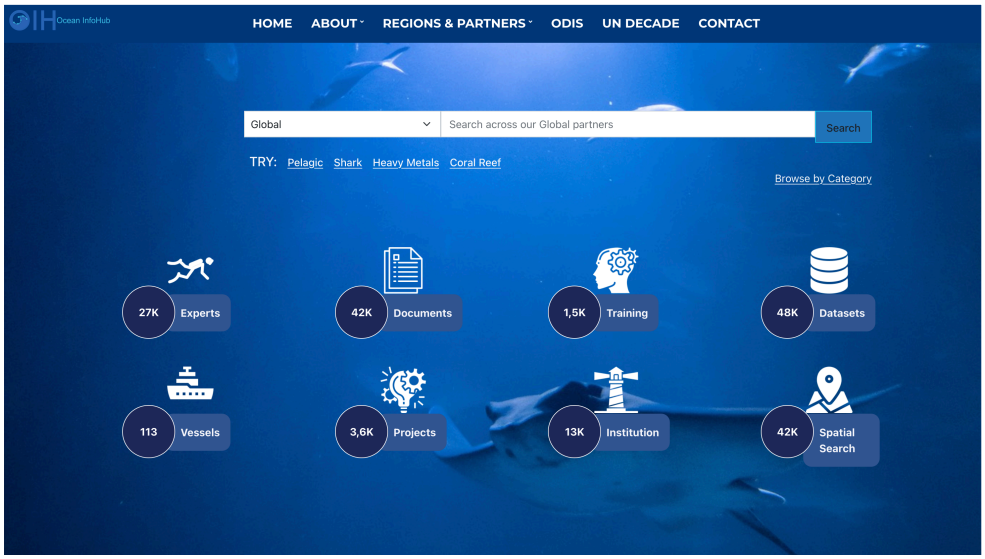
Results 2. A partner network
Our initial objective was just proof of concept – showing exchange of metadata between two partners. Now, we are actually linking 32 databases from 28 partner organisations sharing openly discoverable content through the network.

Strait of Georgia Data Centre	Peace Boat US	POLDER	South African Institute for Aquatic Biodiversity (SAIAB)	Anthropocene Institute	IDEM-DHN Brazil	SDG Federated Data System
Protected planet	NOAA OneStop	OpenOceanCloud	Marine Information Management System (MIMS)	NOAA / Open-GTS / GOOS Observations Coordination Group	Global fishing watch	Hakai Institute
MarCOSIO (formerly MarCoSouth)	Aquatic Sciences and Fisheries Abstracts (ASFA) + FAO	MEDIN (Marine Environmental Data and Information Network)	Research Data Australia	Better Biomolecular Ocean Practices (BeBOP) as part of Ocean Biomolecular Observing Network (OBON)	Population Health domain (cross-domain interoperability)	IOOS
CCLME Eco-viewer	Blue Planet / BIOPAMA (RCMRD)	EMODnet	CLME+ training portal	OBIS	WIO Symphony project	DOOS (Deep Ocean Observing Strategy)
OBON (Ocean Biomolecular Observing Network)	Leibniz Center for Tropical Marine Research (ZMT)	EUROCEAN	SeaDatanet	Caribbean Marine Atlas	ICAN	Digital Earth Africa
IUCN (International Union for Conservation of Nature)	GEO Bon-in-a-box	INVEMAR (LAC regional portal)	OceanScape Project	CORDIO / MASPAWIO	World Environment Situation Room (WESR)	PICES
Nairobi Convention (clearinghouse)	Heimholtz (PLB)	BCC data portal (Benguela Current Commission)	Flanders Marine Institute (VLIZ)	Aquadocs	Copernicus Marine Environment Monitoring Service (CMEMS)	HUB Ocean
DITTO	IW_Learn 5	Canadian Integrated Ocean Observing System	Indonesian NODC	Sargassum Hub	Foundation for Industrial and Technical Research (SINTEF)	BCO-DMO (Biological & Chemical Oceanography Data Management Office)
Argentina, NODC	CODATA	OBPS	Marinetraining.eu	SPC (Pacific Data hub)	Australian Ocean Data Network (AODN)	Mozambique Oceanographic Institute
Colombia DIMAR NODC	GEMS Ocean (UNEP)	OceanExpert	IOC/Africa data portal	SPREP (Pacific Environment Data Portal)	Integrated Marine Observing System (IMOS)	Global Platform for Marine Litter (GPML)
Colombia National Natural Parks	MSP project IOC	METS RCN - Research Coordination Network for Marine Ecological Time Series	National Marine Data and Information Service (NMDIS) - China	World Ocean Database	UNESCO Convention on the Protection of the Underwater Cultural Heritage	Plastic-i
UNEP (UN Environment Programme)	Marine debris data harmonization workshop (WS) Japan	British Oceanographic Data Centre (BODC)	Belgian Marine Data Centre (BMDC)	El Salvador Ministry of Environment	IOCARIBE catalogue	SOCIB - Balearic Islands Coastal Observing and Forecasting System
Tsunami	INCOIS	SARGASSUM Hub	Marine Institute Data Catalogue	SCOR	Permanent Commission of the South East Pacific (CPPS)	Virtual Institute for the Sustainable Development (IVIDES.org)
University of California San Diego, SCRIPPS	GEBCO Seabed 2030	Ocean Acidification (OA) UNESCO	MARISMA			

Results 3. An OIH Global Search portal

A Global Search portal has been developed as a demonstration of ODIS (https://oceaninfohub.org).

The portal currently contains over 130,000 content items in seven content categories: (i) Experts (27,000); (ii) Institutions (13,000; (iii) Documents (42,000); (iv) Training (1,500); (v) Vessels (113); (vi) Projects (3,600); and (vii) Datasets (48,000).



We now have four initiatives that work very closely together:

- the Ocean Data and Information System (ODIS)
- ODISCat and OIH, and
- **Ocean Data 2030** is a Programme registered with the UN Decade of science for sustainable development, to expand ODIS, support the Ocean Decade and connect more widely to Ocean Data systems.

OceanData 2030 will also assist in the implementation of the Ocean Decade D&I Strategy & Implementation Plan.

Now a word on our users – we have two main types of users:

Users of content that access the Ocean InfoHub global search hub. Over 100,000 content items discoverable

- Access via global search or three regional pilot hubs
- Examples: MSP: spatial data; Students: training opportunities; Literature reviews; Peer-to-peer expertise; Analysis of current / past projects.

Users of technology. Open access and free to adopt by anyone.

- ODIS patterns can be used to make metadata discoverable to this network and to others (Google Dataset Search etc).
- All the records in the ODIS knowledge graph can be accessed by anyone – shared to existing information systems (eg SPREP)
- ODIS can be used to create new regional or thematic portals (eg IOCAfrica).
- All records link back to the original authoritative source, and the source keeps control over the sharing action.

We have been collecting testimonials from users, for example:

Our interactions with the OIH and ODIS have been very smooth and informative. A part of the CIOOS mandate is to improve the discoverability of ocean data in Canada. In three oceans and lots of territory, we have a lot of data - and knowing who had what was an issue. With very little effort on our part, all of CIOOS data holdings are now indexed and available via ODIS and OIH. The whole process validated our infrastructure choices to focus on federation. We have a system that works from local to sub-region to National and federation is at all levels. OIH's design has

allowed us to integrate very well and smoothly - and it helps us to fulfil our core mandate. It has been great working with OIH and ODIS so far and we look forward to collaborating in future.
Scott Bruce, Canadian Integrated Observing System - CIOOS, Canada

We used the OIH-AFRICA portal to search for ocean observation data, specifically Sea Surface Temperature (SST) to inform a research paper focusing on Sea Surface Temperature variability along the northern coast of the Gulf of Guinea that we will be publishing.
Dr Sohou, Institut de Recherches Halieutiques et Océanologiques du Bénin

We used OIH to to search for publications of MSP-related projects in East Africa (currently a very important management tool for marine areas) as well as performance of Marine Protected Areas. We also searched for projects on fisheries management in the Northern coast of Kenya.
Harrison Ong'Anda, Kenya Marine and Fisheries Research Institute

The solution proposed by the OceanInfoHub project directly supports several key objectives of the Ocean Decade's data and information strategy. This strategy aims to transform the way we discover, access and use ocean data and information within the Ocean Decade and beyond, thus unleashing its power for the benefit of science and sustainable development solutions."
Louis Demargne, Data & Knowledge Management Officer, Ocean Decade Coordination Unit

NIOMR has used OIH to search for documents / research papers on Coastal erosion and ocean dynamics monitoring at Seme, Yovoyan, Olomometa, Lekki and Orimedu beaches, Lagos state, Nigeria. They are using this information in a study aimed at developing a coastal erosion and flood monitoring system for the region.
Regina Folorunsho, Nigerian Institute for Oceanography and Marine Research

Over the years since the Ocean InfoHub Project was conceptualised, there has been a rapid increase in interest in how data systems can serve marine applications.
Marine spatial planning and sustainable ocean planning (SOP) require robust and reliable data flows. So this is just one example of how OIH is providing infrastructure for timely delivery of data.

OIH and ODIS help MSP and SOP practitioners to:

- Find relevant information quickly and easily
- Identify data sources, expertise, reviews of literature – fast
- Portals can be established on any website, using this technology and accessing the full knowledge graph
- For those projects generating new data, enable discovery and FAIR compliance.

Examples of our partners supporting MSP:

- Benguela Current Commission GeoNode
- CORDIO, MarCoSIO and WIO Symphony in the WIO region
- Caribbean Marine Atlas
- International Coastal Atlas Network (ICAN)

Now I have 4 short slides on our final monitoring results framework. All project targets have been fully achieved.

Performance indicator	Target	Baseline	September 2023
PI 1. Number of content items shared through the system	1000	0	Over 130,000 content items
PI 2. Number of Ocean InfoHub users which have reported collaborative initiatives stimulated by their use of the system	10	0	15 end-user narratives collected that refer to research or training or collaboration or management applications.
Output N°1: Interoperable system of data/information created and available to users (ODIS)			
PI 1. Number of ODIS integrated products/services developed	5	0	25 nodes, 32 services (eg. INVEMAR has 5 services)
PI 2. Usage of the ODIS (volume of content downloaded, number of ODIS resources visited (e.g. redirect from ODIS) [Number of records: redirect from OIH]	1000 items/year/node downloaded	0	2,266 searches over the last year, over 1,016 click through to results (to access/download data) April 2023-March 2024

Performance indicator	Target	Baseline	September 2023
1. Sub-projects established for each ODIS product/service involving existing data/information product stakeholders (WP2, activity 2.2, supported by 2.3)			Six expert thematic sub-groups within the overall Technical Working Group
2.Integration of ODIS products/services into Ocean InfoHub			18 Nodes and 23 services currently integrated.
Output N°2: Global Ocean InfoHub node established, operated and applied by users and contributors to begin developing ocean products			
PI 1. Number of nodes participating in the Ocean InfoHub	4	0	25 nodes active, 98 partners engaged
1.Development of global, regional and thematic nodes (WP2, activity 2.1; WP3, activity 3.1, supported by 3.2; WP4, activities 4.2-4.10)			Global, regional and thematic partners have been identified and are actively participating in the project.

Performance indicator	Target	Baseline	September 2023
2.Establishment of Steering Group to build a community of practice (W4, activity 4.1)			Steering group has been established
3. Uptake of project by users in using the system for development of ocean policies and coastal/ocean sustainable development (using input from WP5, activities 5.1-5.3)			15 end-user narratives collected, 5 of which refer to management or sustainable development applications.
Output N°3: Capacity in data/information sourcing, quality-control and submission of contributors strengthened, and capacity in system use for data/information discovery and extraction of users strengthened			
PI 1. Number of trainees trained in content submission	100	0	Training courses: 16 completed 2021, 81 across English, Spanish, Portuguese, French in 2023, bilateral capacity development ongoing with >90 partners
1. Organization of 2 in-class training courses (WP6, activity 6.1)			In-class training not possible during 2021; Two short in-person trainings took place in 2022. One in-person training planned for June 2024.
2.Development of online training material for self-paced learning (WP6, activity 6.2, supported by 6.3)			OTGA online training course currently open for asynchronous training

Performance indicator	Target	Baseline	September 2023
Output N°4: Networking of data/information contributors and users established (forum concept, including coordinated match-making services) leading to improved mutual understanding and collaboration towards strengthening of science, technology and innovation systems and policies.			
PI 1. Number of data/information providers contributing content	50	0	32 active nodes but many represent numerous content providers. Just one of our nodes (SeaDataNet) has over 50 data contributors; LAC dataset search returns 99 providers)
PI2. Number of unique users consulting the system	1000/year	0	24,493 unique users over the past 14 months
1. Detailed statistics of contributors (WP5, activity 5.3) (in the dashboard, we have detailed statistics of nodes)			Dashboard operational: http://dashboard.oceaninfohub.org/
Additional targets			
Global and regional nodes OIH	10000 content items	0	>130,000 content items

So you might ask what's left to do?

Our final Month activities will include:

Finalisation of this meeting report

Five contracts will be completed and signed off

1. PSIDS engagement (workshop on 27th May)
2. Doug Fils
3. Jeff McKenna
4. Sciencecrunchers outreach, updated video and content
5. Trust-IT front end development
6.

Online participation in (at least):

- The IMDIS conference
- 23rd Annual Large Marine Ecosystems (LME23) Consultative Meeting
- OTGA Steering Group meeting + workshop
- DSIG activities

Thank you for your contributions to the OIH Project!

- In reaching our milestones, grateful thanks are due to the IODE PO team, funder (Government of Flanders, Kingdom of Belgium), WP2 secretariat and contractors, WP2 working group, three regional coordination teams (Africa, LAC and PSIDS), implementation partners and other project partners.
- The legacy of OIH will be maintained by IODE and expanded through the ODIS Programme component, adding functionality as requested by end users, linking partners from new regions around the world and also to develop OceanData 2030 in support of the UN Decade of Ocean Science for Sustainable Development.
- ODIS will be actively looking for funding opportunities, particularly to support activities in pilot regions and communities of practice.
- This is not the end, but just the end of the beginning; ODIS will maintain channels of communication and the team looks forward to staying in touch and sharing some exciting updates over the next few months.

6. The ODIS Federation

A presentation was made by Pier Luigi Buttigieg covering the ODIS Federation: where OIH has brought us and the bright future ahead.

OIH as a project has allowed us to build ODIS – the foundational structure. You and your partners are nodes in that federation. The federation is lasting because we chose sustainable implementations. This is a snapshot of where we are, and what we have set ourselves up to do in the ODIS Programme component of IODE, with leadership from the contributing organisations in the federation.

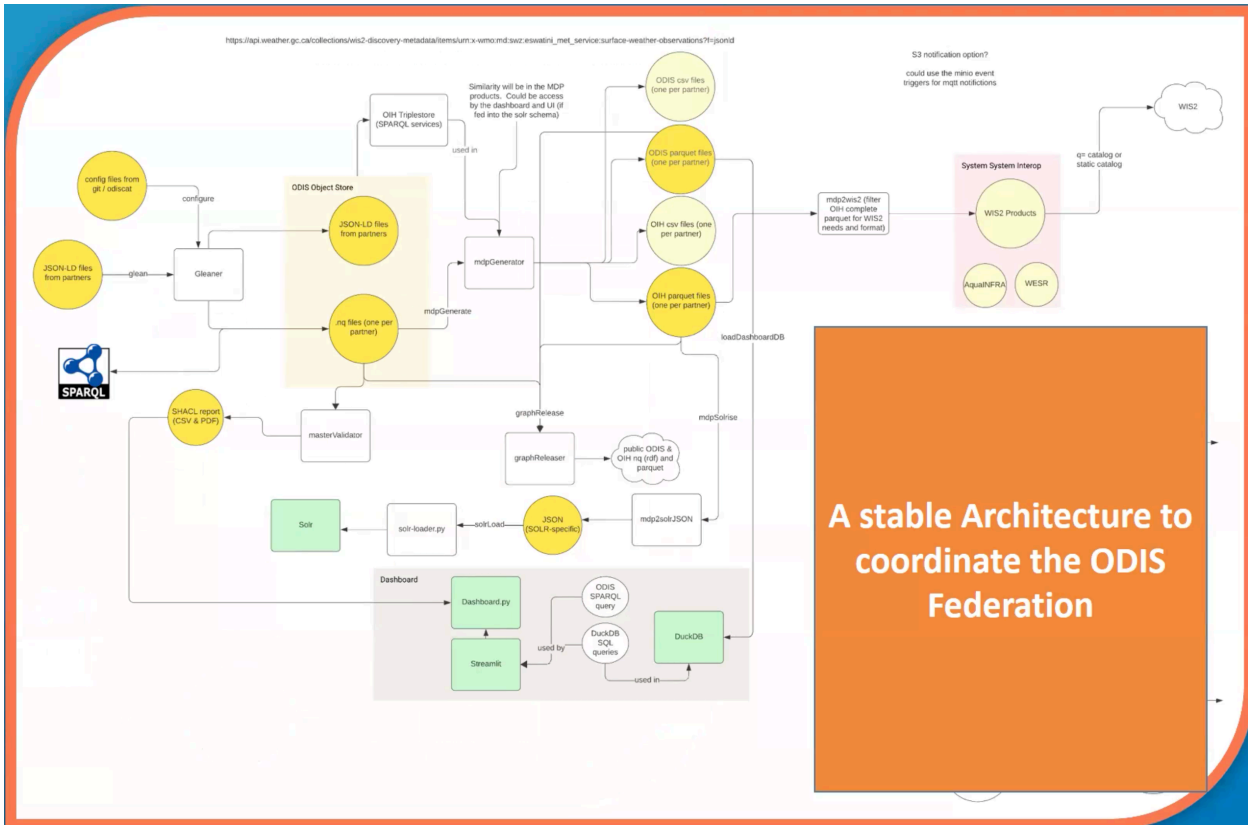
Doug Fils provided some interesting perspectives, and the costs of not being FAIR in a global sense. Two local FAIR compliant solutions may not be interoperable with each other. I think these numbers are underestimates, but of course they are very hard to define.

In the Ocean Decade Implementation Plan, there was already a call to go back to the original principles of 5 star open data on the web, in the data chapter. Our data, no matter where it is, should have a web presence so that other people can find it, work with it and interlink it with other data. When we started, the components of the digital ecosystem were not linked to each other very fluently. Through ODIS, this has changed a lot, also with the multiplier effect of nodes (with some nodes representing multiple / many hundreds of organisations).

OIH, in supporting the development of ODIS, has created a new paradigm where we can validate the digital ecosystem, by sending information out and checking the status of the network – through the dashboard and other systems. This initiative is also aligned with global policy and goals such as the Ocean Decade Data and Information Strategy and Implementation Plan. This will release much more concrete implementation guidance for all Decade actions and partners to align to. If you are part of the ODIS federation, you've already done quite a lot of what is requested. This also dovetails with other calls such as US-UK calls for improved scientific data sharing. We are also working with indigenous communities to publish guidance on implementing the CARE principles. Many of ODIS implementation choices are already well aligned with the CARE principles.

We have now completed the first step in the interlinking of partners which allows them to push and pull queries from the ODIS federation. This is not a one way relationship, but rather IODE coordinating a group of independent nodes to interoperate well, flexibly, and how they choose to. Again, we verify (via the Dashboard) the state of the ODIS federation. We have an objective way to say – are we FAIR? Is it working? We can build trust in a very practical way, and we can

monitor who is sharing what. Behind that, we are building a clear flow of how things are happening internally. When the OIH project finishes, this architecture is sustainable, modular and clonable. In terms of CD we have a highly functional legacy.



Inside this we are generating products for those that don't want to work with the software – so that it has broad usability. Some flows go to the OIH portal, and some report the state of ODIS.

Via this, we can build the bridges to other systems such as WIS2 and UNEP's WESR. So we are linking our digital system to others. The scalability is very high.

Our global search hub shows assets from the consortium – never before have you been able to go to a region, and see which organisations have information. As new partners add their full archives, the density of records is increasing. We are building unified map layers and making visible who has what. We have a global, federated index to our communal data lake.
We have a map of ocean data now, and diagnostics to report on the state of ocean data.
The density of shared data is increasing, which will then enable digital twins and other applications. We are working on diagnostics that will be able to report on the state of Ocean data.

The world is moving towards integration, but also away from integration; there are major geopolitical trends that threaten the internet. We are preserving the oceans part of the internet – for the next generations. Thus, it's on us, via the ODIS programme component, to keep going and to make this interoperability deeper to exchange digital assets for global goals.

We have OceanData2030 to help this happen, with ODIS as a core, bringing in more innovation.

Many of the SG for OIH are operations people leading nodes in ODIS, and the proposal is to transform this SG into an operations committee for ODIS to keep this spirit alive and well. We will then also call for a higher level committee to plan and prepare for the future.

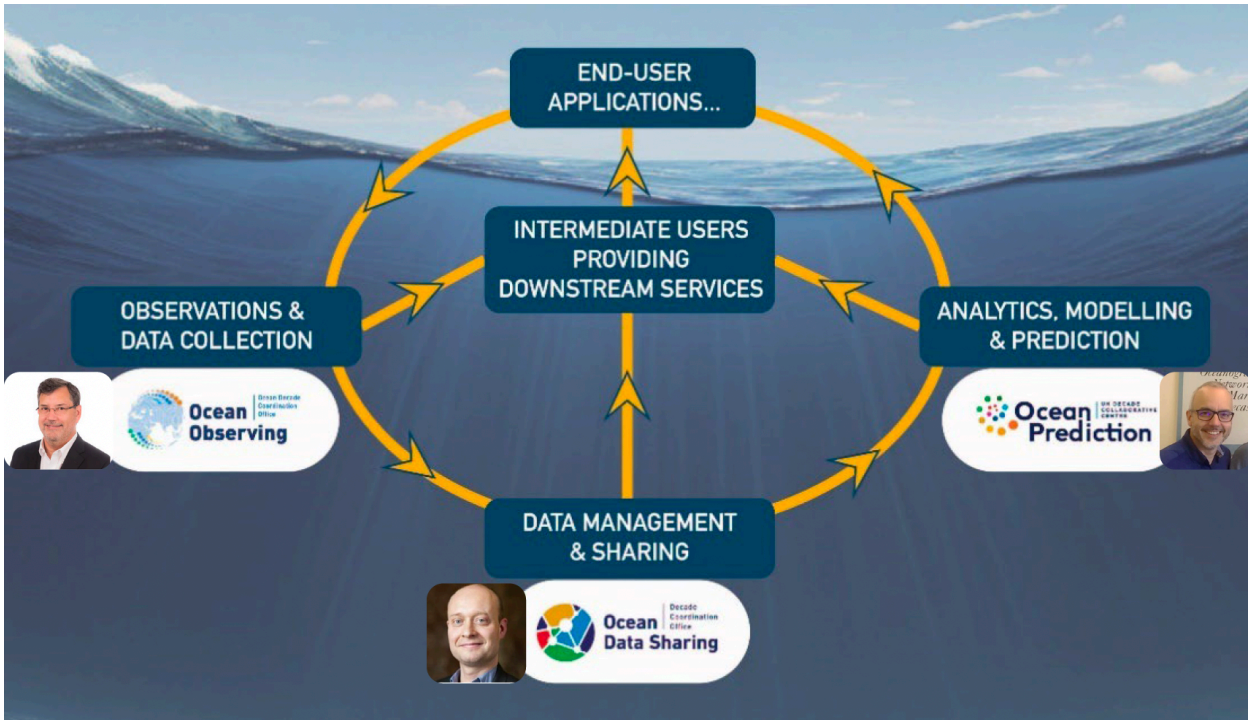
7. Ocean Data 2030 and The Ocean Decade office for Ocean Data Sharing

Pier Luigi Buttigieg continued with his next presentation on Ocean Data 2030, which will be a catalyst for maturing the ocean ecosystem. It will allow people or organisations who are not in ODIS, to meet them halfway. So that for example those developing digital twins, their technical people know who to talk to within ODIS and other organisations. As a programme OD2030 is a framework for all decade actions to send their data people and leads, so that we have a forum to talk directly to one another in a shared space.

OD2030 will be a broader forum that will allow inclusion of a much wider group, help them to align to the D&I strategy, the implementation plan and the vision 2030 process. We hope this will empower the communities within those actions to speak up and take advantage of opportunities. This will address the socio-part of the socio-technical system which is the harder part. Another flow that is not well developed across decade actions, is the flow from data systems over to the SDG process.

- It's a shapeable environment – but grounded in technical soundness
- A hub for all digital initiatives in the Decade to figure out *exactly how* to interoperate
- Empowering the data/digital leads in each Action to help their programmes mesh into the ecosystem, in pursuit of a data space

Jan-Bart Calewaert continued by sharing information on the Ocean Decade Office for Ocean Data Sharing, and its links to OIH, ODIS and OD2030.



The main aim of the Decade Coordination Office (DCO) for Ocean Data Sharing is to establish, promote and coordinate the data management and sharing component of the digital ecosystem needed for the Ocean Decade to be successful.

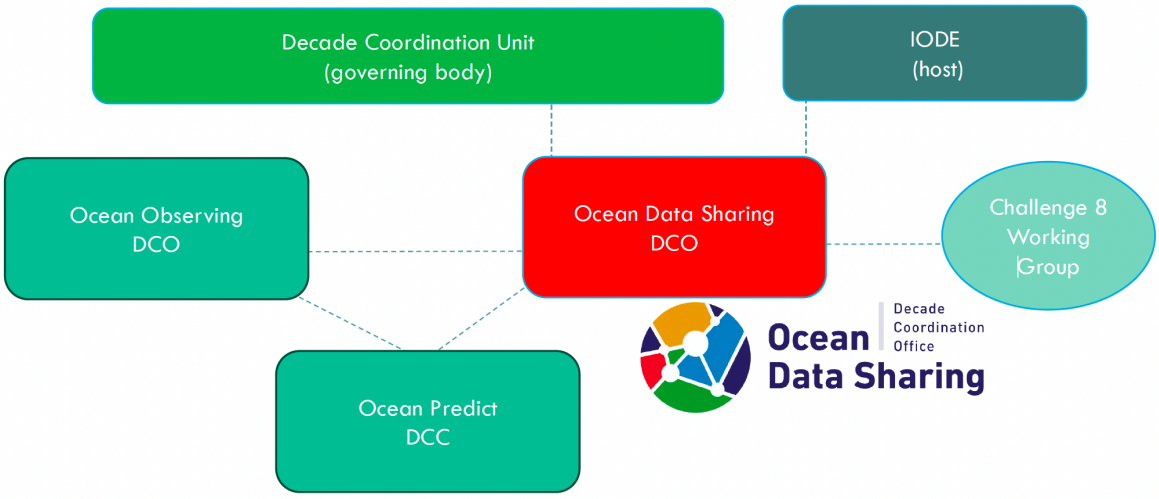
What will the coordinating offices do?

Coordination, facilitation and engagement of stakeholder communities Support links with other value chain components & maintain information flow // Avoid duplication of effort
Foster cross-disciplinary co-design
Coordination and support of Decade Actions: Provide strategic advice re new and existing calls (fill gaps) / actions (align/connect) + link needs with expertise/capacities
Encourage development of technical & scientific capacities
Assist in addressing data gaps and infrastructure needs
Communications, public awareness & mobilisation of resources Raise awareness of data collection, sharing & data literacy Develop partnerships // Communicate successes

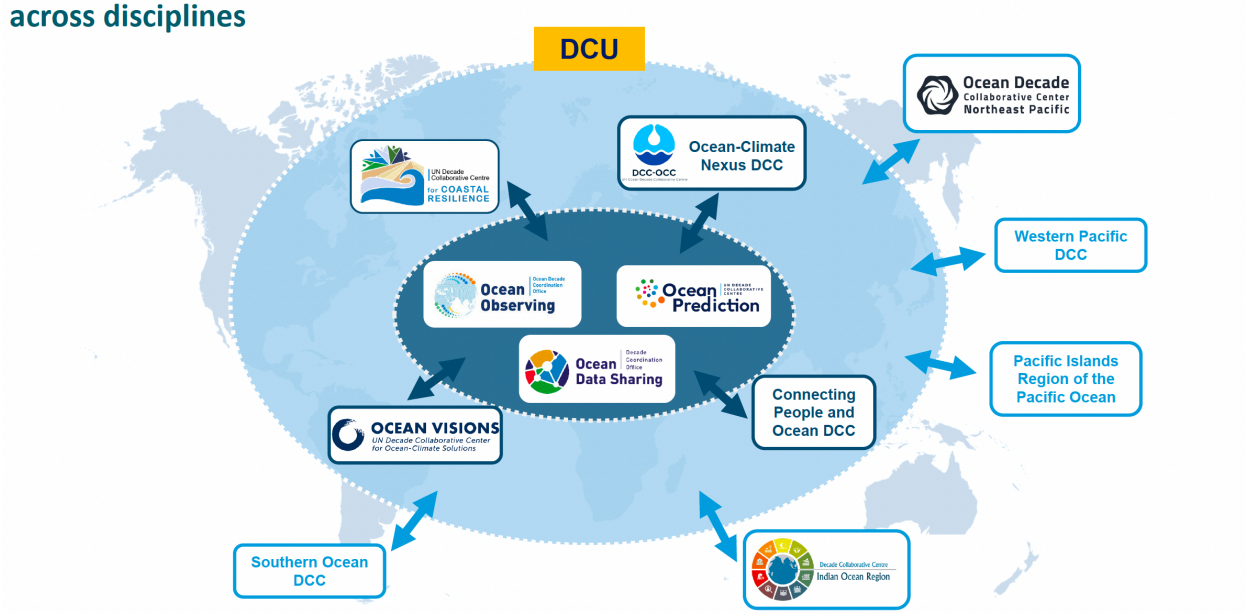
The DCO for Ocean Data Sharing will:

- **Coordinate & interconnect the data-sharing component of the digital ecosystem** for the Ocean Decade > Help **implement the Decade's Data and Information Strategy**
- **Assist Decade collaborators with data sharing guidance** to achieve the highest possible data quality and adherence to **FAIR and CARE** principles.
- Facilitate and support efforts to **address Challenge 8 –Creating a digital representation of the Ocean**
- **Promote data literacy and capacity equitably**
- Help identify and address **data gaps and infrastructure needs**

Ocean Data Sharing DCO – Core relationships



Working alongside other Coordinating Offices across disciplines



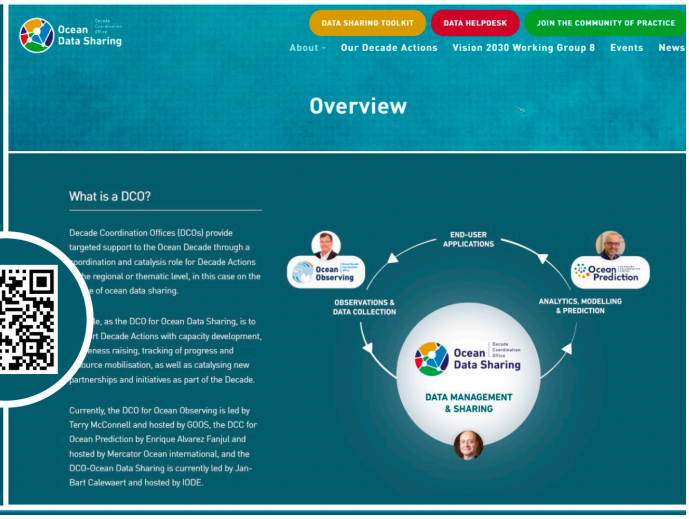
DCO-ODS Website now available

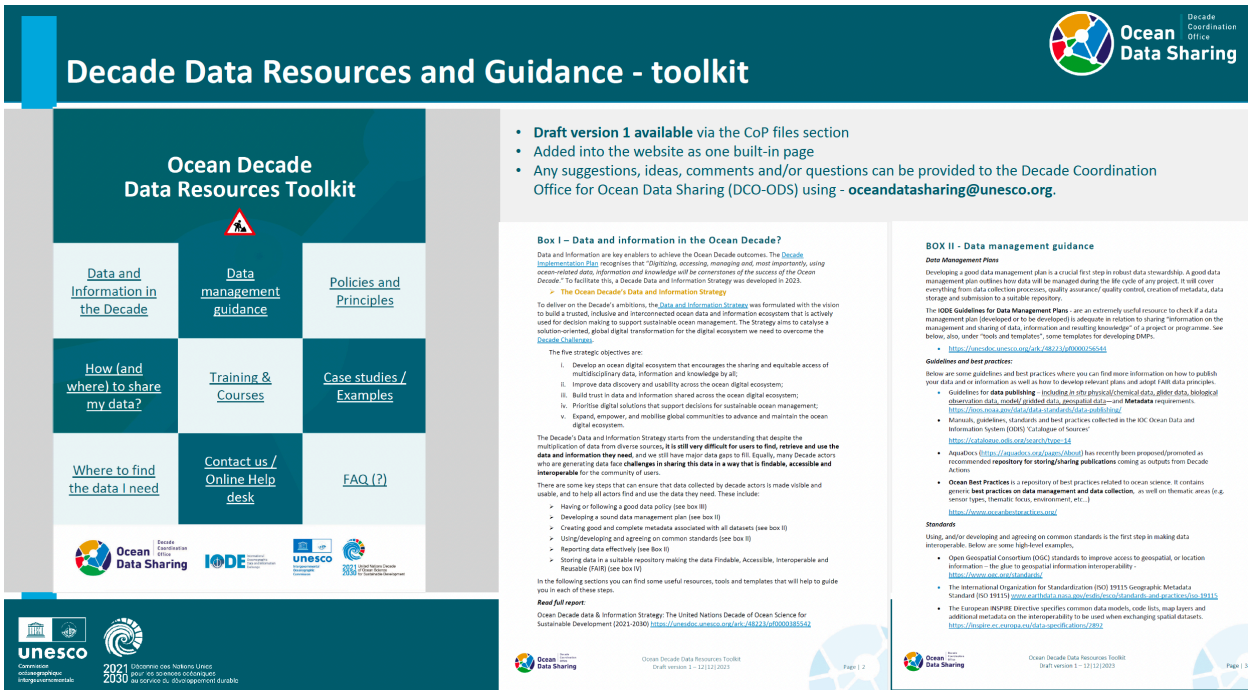
https://oceandatasharing-dco.org/

Includes information on the essential components that serve as the foundation for shaping and advancing the Decade's Digital Ecosystem, to help drive the Community of Practice on Data Sharing and underpin the support to Decade Actions;

Featuring online resources developed by the DCO-ODS:

- *Data Resource toolkit*
- *Online Data Help Desk*





The Online Data Helpdesk

Is a **User-friendly platform where end users can seek answers to specific questions** related to their data needs.
Powered by **a dedicated team of data experts** ready to respond to users' inquiries.
A **collaborative platform** that reflects DCO-ODS's commitment in promoting accessibility, transparency and proficiency in data sharing in the public domain.
Questions submitted to the Help Desk will provide valuable information to **understand the most common data concerns** encountered by users, enabling continuous enhancement of the support services helping to address the evolving needs of the ocean data sharing community.

DCO-ODS Community of Practice

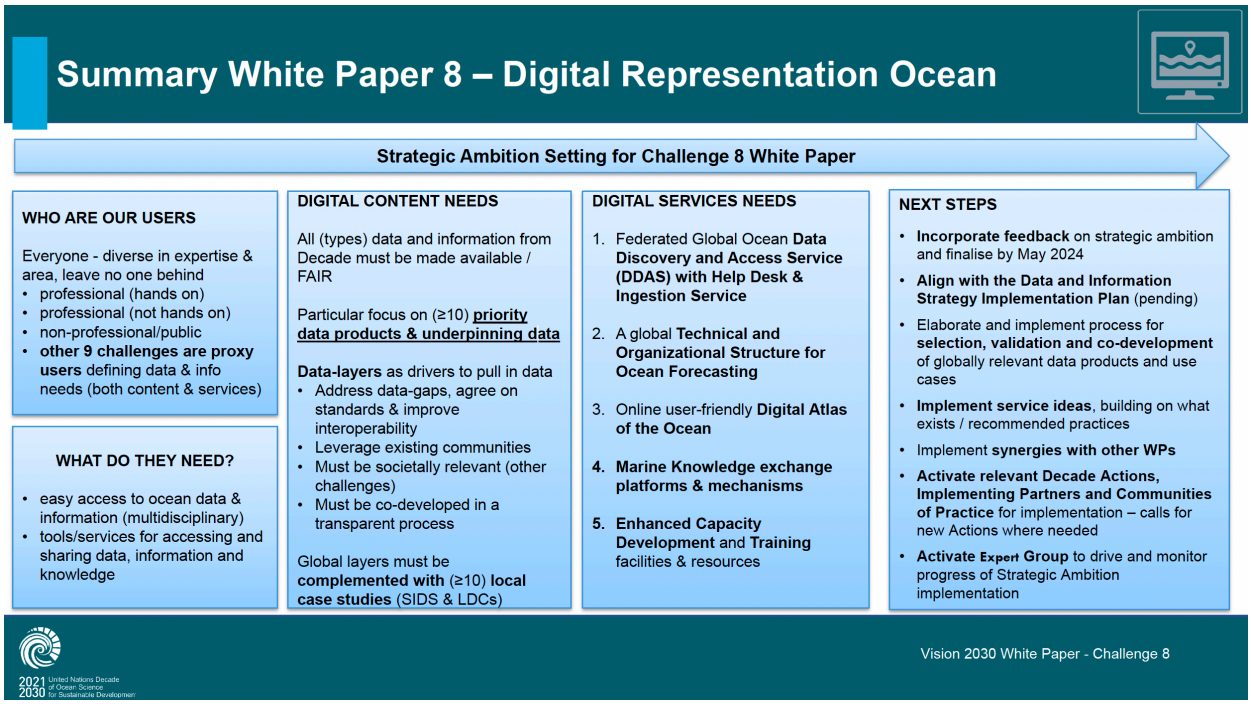
What? An interactive forum, for Decade Actions to connect, exchange, and share knowledge related to Ocean Data Sharing.
Why? Data and information are cornerstones of the Decade, there is a need to build capacity in data and information sharing.
How? The DCO for Ocean Data Sharing will facilitate but this is a community where you(Actions) can exchange expertise, experiences and help each other.
As of today, the CoP has 48 members.
Are you linked to an endorsed Decade Action and interested in connecting to the ocean data sharing community? Join our Community of Practice.
If you are not –or not yet –an endorsed Decade Action, then feel free to register your interest in the work of this DCO by sending us an email at **oceandatasharing@unesco.org**

DCO-ODS Associated Decade Actions

Connected to **4 Primary Attached** Programmes and Contributions **Ocean Data 2030** (Programme, Lead: IODE)
Digital innovation Hand-in-Hand with fisheries and ecosystems scientific monitoring (Programme, Lead: FAO)
World Ocean Database Programme(WODP) (Contribution, Lead: NOAA)

GEOTRACES (Contribution, Lead: U.S. National Science Foundation on behalf of international GEOTRACES partners)
Connected to **1 National Decade Committee (Belgium)**and **3 Decade Implementing Partners** (**EurOcean, EMODnet, Chinese National Marine Data and Information Service NMDIS**)
In total, **106 endorsed actions** address Challenge 8 —Creating a digital representation of the Ocean, including: **18 programmes, 64 projects** and**24 contributions**.

The Decade programme 'An Ocean Data and Information System supporting the UN Decade of Ocean Science for Sustainable development' (OCEANDATA 2030) is led by IODE of the Intergovernmental Oceanographic Commission (IOC).
Development of an **open-source data and information system** that will link existing ocean information systems around the world, and enable more efficient discovery of data, information and knowledge products.
The **Ocean Data and Information System (ODIS)** and **Ocean InfoHub** are central elements of the OceanData2030 Programme.



- **Questions, comments and interventions (Session A)**

PLB: We do many one on one interventions during the project, and so the steering of the project has not only happened via SG meetings, but also frequently in smaller meetings. That is a model that I'd like to keep – the individual attention of the nodes and groups of nodes.

PLB (via the chat): One should note, that some of those 32/45 nodes are regional aggregators themselves. For example MEDIN in the UK (one node in ODIS) federates some 600 organisations. Research Data Australia, the Pacific Data Hub, and others work similarly. Thus 32/45 ODIS nodes represent many more organisations and initiatives.

PP: As Pier Luigi points out, we have 28 partners and 32 nodes, but that does not reflect the complexity of the network. We need to do better marketing to show what is already there, to show the width and breadth of the ecosystem already is. For the future, we need to identify which new federations and partners to give priority to connect. We need to bring additional partners in (for Africa NODCs for example). We need a work plan to address this, to include big

partners as well as smaller ones from developing regions. We need to avoid the situation where other organisations develop something else in parallel that is not complementary.

PLB: Also on the reporting of KPIs and reporting strategy, we need to think about meaningful metrics (large numbers are not always better). We have to develop meaningful diagnostics. Our partnership with OceanData 2030 and the DCO will be instrumental to prevent emerging systems from competing.

- **Questions, comments and interventions (Session B)**

PLB (via the chat): More detailed diagnostics on the status of the OIH Graph (based on the content shared by ODIS Federation Partners) can be monitored here:
http://dashboard.oceaninfohub.org/ (Note: this will soon be available by HTTPS)

For those that are more technically apt, you can query the OIH Knowledge Graph with a little SPARQL. As was mentioned earlier and is being presented now, the 30-40 ODIS Nodes often relay information from many other organisations. Here's a quick (and not authoritative, or complete) query to see which named data providers are in the graph: https://api.triplydb.com/s/hbAPEdKmR Note that there are certainly more, but some ODIS Nodes are still optimising the way they share provenance information. Our ODIS Operations Committee will be tasks with identifying how to enhance harmonization as the Federation evolves.

PLB: As I also mentioned this morning, we do many one on one interventions during the project, and so the steering of the project has not only happened via SG meetings, but also frequently in smaller meetings with our bilateral partners. Generally speaking, this ensures that we are on, and stay on, the same page here.

JBC: Regarding Ocean Data 2030, how do you see the collaboration between the OceanData2030 Programme and the DCO?

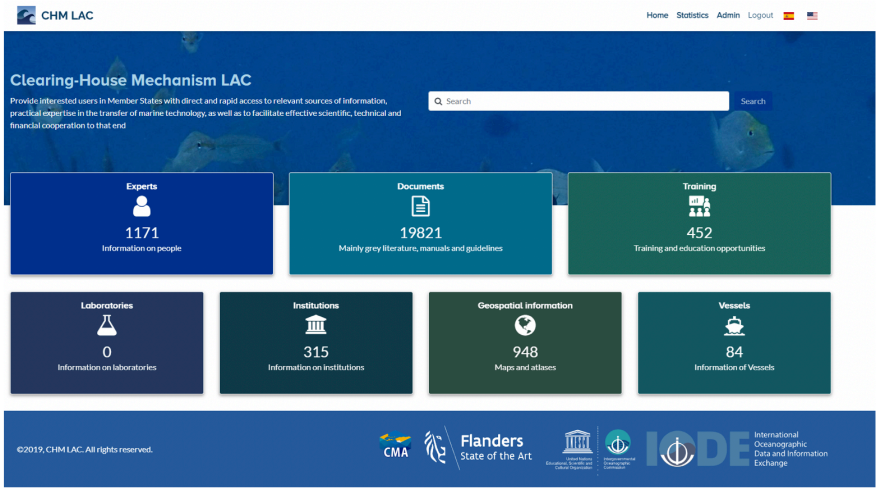
PLB: So the work that you have already been doing in the DCO, especially cataloguing the actions, is the base intelligence for knowing what is out there. I think then, the DCO could help OD2030 identify where actions should be overlapping, and currently are not. Once that is identified we can start a contribution to resolve it – getting the technical people together to improve things progressively. I envisage that OD2030 will have a lot of contribution scale actions under it. If the DCO spots something that would be a good fit with OD2030, the DCO would let OD2030 know, and then we would track this back to the DCO.

JBC: We have just concluded a survey of all the Decade Actions, their data management practices or needs. We are still processing the results, but they will be very interesting in terms of identifying who is doing what and what they are struggling with. It also allows us to identify who is doing similar things on the technical side.

PLB: That would be very interesting, especially if in OD2030 we could help digitise those results, so that it isn't just in a report, but that it also gets into our ODIS matchmaking service. It would also help to normalise some of the terminologies that we use. Often people are developing the same things and don't realise it. We could help to clean up the semantics and direct action accordingly.

8. **Ocean INFO HUB for Latin American and the Caribbean region node (Jhonny Garces)** Activities (2023 - 2024)

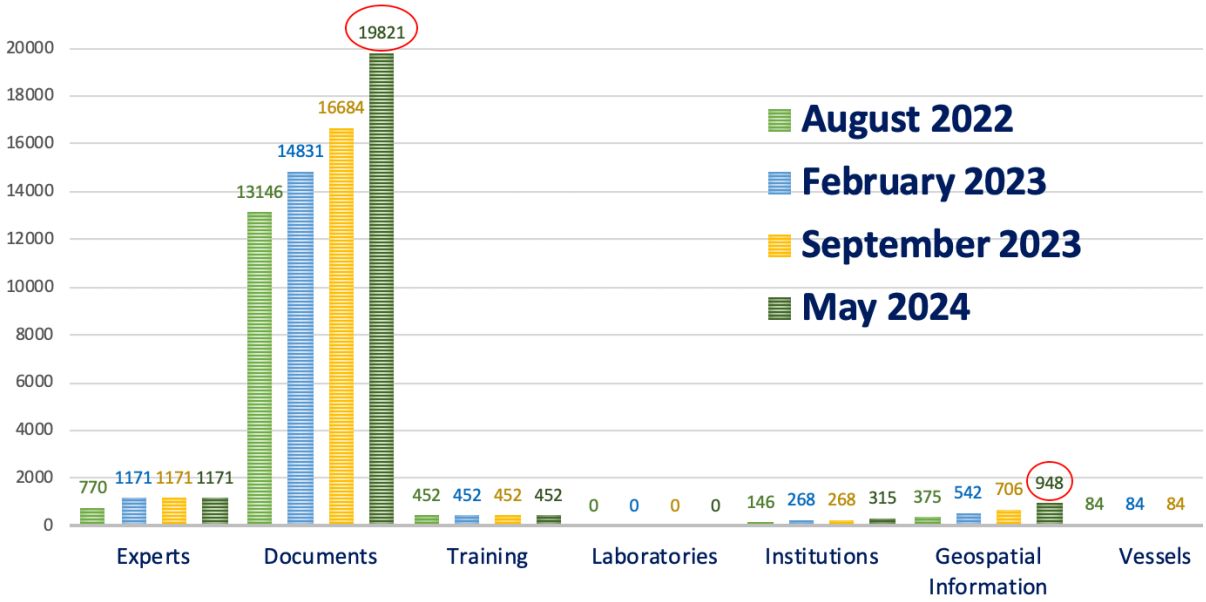
Overview of OIH activities: stats on regional portal



- ✓ CHM Lac technological platform is currently fully operational 24/7.
- ✓ Users can efficiently access its resources and functionalities, ensuring a smooth and satisfying experience.
- ✓ Recently, new records(ArcGIS REST resources) have been obtained for geospatial information module, given the operation of a robot made in Python developed by an engineer from INVEMAR. In addition, new data has been collected from the previously worked tools, thus keeping the modules updated.

10 experts have been trained in the LAC region together with OTGA.
Growth has been good since 2022, and Documents remains our strongest component.

22791 data sets from > 17 countries of the region.



- Partners currently being engaged from: Argentina, Chile, Peru, Ecuador, Brazil, Uruguay, Venezuela, Colombia, Panama, Costa Rica, Honduras, Dominican Republic, Trinidad & Tobago, Cuba, Mexico, EEUU, Canada. CECOLDO platform (1661 resources - documents category).

24/7 platform availability.
10 Technical meetings attended (two by month with expert team for the Global project)

End-user engagement through dissemination at regional meetings/events:

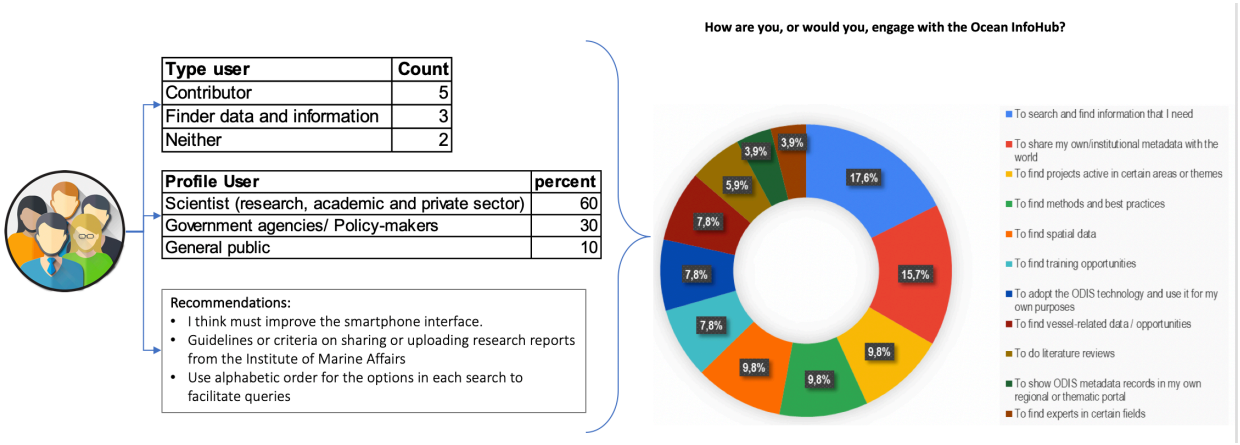
2023

1. MACHC Marine Spatial Data Infrastructure Working Group (MMSDIWG) (Meso-American and Caribbean Hydrographic Commission -MACHC) – March – 2023.
2. 76th GCFI Conference – November

2024

1. MACHC Marine Spatial Data Infrastructure Working Group (MMSDIWG) (Meso-American and Caribbean Hydrographic Commission -MACHC) – March – 2024.

End user engagement survey:



Recommendations

- The most part of institutions/countries of the region don´t have published/online the offer of capacities (marine instrumentation/vessels mainly e.g.) and available to be linked from metadata. Given this, OIH LAC has not yet been able to capture all the real supply of capacity in the topics proposed for the region. Thinking about strengthening the capacities of institutions to publish information can be an activity to be taken into account in the framework of the Decade of Ocean Sciences (A transparent ocean...) and that in an important way also influences the results for the GOSR (Global Ocean Science Report).
- The characterization of the "Laboratory" category lacks a template with minimum attributes, which means that no records have been reported for that category to date, despite the fact that there are records for the region.
- NODC and ADU must have more intense activity to promote information sharing to OIH

Technical challenges

- Strengthen the development team; in skills such as Marine Data Management, Governance and the MEDIN toolset and Data Analysis with Python Programming for Career Ocean Professionals skills.
- Provide to librarians in interested countries small trainings on "how to enable and configure OAI (Protocol for Metadata Harvesting) in their document repositories (Koha, Dspace, etc.)" to make the resources offered more visible.

He thanked the OIH Project for the ongoing support of the regional node in the LAC region.

- **Questions, comments and interventions (Session A)**

PLB: The LAC presentation highlights some cultural differences that we see between many regions. We are all close technically, but there are cultural differences that we need to understand, and make sure that our technical implementations allow for them.

LS: Indeed, besides regional differences there is also a high diversity within each of the regions, and we ned regional coordinators to enable the global programme to support differences – for example between SIDS and large continental states.

- **Questions, comments and interventions (Session B)**

PLB (from the chat): Thank you for the recommendations - we'll start developing the Laboratory pattern, and will contact the LAC Nodes to confirm it works with your existing records: https://github.com/iodepo/odis-arch/issues/430

No further interventions

9. The Ocean InfoHub for the Pacific SIDS region (Tavita Su'a)

Pacific nodes overview

- Represented by 2 regional organizations
    - Secretariat of the Pacific Regional Environment Programme (SPREP)
    - The Pacific Community (SPC)
- Platforms
    - Pacific Environment Portal (PEP)
    - Pacific Data Hub (PDH)
- Members
    - Serve 14 Countries and 7 Territories spanning the Pacific Region namely
    - American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Marianas Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna

Activities

- Ongoing development to ensure compatibility of Pacific Nodes with ODIS, ODIS-Cat and OIH Infrastructure
- Fortnightly meetings to discuss implementation progress and planned activities
- Identify and review relevant digital platforms and their current state in the Pacific
- Engagement of a consultant to assist with identified actions and planned activities
- Regional Engagements
- Updated Entries for ODIS-CAT

Statistics – PEP Connected Data Sources

Dashboard | Countries | Topics | Tags | Formats | Groups | Harvesters

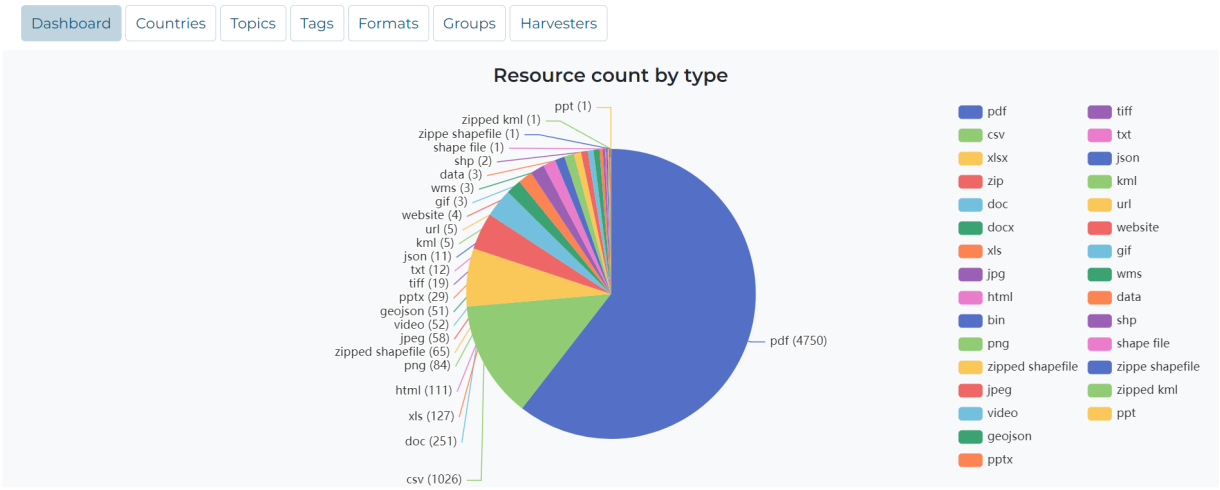
Harvester	Datasets	Last Run
SPREP VL PA Resources	379	02-Oct-2023 13:39:02 UTC
SPREP VL EIA Resources	998	02-Oct-2023 13:35:58 UTC
PDH Datasets	15420	02-Oct-2023 13:33:57 UTC
Samoa	79	02-Oct-2023 13:30:22 UTC
Vanuatu	145	02-Oct-2023 13:29:04 UTC
Kiribati	89	02-Oct-2023 13:27:42 UTC
Palau	81	02-Oct-2023 13:26:14 UTC
Tuvalu	129	02-Oct-2023 13:25:37 UTC
Tonga	122	02-Oct-2023 13:24:18 UTC
Solomon Islands	180	02-Oct-2023 13:23:29 UTC
PNG	430	02-Oct-2023 13:11:07 UTC
RMI	188	02-Oct-2023 13:06:08 UTC
FSM	164	02-Oct-2023 13:02:17 UTC
Nauru	170	02-Oct-2023 13:01:13 UTC
Cook Islands	139	02-Oct-2023 13:00:02 UTC
American Samoa	15	01-Oct-2023 13:46:14 UTC

Statistics – Publishers/Groups

Dashboard | Countries | Topics | Tags | Formats | Groups | Harvesters

Groups	Datasets	Resources
Pacific Data Hub	15421	44330
Secretariat of the Pacific Regional Environment Programme (SPREP)	435	446
Department of Environment	331	566
PNG Conservation and Environment Protection Authority	309	607
Secretariat of the Pacific Regional Environment Programme	298	783
Nauru Department of Commerce	162	188
Industry and Environment	162	188
FSM	138	246
Solomon Islands Ministry of Environment	134	272
Climate Change	134	272
Disaster Management and Meteorology	134	272
Cook Islands National Environment Service	119	287
Tuvalu	118	167
Tonga	111	195
SPREP Pacific Environment Information Network (PEIN)	111	156

Statistics – Resources

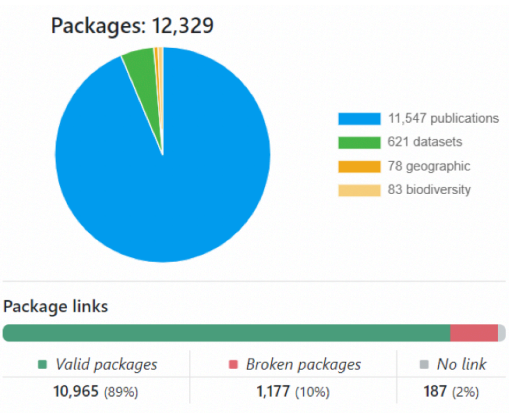


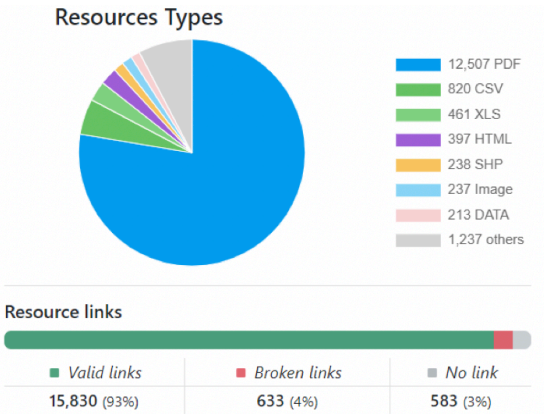
Statistics – PDH Harvesters

Harvester	Packages	Last run					Status
Gov NC Open Data	430	2023-10-02		2			DAILY
PCCOS Ocean Catalogue	16	2023-10-02		7			DAILY
PDH Microdata Library	213	2023-10-02					DAILY
PDH.stat	136	2023-10-02		53			DAILY
SPREP Pacific Data Portal	1534	2023-09-30		31		8	WEEKLY

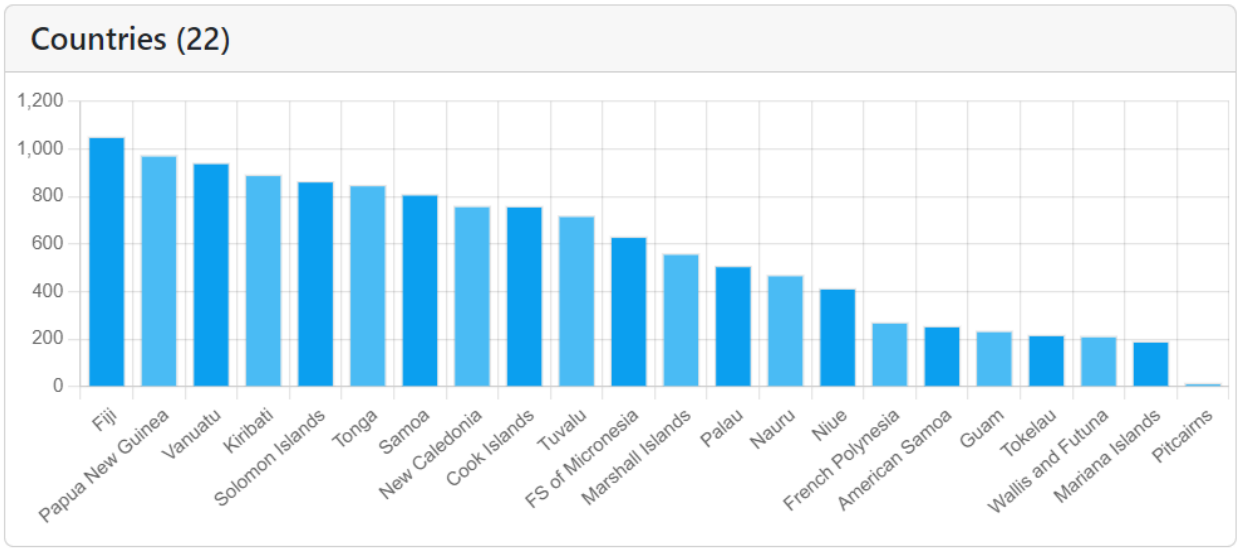
- Harvesting all datasets from SPREP
- Harvesting from other data catalogues (sometimes directly from member countries)
- Lots of geospatial/ocean related datasets coming up (from SPC GEM divisions)

Statistics – PDH Overview

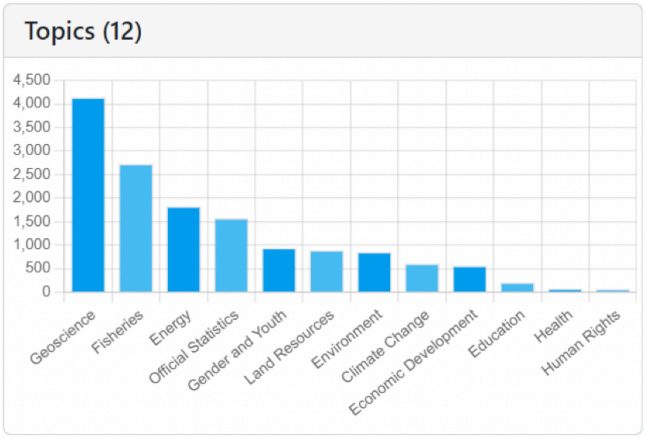




Statistics – PDH Member countries



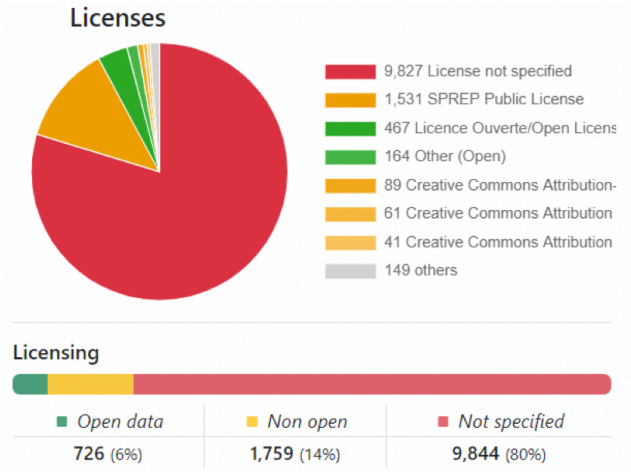
Statistics – PDH Topics



PDH is a regional and general data catalogue.

Topics need to be revised to answer our users' needs and help ODIS better index and filter relevant datasets.

Statistics – PDH Licensing



SPREP and SPC mandate include data policy coordination with our member countries.

One of the goals within this mandate is to improve licensing of datasets shared through our regional catalogues.

From PDH/SPREP to ODIS

- Updates
  - Added XML sitemaps and JSON-LD to the Pacific Data Hub
  - OIH now harvesting PDH datasets (SPREP datasets included)
- Issues
  - Metadata and JSON-LD compatibility issues (e.g. distribution link)
  - SPREP datasets not clearly identified on OIH (as coming from PDH)
  - All entries identified as "datasets" (publications vs. datasets)
- Fixes
  - Quick fix (OIH): identify SPREP data based on list of specific sitemaps
  - Full fix (PDH): JSON-LD issues (data type, includedInDataCatalog, contentURL distribution link)

General User Feedback - Kenneth Katafono

- Showcased OIH to potential end users in the Pacific
- General understanding of the OIH
- Pathway for providing data to the OIH
- Providing Content to OIH
- Usability

Potential Additional Nodes – Kenneth Katafono

Regional

Dataset	Comments
OPOC Ocean Initiatives Registry	https://backbeachsoftware.com.au/opoc/index.htm
Pacific Islands Regional Oceanscape Program (PROP)	https://data.worldbank.org/ https://datatopics.worldbank.org/sdgatlas/ *3 documents, 20 datasets, 1 institution, 1 spatial search - Information on these are available on OIH via European Directory of Marine Organisms (ENDO) SeaDataNet but limited to Northern Hemisphere only*
Western & Central Pacific Fisheries Commission Record of Fishing Vessels	https://vessels.wcpfc.int/browse-rfv
Western & Central Pacific Fisheries Commission Conservation and Management Measures	https://cmm.wcpfc.int/
Pacific Islands Forum Fisheries Agency Vessels in Good Standing	https://rimf.ffa.int/public/goodstanding/list

Table 1: List of regional datasets that could be included in the OIH

Regional Engagements - Pacific Islands Conference on Ocean Science and Ocean Management (PICOSOM)

- What support is available from OIH to conduct capacity training workshops for end users in the Pacific?
    - Our experience in the region has shown that in-person workshops and training events are far more effective than online and self-paced learning.
    - Regional events like the PICOSOM are great forums for delivering in-person capacity building.
    - PDH and PEP are currently not funded to deliver OIH or ODIS training
- Many ocean data products and catalogs were featured in the "Information portals and databases" workshop sessions during the 1st Pacific Island Conference on Ocean Science and Ocean Management (PICOSOM)
    - participants expressed a need for better coordination to avoid duplication

the idea for a "catalogue of catalogues" was proposed during one session

- Priority Areas Identified:
    - Traditional ocean knowledge, practices and governance
        - What role can OIH/ODIS play in ensuring traditional knowledge is recognized, preserved and protected?
    - Ocean policy and management
        - What support can OIH/ODIS provide to engage with policy and decision makers?
    - Capacity strengthening and community involvement
    - Science and decision support system
    - Communicating ocean science, traditional knowledge and ocean management
        - OIH/ODIS support for engagement with Pacific media to raise awareness about the information and data products that are accessible through OIH?
    - Financing Ocean Science and Ocean Management
    - Advancing the UN Decade of Ocean Science for Sustainable Development in the region

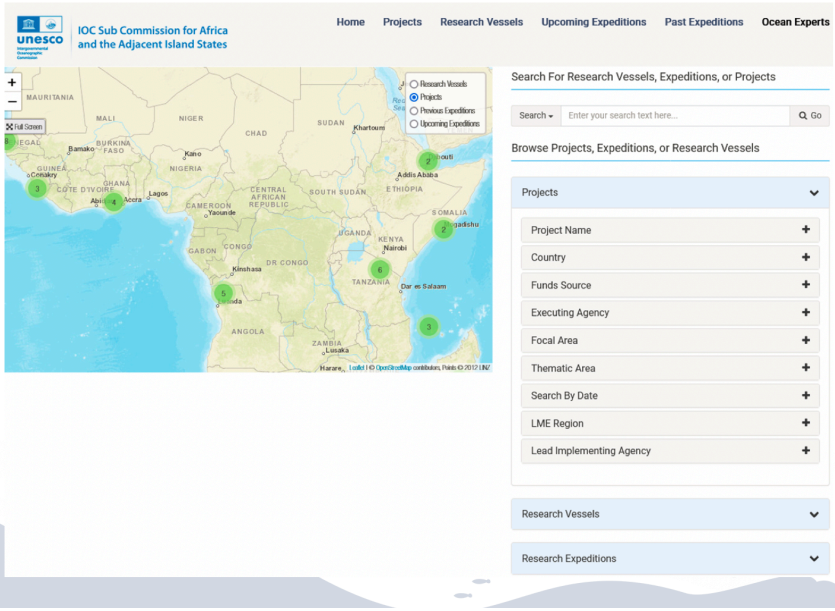
Next Steps and Recommendations

- OIH Workshop 27 May 2024 - Suva, Fiji
- OIH currently indexes all datasets/documents from an extended list of topics that including those not related to Oceans. Need to document the scope of OIH and communicate it clearly or filter out non-oceans datasets/documents
- Regional nodes should also harvest relevant regional datasets/documents from OIH. Need guidance on implementation to avoid re-harvesting datasets/documents already indexed
- Explore funding opportunities to support planned activities and ongoing ODIS/OIH implementation
- Need to showcase value of data collected to our member countries and stakeholders through dashboards and other data products
- Continued effective collaboration. This has been a very good initiative for us and we are very happy that the Pacific has been involved – thank you very much for including us and we hope to stay involved.

10. Africa and the Adjacent Island States OIH Progress Report (John Ngatia Ndarathi)

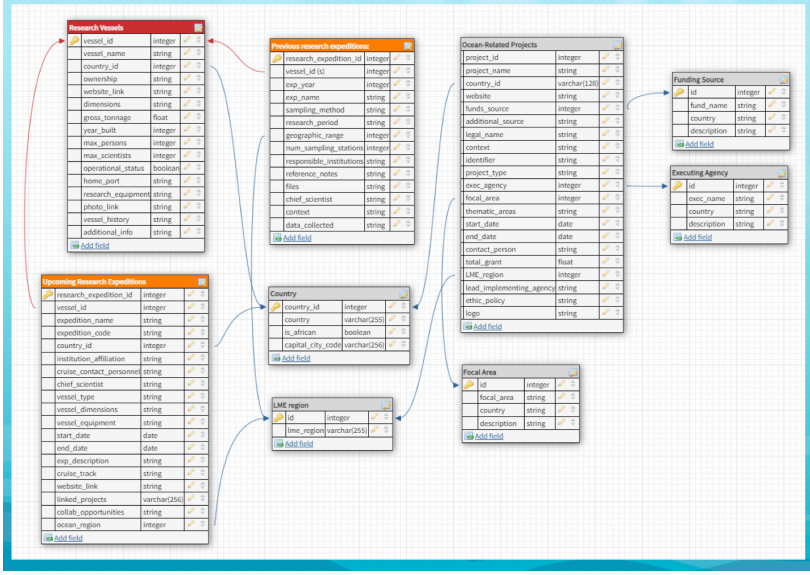
John began by highlighting keys activities of OIH in the Africa region.

Regional Node: DATA /WEB / DATA INTERCHANGE https://ioc-africa.org/dbs/displayData.php



INDEX PAGE:

- ✓ Ocean-related Projects
- ✓ Past research expeditions
- ✓ Upcoming expeditions
- ✓ Research vessels
- ✓ Link to OceanExpert



The Ocean and Marine Related Project Database is currently hosted, within the ODINAFRICA website.

It is re-developed with newer technology to ensure interoperability with other stakeholder information systems (e.g. OIH)

Specifically, the database project is on JSON - compatible and ODIS-Arch compliant, to allow the OIH to harvest data from it.

Specific links:

Data	Entries	Source
Marine-related projects	240	IOCAFRICA-OIH Portal https://ioc-africa.org/dbs/displayData.php
Research vessels	28	IOCAFRICA-OIH Portal
Past Expeditions	127	IOCAFRICA-OIH Portal
Upcoming Expeditions	2	IOCAFRICA-OIH Portal
OceanExpert: • Experts • Institutions	 2702 628	Link to OceanExpert https://oceanexpert.org/
Documents	5252	ODINAFRICA Link to Aquadocs https://aquadocs.org/handle/1834/1337
Ocean Observation Platforms	-	ODINAFRICA Linked to JCOMMOPS and GLOSS
Training and research opportunities	278	https://africa.marinetraining.org/map
Spatial Data	218	ACMA https://acma.africanmarineatlas.org/catalogue/#/search/?f=dataset

End-User Engagement

Share information on regional initiative for data and information management and data infrastructure development in Africa

Identify existing data and information infrastructures that could be potential partners with the Ocean Info Hub

Identify existing data and information infrastructure that address these requirements and can partner in the development of the regional hub

Identify some initial end user needs/knowledge products not yet covered by existing OIH initiatives

Discuss way forward for collaboration mechanisms, and review progress in implementation

Enhancing Linkages and Interoperability of Marine Data in Africa with NODCs

In line with the OIH mandate, we aim to:

- ✓ Enhance data flows through developing requisite structures within national oceanographic data and information centres among and within member states
- ✓ Strengthen the capacity of NODCs and AIUs to collect, analyse and interpret the data so as to develop products required for integrated management of the coastal areas of Africa, and increase the delivery of services to end users.

Last Webinar for NODCs, AIUs organized on 30 May 2023:

- ✓ Present the new IOCAFRICA Data Portal including its features i.e. existing data and information infrastructure;
- ✓ Identify existing data / database infrastructure within NODCs

- ✓ Deliberate on the data-sharing and access needs of NODCs and how the OIH and ODINAFRICA can help address these needs

Identify other NODC data needs needs/knowledge products not yet covered by the OIH

Outcomes of the Session

1. Outline of diverse data themes among NODCs –
   - Documents,
   - Experts,
   - Ocean Observations – Physical, Chemical and Biological parameters
   - Marine Species including fish
   - Geospatial Data
2. Description of existing data sharing practices (opportunities and challenges)
   - Active exchange with other NODCs and other institutions
   - Specific metadata formats.
   - Sharing protocols (use of persistent and unique DOIs).
   - Use of standardized classifications and vocabularies.
   - Open data formats and standard interfaces.

Many databases are hosted and backed up on local PCs and servers.

A web-server hosting the 25 NODC sites has been acquired and installed at the IODE Project Office.

Mauritania	Seychelles	Egypt	DR Congo
Mauritius	South Africa	Gabon	Côte d'Ivoire
Mozambique	Sudan	Ghana	Congo Brazzaville
Namibia	Tanzania	Guinea	Angola
Nigeria	Togo	Kenya	Benin
Senegal	Tunisia	Madagascar	Cameroon

Enhancing Linkages and Interoperability of Marine Data in Africa: Open Sessions

- Three open information sessions organized between 2022-2023, targeting research institutions, academia and students
- Last Session in 8 August 2023 - Attended by 150 participants

Lessons learnt:

1. Reaching out to a broader scope of the data community especially students and researchers by engaging them in future meetings.
2. Mapping of stakeholders – ocean data stakeholders in the region, focusing on data generators, managers and users in the region
3. Data networks to reflect on the opportunities offered by the ongoing decade of Ocean Science. The Africa Ocean Decade Roadmap particularly flags data as high priority in the development of a regional knowledge hub.

Engaging regional partners

- MarCoSouth, CORDIO, Benguela Current Commission, IUCN, Regional Remote Sensing Centre, UNEP Nairobi Convention Secretariat etc.
- Partners have submitted documentation on data sources / architecture / vocabularies / ontologies / standards to the OIH GitHub Project
- Representatives added to WP2 for the development of the ODIS-architecture

Future activities

Bilateral Engagements with Potential Partners

Potential Partner	Data Type
Digital Earth Africa	Spatial Data
BiCOME Project	Ocean Observation Data Biodiversity
EU Science Hub **Africa Knowledge Platform**	- Endemic species richness (sharks and rays) data
RCMRD-	Spatial data and maps
CCLME	Spatial data, Physical-chemical data

Impact Assessment & Evaluation

Feedback from institutional partners on how they have USED the OIH portal, and how data or information have fed into management, policy or governance processes

ODINAFRICA network

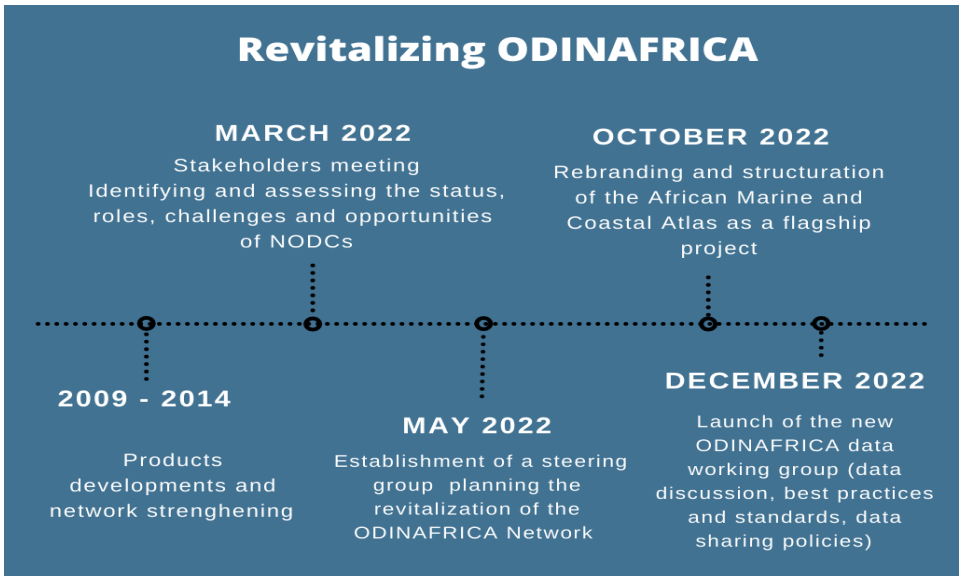
- OIH-ODINAFRICA Workshop in March 2022
  - The status, roles, challenges and opportunities of National Oceanographic Data and Information Centre (NODCs),
  - Progress in implementing the OIH project in Africa, specifically on addressing the six OIH project thematic areas: (i) experts and institutions/organizations, (ii) documents, (iii) Spatial data and maps, (iv) research vessels, (v) education and training opportunities, (vi) projects;
  - The steps towards developing a joint framework for member states and institutions in the region to actively engage and contribute to the Ocean Data and Information Network for Africa;

Discussed:

- ✓ Financing the new ODINAFRICA phase
- ✓ Leveraging on existing activities as flagship projects for ODINAFRICA
- ✓ Drawing Lessons from the past ODINAFRICA phases
- ✓ Assessment of the current status of the National Oceanographic Data and Information Centres

- ✓ Revision and update of the mailing lists
- ✓ Setting up of a working group to guide the revitalization of ODINAFRICA

Prof. Angora Aman – Cote d'Ivoire
Mr Harrison Ong'ada – KMFRI, Kenya
Jeff Mckenna – OIH Project
Dr. Zachary Sohou, IOCAFRICA Vice Chair
Dr. Karim Hilmi, IOC Vice Chair
Ms Tinah Martin – Seabed2030 project
Dr. Regina Folorunsho, NIOMR, Nigeria
Mr John Ngatia Ndarathi



ODINAFRICA REACTIVATION STRATEGY

- ✓ Establish and advance the development of a regional 'digital twin' for Africa for centralizing marine data acquisition, data handling and management,
- ✓ Establish ODINAFRICA as the African regional node for the Ocean Information Hub (OIH) Project's Ocean Data and Information System (ODIS).
- ✓ Ensure capacity development for safe and efficient ocean data collection, management and sharing

Topics flagged from the Regional Ocean Decade Roadmap: *Big Data and Artificial Intelligence*

In the pipeline:

- Revision of the ODINAFRICA revitalization strategic plan developed in 2022 to include 'Ocean Observation and data management' as an area of focus for a revitalized ODINAFRICA. This is based on the recommendations from the Seventh Session of the Sub-Commission (IOCAFRICA 7).

'Urges the GOOS AFRICA Coordinating Committee to work with the Ocean Data and Information Network for Africa (ODINAFRICA) towards the establishment of an African Ocean Data Centre.'

- With input from OIH, the ODINAFRICA Steering team is scheduled to deliberate/agree on an additional priority area focusing on enhanced access and sharing of ocean observation data in the region

Opportunities

- Leaving no behind - Provide capacity (training and common free tools) to member states (through NODCs), to assist curate and their data locally, and with capacity to share with / harvest from OIH and share best practices
- Beyond the timelines of OIH - Provide continuous online support for maintenance and hosting of databases and their portals beyond the scope of OIH project
- Strengthen ODINAFRICA network to achieve its mandate in line with Africa Ocean Decade Roadmap as well as the recommendation of the IOCAFRICA VI and VII session recommendations:
  - ✓ Enhancing sustainable curation, sharing and access of ocean observation data among and between member states (with GOOS and IODE)
- Spatial Data – Next steps with ACMA
  - ✓ Graphic design for ACMA home page
  - ✓ Creation of some tutorials for contributors, for use in outreach and orientation activities for the new platform.
- Engaging end-users – Especially at the decision making level

- **Questions, comments and interventions (Session A)**

LF: Asked about the node mobile app which needs to be developed further.

LS: That refers to the Global Search Hub front end, that works on the desktop but needed to be optimised for mobile viewing. That is currently being addressed by a contract that we have open with Trust-IT. They have already done this and it works – it just hasn't been rolled out onto our public page yet. We will make it live soon.

PLB: Part of that is also to use approaches to reduce data transfer for every interaction on the page. Similar approaches to Google Maps and others, that perform very well on devices with limited connectivity.

LS: Something else important to point out is that mobile use to access the internet – and data - is growing exponentially, especially in low income countries.

PLB: We also need to think about the future, and how people want to engage through LLMs and chatbots.

TS: Wanted to reiterate the links between the Decade and the 2030 Strategy and how we can effectively contribute to it – and see a two way contribution to and from the Pacific region. We have a large knowledge base, and finding appropriate knowledge sometimes has its own challenges. Would like to see showcases of different uses at National and sub-National level.

PLB: As we have set it up now, the regions can use the global graph, and we are trying to make that even easier to allow partners to augment their own search (eg via PDH, search federated content from ODIS). IODE can then help to facilitate conversations with new partners. One thing that is very valuable about the ODIS federation is that we integrate new technologies without affecting the rest, if we establish a stable technology that is not disruptive to systems.

PP: I first wanted to refer to Tavita's recommendations. One request was to organise end-user training. IODE sits in the middle of the IOC value chain, and often the link to values and services is missing. What we need to do better is continue that value chain and work towards what the end-user wants. We need to collaborate within IOC more proactively (eg with MSP, SOPM, Ocean Literacy).

PLB (via the chat) For the interest of the SG, and further to the point of many ODIS Nodes federating other organisations:

Here's a quick (and not authoritative) query on the OIH Knowledge Graph, asking it to list how many resources are shared by individual sources identified with "provider" metadata keys: https://api.triplydb.com/s/u6HsnW66i

There are 808 named organisations listed. There are many more, of course, as many resources shared in ODIS do not yet have full provenance metadata, while others may be using other tags (e.g. "creator") to list sources. This is something to normalise as ODIS matures, and what the Operations Committee will be charged with facilitating.

However, the above shows that - if the (meta)data shared by ODIS Nodes is in shape, we can quickly (0.784 seconds) and continuously generate KPIs.

I think, even without knowing what exactly end users want, there's high value for building out ODIS generically. When the Web was created, no one knew what the end users wanted, but it enabled all user types create data flows for their purposes. ODIS is similar. We can of course create user-centric data flows as we build the generic foundation, but we should never lose the focus on the generic foundation.

- **Questions, comments and interventions (Session B)**

PLB: In our last meeting (directed to Marc Potier at VLIZ) as you can see, we have heard from the regions, and intend to keep ODIS running as a connector between them. I see Maregraph as an advancement in graph operations on top of that – could you comment, how do you see the relationship?

MP: The two (ODIS and Maregraph) should reinforce each other. A lot of what we are doing in Maregraph is creating new inference points. If people are comparing data sets on a map, they are looking at geo-temporal space and seeing contradictions or alignments between them. I hope the work we are doing with Maregraph can reinforce what ODIS is doing. The was we are exposing marine species and marine regions, that we are introducing vocabularies and d terms that being in new inference points to compare data sets. Having said that, there is a little more uncertainty / innovation in what we are doing. We are a smaller group, still doing quite a lot of experimental work. Also, we have a call currently open for comment.
https://github.com/MareGraph-EU/assets/tree/main closes June 30th

PLB: In terms of how ODIS will proceed, this will work quite well. If what you are doing works, we can bring it back in to the ODIS process – this will be a great contribution to OD2030 and can be brought into the operational level of ODIS.

PLB (via the chat): Watching these interventions, another area where the DCO can help OD2030 and ODIS would be to spot where there's an opportunity to link scientific / observation data to a societal actor's data ingestion pathway.
The integration of traditional knowledge is nuanced, especially when there's CARE-aligned governance issues to consider. The guidance I mentioned earlier can help here, and will be cross-referenced by the Data Strategy Implementation Plan: https://doi.org/10.31223/X58408

JM via the chat: Some addition points, regarding the Africa partner: 1) OIH played a role in the revival of ODINAFRICA (as an active member of the ODINAFRICA Steering Group, through many meetings). 2) OIH & ICAN revived the ACMA platform: https://acma.africanmarineatlas.org/ and generated JSON-LD metadata, to expose ACMA

entries into ODIS. 3) OIH & ICAN are working together on an ACMA training session, for later this year (September, likely in Kenya).

11. Thanks and close of the meeting

In both sessions, Peter Pissierssens closed the meeting with a few words. We are closing now in a very positive way because the OIH Project is now evolving into a stable foundation for the ODIS Programme because of the UNESCO funds. We will still need additional funds for the expansion of the network and for related training. With close collaboration with the regional secretariats, we can focus on enabling member states in all the regions for joining ODIS. In Africa, there is also an allocation for the expansion of OIH in Africa and we are currently discussing that with the OIH Africa Secretariat. We also need to work more closely with other parts of the IOC and with the Ocean Decade, for example the DCO for data sharing, through Ocean Data 2030. We will be inviting partners at national and regional level. We also need to think about more effective marketing – decision makers usually need good numbers. Although bigger is not always better, we do need to demonstrate how much data & information are in the already in the federation, to attract even more new partners.

So let me thank you all for your participation and the hard work over the past years, and we look forward to continuing the collaboration under ODIS and Ocean Data 2030.

ANNEX 1

Ocean InfoHub Project meeting
Provisional Agenda: 16 May 2024

We are pleased to share session information and a provisional agenda for the **virtual** meeting. Sessions A and B will have the same (repeated) agenda.

Online connection details Session A: 16 May : 5-7 AM UTC
https://us06web.zoom.us/j/81620571823?pwd=6o1S48o0kdp1SilA31hQGjUHpBaera.1
Meeting-ID: 816 2057 1823
Passcode: 737435

Online connection details Session B: 16 May : 2-4 PM UTC
https://us06web.zoom.us/j/86161216172?pwd=yabl6iuQe1g0qjqagmb0FPQaOufp7c.1
Meeting -ID: 861 6121 6172
Passcode: 422897

The participants list and available documentation can be found on OceanExpert:
https://oceanexpert.org/event/4225

The meeting will open 20 minutes before the time; please connect early and keep your microphone on mute.

Working language of the meeting: English

Provisional agenda

16 May 2024 (all times in UTC) Session A	
	Chair: Harrison Ong'Anga
05h00-05h10	Welcome, administrative arrangements, adoption of the agenda
05h10-05h30	Project overview and final report (Lucy Scott)
05h30-05h40	ODIS Programme component and future plans (Pier Luigi Buttigieg)
05h40-05h50	OD2030 and interface with Decade actions including the DCO for Data Sharing (Pier Luigi Buttigieg and Jan-Bart Calewaert)
05h50-06h05	Q&A
06h05-06h15	LAC Regional overview (Jhonny Humberto Garcés Ortega)
06h15-06h25	PSIDS Regional overview (Tavita Su'a)
06h25-06h35	Africa Regional overview (John Ngatia)
06h35-06h50	Q&A
06h50-07h00	Closing & thanks

16 May 2024 (all times in UTC) Session B	
	Chair: Jhonny Humberto Garcés Ortega
14h00-14h10	Welcome, administrative arrangements, adoption of the agenda
14h10-14h30	Project overview and final report (Lucy Scott)
14h30-14h40	ODIS Programme component and future plans (Pier Luigi Buttigieg)
14h40-14h50	OD2030 and interface with Decade actions including the DCO for Data Sharing (Pier Luigi Buttigieg and Jan-Bart Calewaert)
14h50-15h05	Q&A
15h05-15h15	LAC Regional overview (Jhonny Humberto Garcés Ortega)
15h15-15h25	PSIDS Regional overview (Tavita Su'a)
15h25-15h35	Africa Regional overview (John Ngatia)
15h35-15h50	Q&A
15h50-16h00	Closing & thanks

ANNEX II

LIST OF PARTICIPANTS

Event: **Final OIH Project meeting [online]**
Dates: 2024-May-16 to 2024-May-16

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ANNEX III

Group Photograph (both sessions)