OBPS REPOSITORY

<mark>FUNCTIONING</mark> ASSESSMENT

Patricia Cabrera

> The title is misleading since the assessment is focussed on the search function.
>
> There is no introduction to put this 'assessment' into context – acknowledgement that it was conducted by a very new user - it is an informal assessment – no formal plan on what is being investigated is provided. Whilst the Appendices provide results it does not provide the full search strategy to enable replication and validation of the results. However, it does display a lack of understanding of how to search and just as with any other database, new users do not get the best or correct results from their searches.

Patricia Cabrera Statements	Pauline Simpson Repository Manager Responses
1. Repository Gateway The landing page of the Ocean Best Practices System Repository (OBPS-R) https://repository.oceanbestpractices.org/	The repository gateway is through the OBPS website https://www.oceanbestpractices.org/ and the repository webpage https://www.oceanbestpractices.org/ocean-best-practices-systems/repository/ On both it clearly shows there are two separate interfaces for two separate actions **SUBMIT A PRACTICE** (which

provides a detailed description of the repository and its services. Alternatively, the repository can also be accessed through the website at https://www.oceanbestpractices.org/ocean-best-practices-systems/repository/. However, the descriptions on both sites differ slightly and lack clarity in some areas. For instance, the repository is described as a discovery point for community-endorsed ocean best practices. However, not only endorsed practices are available; in fact, endorsed practices are relatively few. As the repository evolves, revising these descriptions will be necessary.

Additionally, it would be helpful to add an "About" tab to the repository section of the website, which links directly to the page https://repository.oceanbestpractices.org/, where more comprehensive information about the repository is available.

~~The different search options (standard and advanced) within the repository are not immediately clear. For example, the website initially presents the standard DSpace search interface, directing users to a community list, which may encourage them to search there first, giving less prominence to the advanced search. The standard interface, which allows searches by community, seems less useful (see more in 2.1) compared to the advanced search. In contrast, the advanced search interface at https://search.oceanbestpractices.org/ (see more at 2.2) offers a more detailed and effective way to discover and display best practice content. Therefore, clarifying these two search options and prioritizing one over the other—both on the website and in user workflows—is highly recommended.~~

Finally, the repository claims to apply the FAIR Principles (Findable, Accessible, Interoperable, Reusable). Evaluating how effectively these principles are implemented would help in setting priorities for future enhancements.

---

links to the submission interface on DSpace Repository) and **SEARCH FOR PRACTICES** (which links to the search interface Amazon Web Service Enhanced Discovery Service - AWS EDS).

This exact phrase is not used on either of the interfaces or the repository website page The SEARCH interface offers a designated 'Endorsed' search field and is the discovery point for endorsed practices.

There is an ABOUT link on each of the **submission** and **search** interfaces the same About link has been added on the OBPS website repository webpage

There is only one **search interface offered** and that is https://search.oceanbestpractices.org/

The repository gateway as defined above clearly indicates separate SEARCH and SUBMISSION links. Since 2020 the DSPACE repository has not been offered or developed as a search interface.

OBPS Repository:
Findable – web-based; detailed metadata descriptions, vocabularies applied, comprehensive search parameters offered on the designated search interface
Accessible – web-based, metadata search and full text search; full text available to read and download.
Interoperable - recognized metadata schema; international primary repository software ability to be harvested and federated - more interoperability work needed but that can be said of most databases.
Reusable – open access, full text, licence options displayed etc,

Action 1.1: Improve the content and its presentation on the repository pages.

2. Repository search assessment

The objective of assessing the quality of the repository's content and the reliability of its search results is fundamental for prioritizing maintenance and improvement tasks. This assessment was carried out through various search exercises, selecting specific communities, topics, and metadata fields on both search interfaces. Detailed exercises are provided in the appendix section of this document and are summarized in the subsections below.

2.1 The Standard DSpace Search Interface

The standard DSpace interface can be accessed via the community list on the website (https://repository.oceanbestpractices.org/community-list) and more visually on the repository's landing page (https://repository.oceanbestpractices.org). This interface allows users to search documents by Communities and their respective Collections. Within these, users can filter results by issue date, author, title, and subject.

However, the categorization of Communities is inconsistent. For instance, some Communities represent organizations (e.g., GOOS, IODE, European Commission), others are project-based (e.g., Jerico-S3), while others are data services and product catalog providers (e.g., CMEMS, Argo). Understanding who manages these Communities and assessing their usefulness and utilization would help determine whether efforts to standardize Communities—ensuring consistent categorization and granularity—should be made.

As of 7 October 2024, the repository contains 2,216 documents categorized into 71 Communities, each containing multiple Collections. However, a manual count of documents across these Communities yielded

---

Any statement on searching on the DSpace repository should be ignored. DSpace is not the designated search interface

Some documents are jointly issued eg. WMO and IOC and each community wishes to see the document under their own designation and therefore the record appears in both communities. Manual counting means a record would be counted twice (or more) – the system

2,560, highlighting an inconsistency with the 2,216 documents reported on https://search.oceanbestpractices.org.

~~An exercise (Appendix E2.1.1) assessing the quality of the search by using the "Subject" filter also revealed discrepancies. For example, the Argo Community listed 92 items under "Subject" but only 30 documents were visible in the collection.~~

~~Additionally, subject classifications lack standardization. In the GOOS Community Practices, for instance, there are 25 subject categories that vary greatly in theme, covering document types, variables, and even Community names like "GOOS" and "OBPS." Inconsistent naming conventions for subject items further contribute to the confusion.~~

- **Action 2.1:** Assessment of Communities and their usefulness by surveying

- **Action 2.2:** If Action 2.1 proves positive, re-categorize Communities to ensure consistency.

2.2 The Advanced Search Interface

The advanced search interface (https://search.oceanbestpractices.org) allows users to perform both basic searches and metadata field searches. Performing a basic search yields too many results (Appendix E2.2.1), making it helpful to initially perform a broad search and then narrow down the results using metadata fields (Appendix E2.2.2).a

Certain search filters prove more useful than others. For example, searching by GOOS Essential Variables (EOV/EBV/ECV), SDGs, or endorsed practices tends to provide more relevant results, whereas searching by DOI or Adoption Level offers limited outcomes.

The advanced search interface is user-friendly and easy to navigate, particularly with guidance from the OTGA course or search tips. Search results are generally accurate and relevant when combining basic search with metadata field search. However, the metadata search could benefit from additional fields, such as geospatial metadata (Marine

---

total number of documents eg. 2216 is the correct metric @ that date to use

DSPACE search

This is still describing DSPACE. Please provide specific examples because it is not obvious what is being suggested

'Communities' are top level aggregations and are a default DSpace administrative structure to permit administrative organisational clustering, metrics etc in the SUBMISSION repository. Communities can be titled depending on the way they are clustered. The most appropriate has been organisations, project, networks etc. Communities can be found in the SEARCH interface under metadata search field 'Issuing Agency'

Marine Regions vocabulary: has been implemented by JERICO contract 2024 waiting for the implementation to be made on the Submission production version
(SeaVox Device Catalogue is available on the submission interface and is also used for automatic indexing on AWS EDS.

Regions), platform/sensors (SeaVox Device Catalogue), and categories on the maturity level (Good, Better and Best practice).

- **Action 2.3:** Expand the metadata fields available in the advanced search interface.

- **Action 2.4:** Create a brief video tutorial demonstrating how to efficiently perform an advanced search.

~~When searching for "plankton imaging" documents in the AWS-EDS Advanced Search Interface and the Standard DSpace Interfaces, the results varied greatly. The Standard DSpace gives 301 results, whereas the Advanced Search provides 1112 results, with only the first documents being the same.~~

Requirement to add metadata field Maturity Level and Score in submission already in GOOS RFP 2044.   Language and Region and Maturity Level searching awaiting the next AWS-EDS Contract
A search video module is available on OTGA. EDS is fairly sophisticated so there would be a number of 'brief' videos needed to cover.   No mention is made of using the **interface Search Tips?**
The AWS-EDS search is based on a google type search and as known it is only the first screen or two that are the most relevant

3. Repository content and gaps

The repository contains a total of 600 documents categorized under ocean observing. Of these, 223 are specifically associated with IODE, and 244 are linked to GOOS, including 9 practices officially endorsed by GOOS (Table 1).

Need identification on exactly where and how these numbers were obtained.

Table 1: List of GOOS Endorsed Practices and number of downloads as of May 2024.

GOOS ENDORSED PRACTICE	DOWNLOADS
Becker S, Aoyama M, Woodward EMS, Bakker K, Woodward EMS, Bakker K, Woodward EMS, Bakker K, Coverly S, Mahaffey C and Tanhua T (2020) GO-SHIP Repeat Hydrography Nutrient Manual: The Precise and Accurate Determination of Dissolved Inorganic Nutrients in Seawater, Using Continuous Flow Analysis Methods. https://doi.org/10.3389/fmars.2020.581790	345
Boss, E., Waite, A. M., Uitz, J., Acinas, S. G., Sosik, H. M., Fennel, K., ... & Karp-Boss, L. (2020). Recommendations for plankton measurements on the GO-SHIP program with relevance to other sea-going expeditions. SCOR Working Group 154 GO-SHIP Report.	5311

Halewood, E., Opalk, K., Custals, L., Carey, M., Hansell, D. A., & Carlson, C. A. (2022). Determination of dissolved organic carbon and total dissolved nitrogen in seawater using High Temperature Combustion Analysis. Frontiers in Marine Science, 9, 1061646.	2722
Langlois, T., Goetze, J., Bond, T., Monk, J., Abesamis, R. A., Asher, J., ... & Harvey, E. S. (2020). A field and video annotation guide for baited remote underwater stereo-video surveys of demersal fish assemblages. Methods in Ecology and Evolution, 11(11), 1401-1409.	1434
López-García,, P., Hull, T., Thomsen, S., Hahn, J., Queste, B.Y, et al (2022) OceanGliders Oxygen SOP, Version 1.0.0. OceanGliders, 55pp. DOI: http://dx.doi.org/10.25607/OBP-1756. (GitHub Repository, OceanGliders Oxygen SOP. Available: https://oceangliderscommunity.github.io/Oxygen_SOP/sections/authors_SOP_development_process.html.)	875
Morris, T., Scanderbeg, M., West-Mack, D., Gourcuff, C. and Poffa, N., et al (2023) Best practices for Core Argo floats: Getting started, physical handling, metadata, and data considerations. Version 1. Cape Town South Africa, South African Environmental Observation Network (SAEON), 45pp. DOI: https://doi.org/10.25607/OBP-1967	1094
OceanSITES (2020) OceanSITES Data Format Reference Manual NetCDF Conventions and Reference Tables. Version 1.4 July 16, 2020. Geneva, Switzerland, OceanSITES, JCOMMOPS, 36pp. DOI: http://dx.doi.org/10.25607/OBP-421.2	532
Parks, Justine, Hanstein, Craig, Kramp, Martin, Strom, Kerry, Cabrié, Joel, Rodriguez, Julian J. and de Villiers, Mardené C. (2024) Vessel Recruiting Best Practices. Version 1.2. Geneva, Switzerland, WMO-IOC-Ship Observations Team, 14pp. DOI: https://doi.org/10.25607/OBP-2029	~~6280~~ 416 -NOT YET ENDORSED
Parks, Justine, et al (2021) XBT Operational Best Practices for Quality Assurance, Version 1.0. San Diego, CA, Scripps Institution of Oceanography, Climate, Atmospheric Sciences, and Physical Oceanography, University of California, 32pp. DOI: http://dx.doi.org/10.25607/OBP-1720	~~X~~6339
Palevsky, H.I., Clayton, S., Atamanchuk, D., Battisti, R., Batryn, J., Bourbonnais, A., et al (2023) OOI Biogeochemical Sensor Data: Best Practices & User Guide, Version 1.1.1. Ocean Observatories Initiative, Biogeochemical Sensor Data Working Group, 135pp. DOI: https://doi.org/10.25607/OBP-1865.2	840

Importantly, all Essential Ocean Variables (EOVs) are represented within the repository (Appendix B). A	Where was this search made. What was the purpose in searching for

targeted search for "GOOS" in combination with a specific EOV returns between 6 and 37 results, depending on the variable. In contrast, broader searches for EOVs alone yield a significantly higher range of results, between 263 and 525 documents.

In addition to the GOOS-related documents, the repository includes 237 documents identified under IODE. Of these, 195 are recognized as methods, with 184 of them specifically focused on data management processes. To further refine the results, it would be beneficial to establish a series of a controlled vocabulary of terms or a picklist of categories specific to IODE data resource types, such as data management plans, data submission guidelines, data standards, data quality control procedures, metadata schemas, data storage formats and data curation protocols.

Identifying gaps and missing practices within the repository is essential for addressing key areas and communities of practice that are currently underrepresented. A preliminary search was conducted, focusing on themes not extensively covered in ocean observing, and several areas yielded limited results. However, a more comprehensive and systematic evaluation is needed. This future assessment should consider the entire ocean value chain, especially as the repository's content and structure continue to grow and evolve.

The initial search revealed several areas with fewer documented practices:

- **Citizen Science Practices**: Only 2 results were found. This highlights a significant gap in the involvement and documentation of community-driven and participatory approaches in ocean observation and conservation.

- **Habitat Restoration**: Only 18 results were returned, indicating limited representation of practices focused on the restoration and rehabilitation of marine ecosystems, a critical area for sustaining biodiversity and ecosystem services.

- **Ocean Literacy**: 31 results were found, suggesting a need for more practices related to

---

GOOS and EOV? EOV Search should be for EOV name only using the designated search field? Note: GOOS have made the decision that EOV specification sheets should not be included in OBPS

How was this result obtained?

The SeaVoX Data Management Categories are provided on the SUBMISSION interface for selection and therefore retrieval.

Identifying missing practices is a continual process and we welcome recommendations.

Citizen Science - On the AWS EDS search interface under TITLE= 15

Habitat Restoration - What other search terms were used for this? How was this search carried out eg boolean? What search field/s were used?

educational initiatives that enhance public understanding of the ocean's role in the Earth system and promote stewardship.

- **Private Sector Representation**: 33 results indicate underrepresentation of industry-driven practices or partnerships between the private sector and scientific or conservation initiatives, despite the sector's growing role in sustainable ocean management.

- **Coastal Modeling**: With 39 results, coastal modeling practices—essential for predicting coastal dynamics, sea-level rise, and ecosystem changes—are also underrepresented.

To address these gaps, it is crucial to engage with IOC and stakeholders to define underrepresented sectors, to ensure a more diverse and comprehensive repository.

Action 3.1: Conduct an evaluation of represented practices and themes in the repository.

Action 3.2: Establish controlled vocabularies/terms specific to **data management and IODE document types.**

Private Sector Representation - What other search terms were used for this; how was this search carried out eg boolean? What search field/s were used?

Coastal Modeling - What other search terms were used for this; how was this search carried out eg boolean? What search field/s were used?

The SeaVoX Data Management Categories are provided on the SUBMISSION interface for selection and therefore retrieval. Not sure what is meant by IODE Document types NB IODE has no publication series of its own all formal report series are published as IOC ...

---

4. Repository Metrics

Currently, only individual record statistics are provided, and the Google Analytics (GA) dashboard for the DSpace Repository has been inactive since July 2023, resulting in a lack of tracking for relevant metrics. Displaying metrics for the entire repository, as well as for each Community, would be beneficial for users and would showcase the repository's productivity. For this report, metrics were requested from the repository manager.

Figures 1 and 2 illustrate a clear increase in the number of document deposits and access rates. However, the metrics dashboard requires immediate attention to support ongoing analysis. Monitoring the volume of deposits and requests made by OBPS for document submissions will

Because of mandatory GA changes. Included in GOOS RFP 2024 to address this

provide better insight into the repository's efficiency and reach.
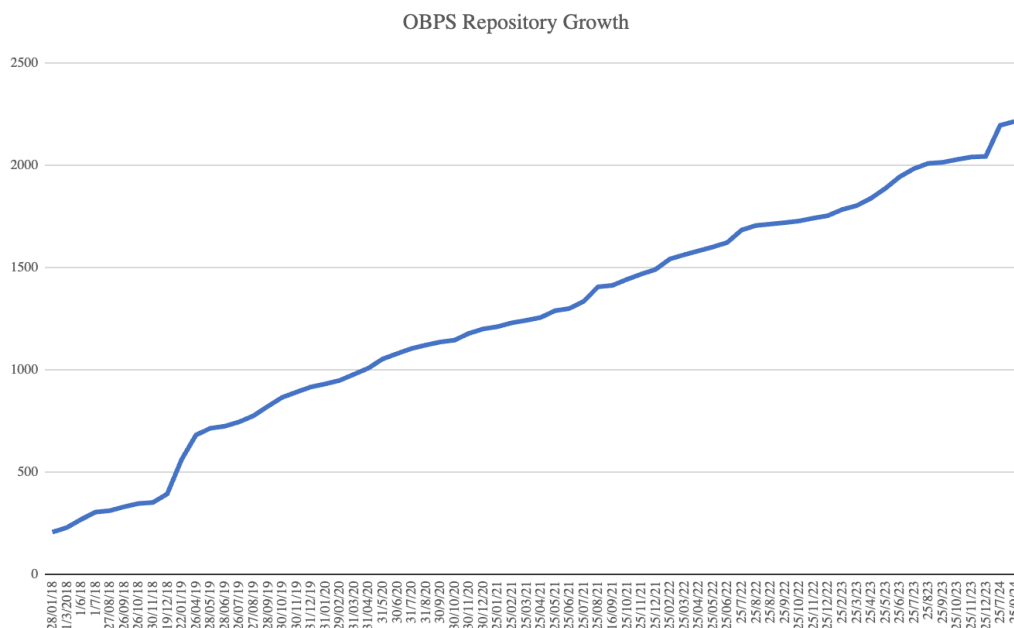
Figure 1: Monthly cumulative number of deposit in the repository from 2014 to 2024

Figure 2: Monthly number of monthly accessed documents in the repository from 2017 to 2020

To assess the usefulness of the Communities, and to identify gaps in practices, as well as for a comprehensive user analysis, <mark>additional metrics of interest should be introduced.</mark> These include:	This whole section will require significant IOC funding investment

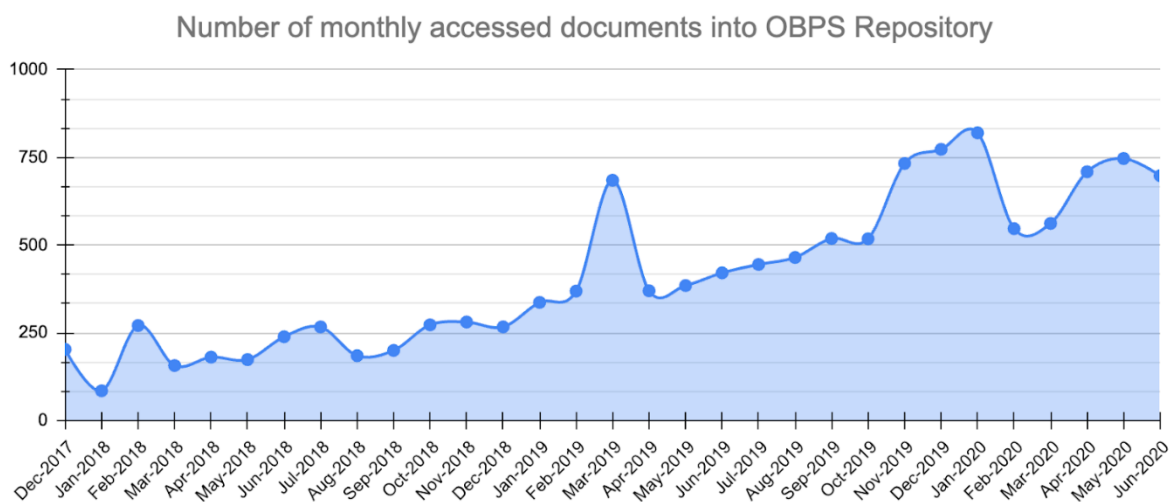|	
• The number of organizations, projects, or individual users uploading and downloading documents. • The number of Communities created annually. • <mark>The number of documents using key metadata fields, such as maturity level, spatial coverage</mark>, and classifications like EOV (Essential Ocean Variables), EBV (Essential Biodiversity Variables), ECV (Essential Climate Variables), and SDG (Sustainable Development Goals). <mark>**Action 4.1:** Configuration and expansion of Google Analytics</mark>	Already included in GOOS RFP 2024

5. Conclusions

Maintaining and developing the OBPS repository system is challenging due to limited IT support, the high cost of maintenance, and the need for functionality enhancements. Given these constraints, a conservative strategy should prioritize improving and expanding the repository's content over enhancing its functionality and technology. Planning for the curation of the repository is crucial, that should include the revision of the community list, and who manages them, the re-categorization of the documents, discriminating what is a best practice or not and ultimately removing those documents that do not qualify as best practices. This effort should be aligned with the ongoing application of the Criteria for Accepting Methodological Documents submitted to the OBPS Repository, which is currently being tested.

<mark>Priority should also be placed on improving the advanced search interface</mark> ~~over the standard one,~~ including the addition of other relevant metadata fields. Furthermore, an assessment of the usefulness of

There is only one search interface; additional metadata fields are waiting for an AWS EDS Contract to be funded.

'Communities' are top level aggregations and are a default DSpace administrative structure

<mark>Communities</mark> and how this information is presented is necessary.	to permit repository administrative organisational clustering, metrics etc in the SUBMISSION repository. Communities can be found in SEARCH interface under metadata search field 'Issuing Agency'
Reconfiguring Google Analytics and implementing new metrics will provide better insights into the diversity and gaps in practices.	Already in the GOOS RFP 2024

Appendix A

Number of results performing different search exercises

Exercise	1st search method (what was this?)	1st search word	Results 1	2nd search method (what was this?)	2nd search word	Results 2
E2.1.1	Community Where or how was this search made?	Argo Community	92	Subject	-	30
E2.2.1	All fields	Zooplankton diversity	1042	-	-	-
	EOV	Zooplankton biomass and diversity	274	-	-	-
	All fields	GOOS	260	EOV	Nutrients	10

	All fields	GOOS	260	EOV	Zooplankton biomass and diversity	29
	Endorsed	GOOS	11	All fields	Nutrients	4
E2.2.2	All fields	Imaging	958	EOV	Zooplankton biomass and diversity	178
	All fields	Zooplankton biomass and diversity	2193	All fields	Imaging	954

Appendix B

Number of results of GOOS and EOV documents in the repository

Theme	EOV	GOOS & EOV Wrong way to search for EOV which has its own search parameter field and instructions in the search box on how to search	EOV result	
Biology and Ecosystems	Phytoplankton biomass and diversity	29	274	
	Zooplankton biomass and diversity	29	274	
	Fish abundance and distribution	29	274	
	Marine turtles, birds, mammals abundance and distribution	30	309	

	Hard coral cover and composition	29	505	
	Seagrass cover and composition	29	505	
	Macroalgal canopy cover and composition	29	505	
	Mangrove cover and composition	29	505	
Biochemistry	Oxygen	8	325	
	Nutrients	10	321	
	Inorganic carbon	11	327	
	Transient tracers	0	266	
	Particulate matter	6	299	
	Nitrous oxide	0	263	
	Stable carbon isotopes	11	327	
	Dissolved organic carbon	11	328	
Physics	Sea state	23	431	
	Ocean surface stress	37	525	
	Sea surface height	NA	NA	
	Sea surface temperature	33	464	
	Subsurface temperature	17	371	
	Subsurface salinity	18	368	
	Sea surface salinity	31	467	
	Subsurface currents	23	369	
	Surface currents	28	467	
	Ocean surface heat flux	37	525	
	Ocean bottom pressure	13	388	

| Cross disciplines | Ocean colour | 12 | 388 | |
| | Ocean sound | 12 | 388 | |

Appendix C

Summary of actions, with an indication of the implementation efforts

Actions	Implementation effort	
1.1 Improve the content and its presentation on the repository pages	Easy	
2.1 Assessment of <mark>Communities</mark> and their usefulness by surveying	Easy	Communities are a high level aggregation and is a default admin repository structure in DSpace otherwise it would be a just a big bucket. Most important is to have comprehensive metadata to find records. what other aggregations are suggested. – Survey might be 'easy' but restructuring, moving and editing over 2000 records will not be
2.2 If Action 2.1 is positive, re-categorize of Community	Moderate	See above
2.3: Expand the <mark>metadata fields</mark> available in the advanced search interface	Difficult	Already included as a requirement in GOOS RFP 2024 for language and region and maturity level and score
2.4 Create a brief video tutorial demonstrating how to efficiently perform an advanced search	Easy	

3.1: Conduct an evaluation of represented practices and themes in the repository	Moderate	
3.2: Establish controlled vocabularies/terms specific to data management and IODE document types	Moderate	SeaVox Data Management controlled vocabulary already provided in the SUBMISSION interface. Not sure what is meant by IODE Document types NB IODE has no publication series of its ow, all formal report series are published as IOC ...
4.1: Configuration and expansion of Google Analytics	Moderate	Already being addressed in GOOS RFP 2024