

27-29 May 2024 



imdis

# International conference on Marine Data and Information Systems



MARIS



National  
Oceanography  
Centre



iImagine



eosc  
Blue-Cloud2026




**National  
Oceanography  
Centre**

**British  
Oceanographic  
Data Centre**



Ocean InfoHub



**MARIS**

The logo for MARIS includes a white rectangular box with a blue wavy line at the bottom and a dashed line on the left side. The word 'MARIS' is written in bold black capital letters across the middle of the box.

# **FEDERATING DISCOVERY METADATA TO THE OCEAN INFOHUB IN A WORLD OF FEDERATED NETWORKS**

**PRESENTING AUTHOR**

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**National  
Oceanography  
Centre**

**British  
Oceanographic  
Data Centre**



Ocean InfoHub

The MARIS logo consists of the word 'MARIS' in a bold, black, sans-serif font. To the left of the text is a graphic of a blue wave with a dashed line above it, suggesting a coastline or data path.

**MARIS**

## **THE TEAM**

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**COLM WALSH, NATIONAL OCEANOGRAPHY CENTRE (UK)**

**PAUL WEERHEIM, MARIS (NETHERLANDS)**

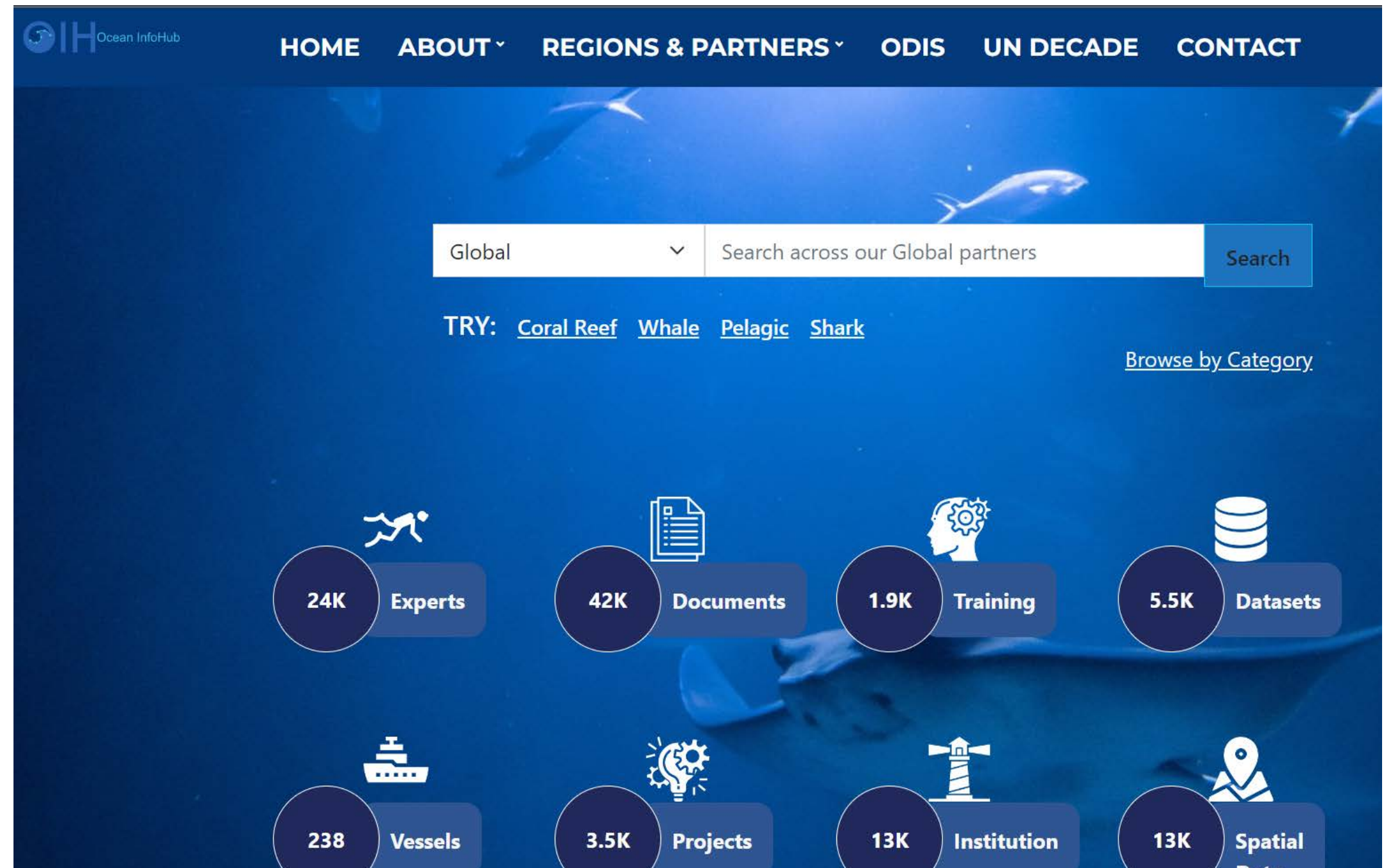
**JEFF MCKENNA, OCEAN INFOHUB (CANADA)**

# INTRODUCTION

# OCEAN INFOHUB & ODIS



- [Ocean InfoHub](#) (OIH) is a key data portal to make data visible for the UN Decade of the Ocean
- The Ocean Data Interoperability System (ODIS) is the architecture that underpins Ocean InfoHub
  - Large pool of documentation at <https://book.oceaninfohub.org/index.html>
- Linking data to OIH is a key indicator for BODC internationally



# SCHEMA.ORG AS AN ENABLING TECHNOLOGY



- [Schema.org](https://schema.org) is the standard used to serve metadata to ODIS and OIH
  - Is a common standard that also underpins discovery in Google
  - Written in JSON-LD documents
- BODC already include Schema.org on PDL and EDMED pages
- The METS RCN workshop generated [template schema.org for time series data](#)
  - Enriched with NVS terms throughout

A screenshot of the Schema.org website homepage. The header is dark red with the "Schema.org" logo and navigation links for "Docs", "Schemas", "Validate", and "About". A search bar is on the right. The main content area is white and contains a "Welcome to Schema.org" heading, a paragraph about the mission, a paragraph about the vocabulary, a paragraph about the founding organizations, a paragraph about the shared vocabulary, and a "get started!" link. At the bottom, there is a link to the blog and release history.

**Schema.org** Docs Schemas Validate About

## Welcome to Schema.org

Schema.org is a collaborative, community activity with a mission to create, maintain, and promote schemas for structured data on the Internet, on web pages, in email messages, and beyond.

Schema.org vocabulary can be used with many different encodings, including RDFa, Microdata and JSON-LD. These vocabularies cover entities, relationships between entities and actions, and can easily be extended through a well-documented extension model. Over 10 million sites use Schema.org to markup their web pages and email messages. Many applications from Google, Microsoft, Pinterest, Yandex and others already use these vocabularies to power rich, extensible experiences.

Founded by Google, Microsoft, Yahoo and Yandex, Schema.org vocabularies are developed by an open community process, using the [public-schemaorg@w3.org](mailto:public-schemaorg@w3.org) mailing list and through [GitHub](#).

A shared vocabulary makes it easier for webmasters and developers to decide on a schema and get the maximum benefit for their efforts. It is in this spirit that the founders, together with the larger community have come together to provide a shared collection of schemas.

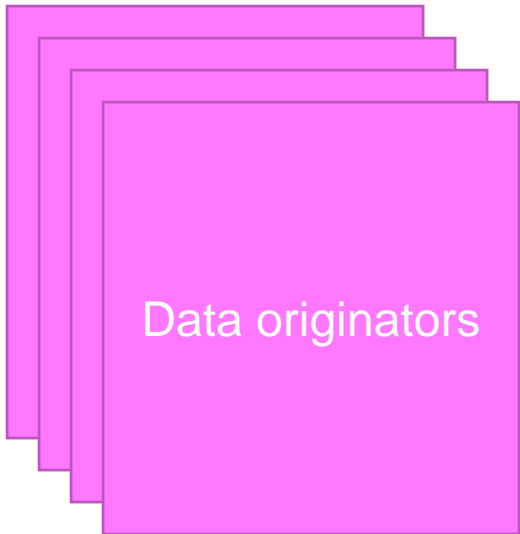
We invite you to [get started!](#)

View our blog at [blog.schema.org](https://blog.schema.org) or see [release history](#) for version 15.0.

# BODC AS A NODE IN A CONNECTED ECOSYSTEM


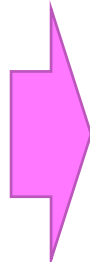


# BODC AS A NODE IN A CONNECTED ECOSYSTEM

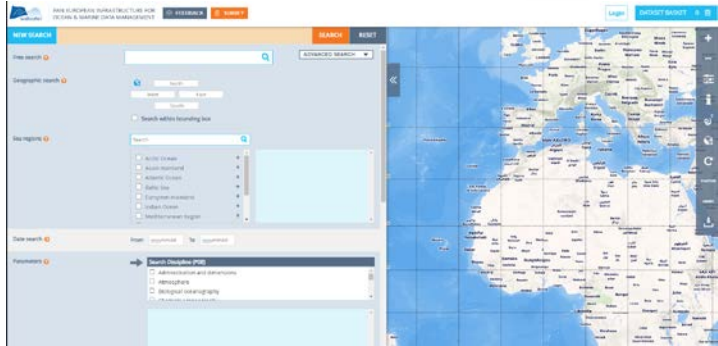


**National Oceanography Centre** **British Oceanographic Data Centre**

Curate and serve data to national and international network



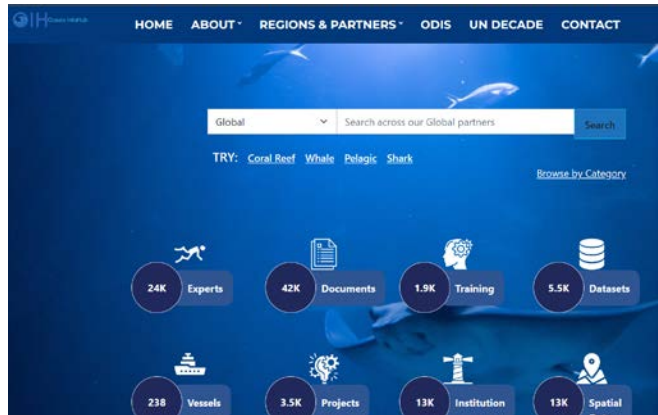
SeaDataNet



MEDIN  
marine environmental data & information network



Ocean InfoHub





# **CHALLENGES**

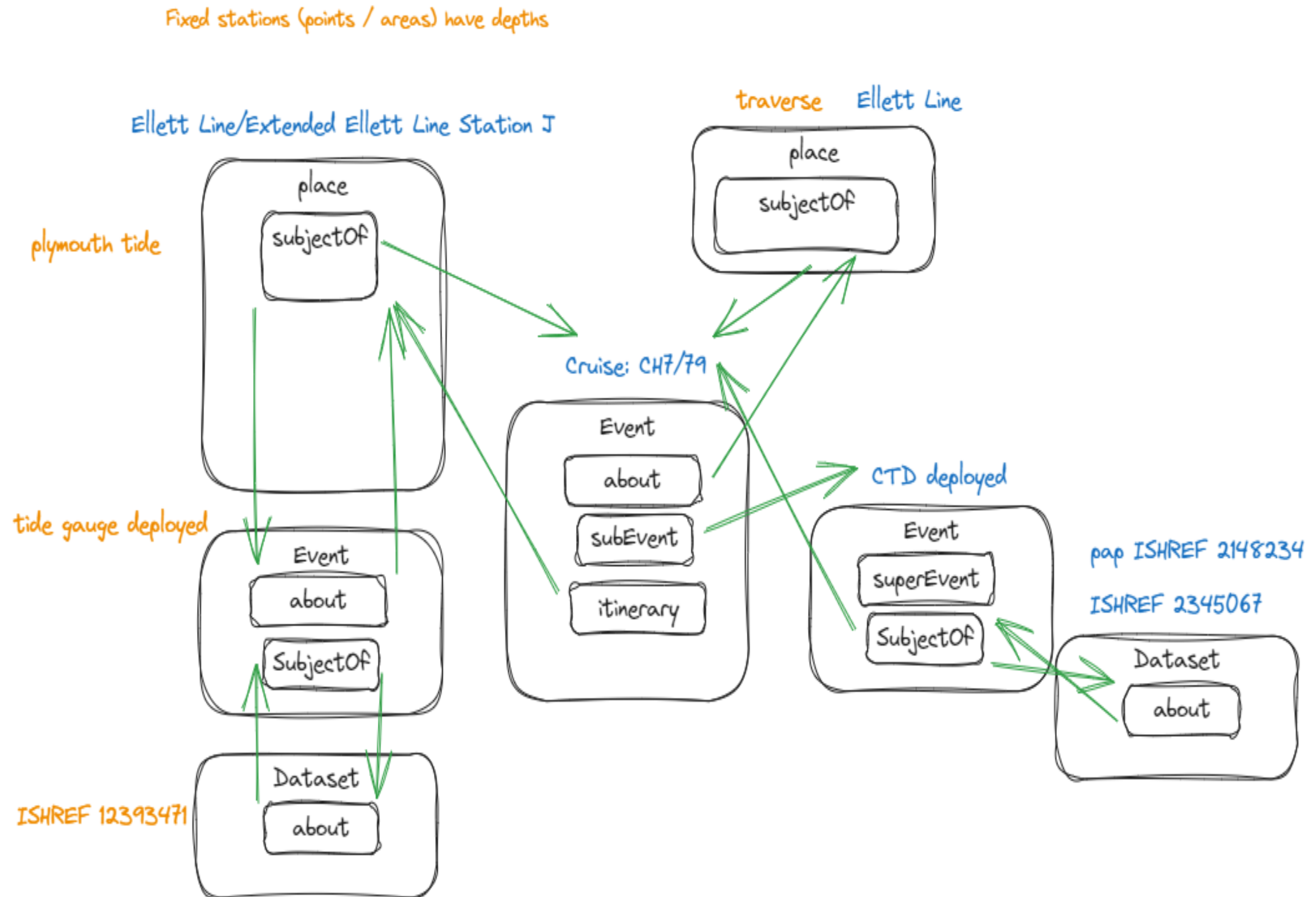
**1. HOW TO EFFICIENTLY SERVE METADATA TO ODIS/OIH VIA EXISTING PARTNERSHIPS?**

**2. HOW TO ALSO DEVELOP THE ENHANCED METADATA PROFILE OF METS-RCN?**

# MODELLING AND PATTERNS

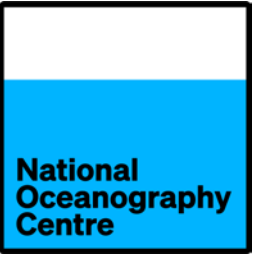
# MODELLING OF BODC METADATA

The model for exposure of BODC metadata data to ODIS based on Schema.org concepts the ISHREF concept is a metadata granule in the BODC internal schema and could span one oceanic CTD cast or one sampling station within a research cruise, for example.





# HOW WE PUBLISH TO ODIS



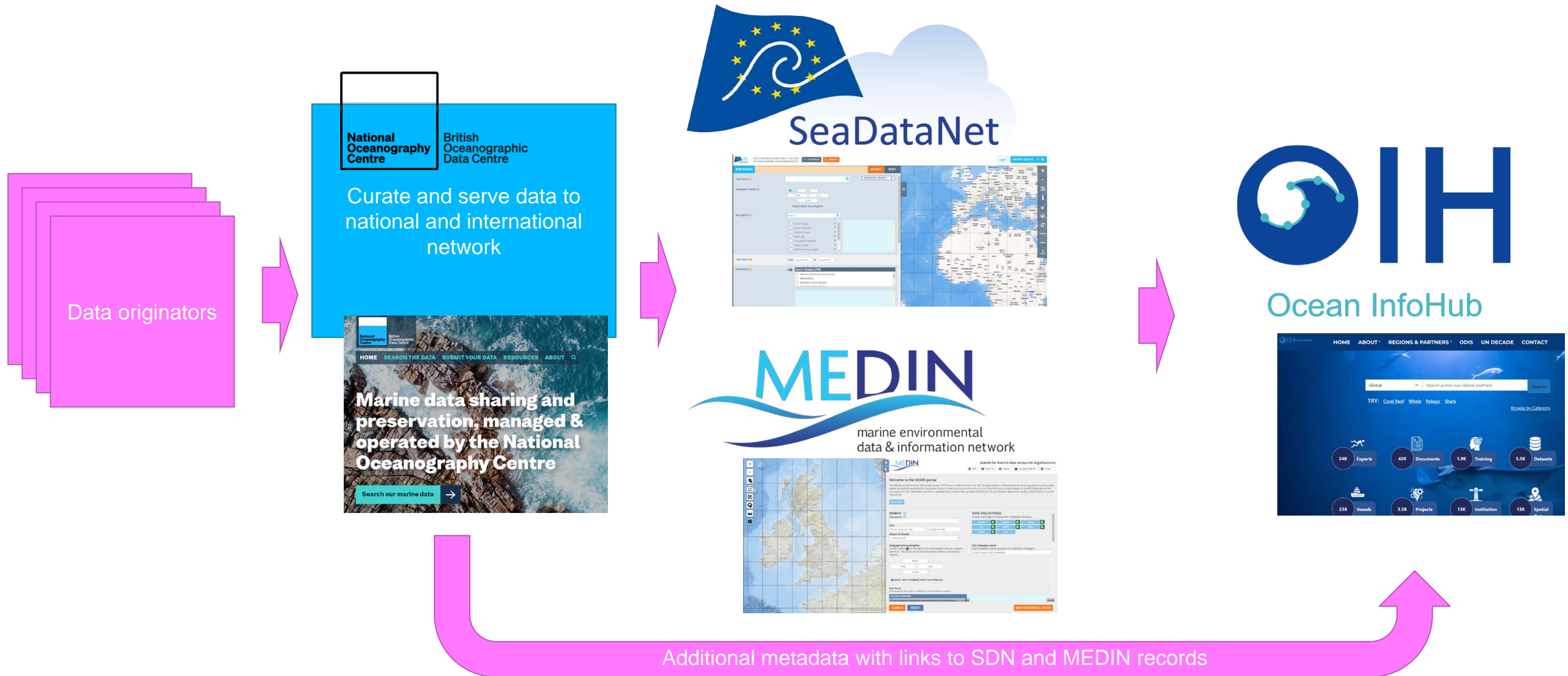
- We produce URLs for all relevant content stored within the NODB, a sitemap.xml was created containing URLs for harvest by ODIS.
- ODIS harvest this sitemap to then populate OIH

This XML file does not appear to have any style information associated with it. The

```
<!-- generator="Inspyder Sitemap Creator 5.1.4" -->
<!-- Last Updated 26/06/2023 09:20:43 -->
▼<urlset xmlns="http://www.sitemaps.org/schemas/sitemap/0.9" xmlns:xsi="http://www.sitemaps.org/schemas/sitemap/0.9/sitemap.xsd" xmlns:mobile="http://www.google.com/schemas/sitemap-mobile/1.0" http://www.google.com/schemas/sitemap-video/1.1/sitemap-video.xsd">
  ▼<url>
    <loc>https://api.linked-systems.uk/api/schema-org/cruise/3000</loc>
    <lastmod>2023-06-23</lastmod>
    <changefreq>monthly</changefreq>
    <priority>0.5</priority>
    <mobile:mobile/>
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```

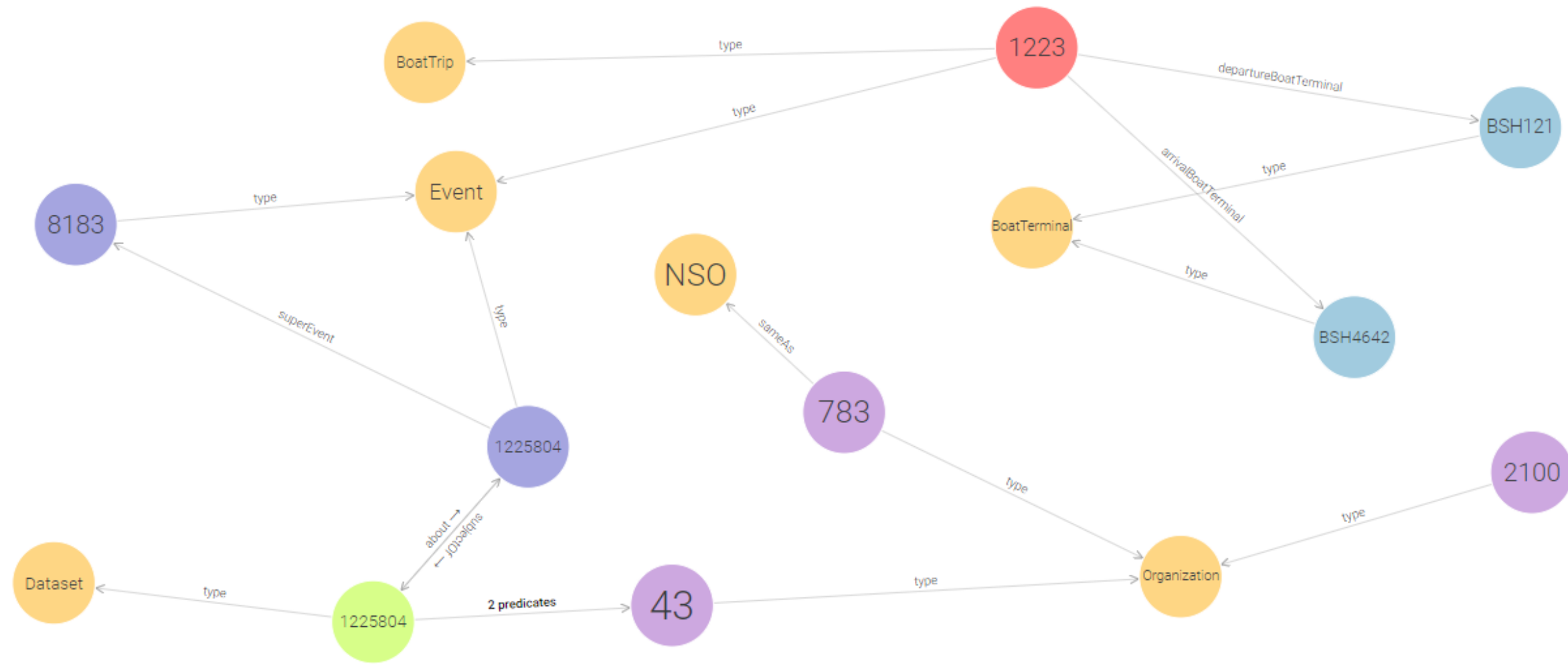
# **RESULTS AND FUTURE WORK**

# ENDED UP WITH A HYBRID MODEL

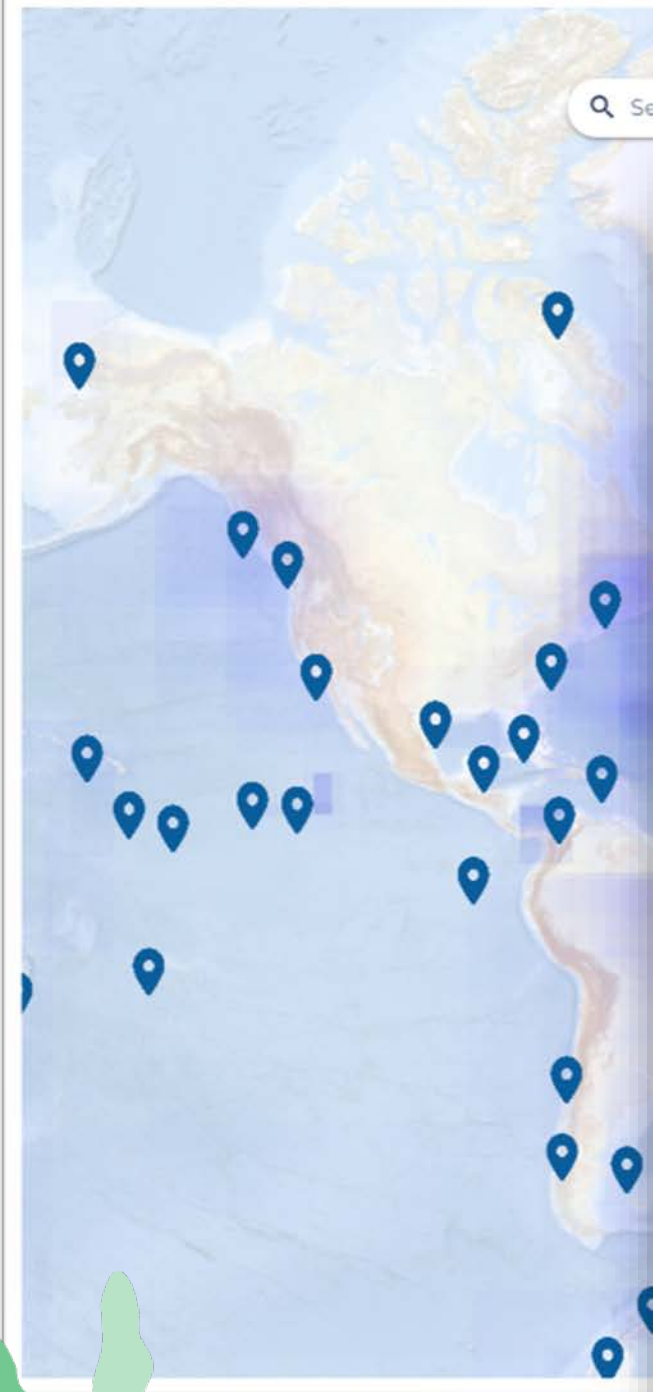


# RESULTS – VISUALISING THE GRAPH

## Visual graph i







Protected Sites -  
Proposed Deep  
Sea Marine  
Reserve - West of  
Scotland



We're getting  
there



Protected Sites -  
Proposed Deep  
Sea Marine  
Reserve - West of  
Scotland

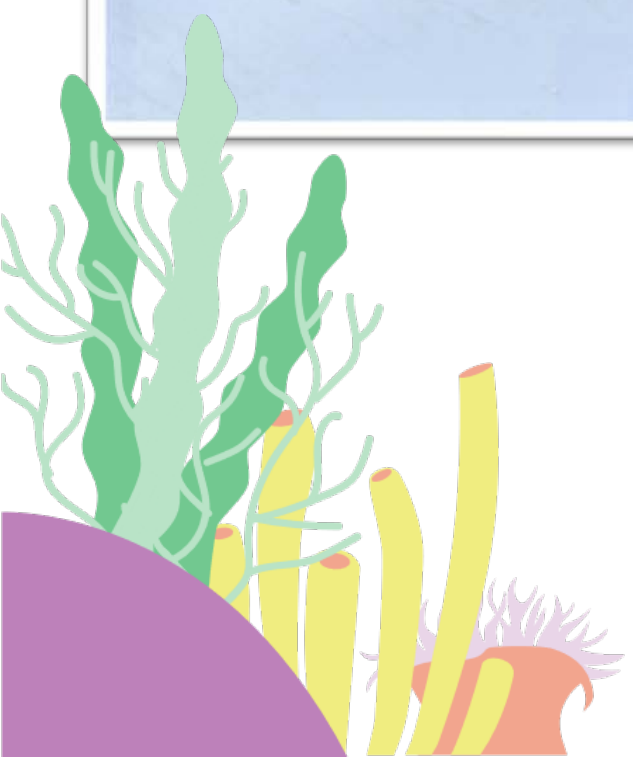
tpc=012\_Marin  
hDAC\_12215&

**Keywords:**  
Environment  
<http://vocab.ndg>

**Data Catalog:**  
<https://portal.medin.org.uk/portal/>,  
<https://portal.medin.org.uk/portal/start.php>,  
[https://portal.medin.org.uk/portal/browse\\_step.php](https://portal.medin.org.uk/portal/browse_step.php)



mapbox



# SUMMARY & NEXT STEPS



## Summary

Hybrid model for serving metadata to ODIS

- Leverages existing partnerships to reduce duplication of effort.
- The hybrid approach enables the development of the enhanced metadata profile. The results potentially shape future requirements of new projects with partners.

## Next steps

Exemplar metadata with ODIS for the PAP site is operational.

Load issue to address to enable exposure of full  
~140,000 records

Future work can potentially include specific profiles for different research communities



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**THANK YOU**

**ACKNOWLEDGEMENTS**

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**NOC.AC.UK**

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