

## Open Geospatial Consortium

# Agenda Item 9: FMSDI Pilot results and next phase of the FMSDI Pilot

Scott Simmons, OGC

Chiang Mai, Thailand

4 – 8 May 2026



First Expert meeting of the UN-GGIM & IHO Joint Working Group on Marine Geospatial Information  
with the theme “Advancing Integrated Marine Geospatial Information Management”

# The FMSDI Pilot so far



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# Federated Marine Spatial Data Infrastructure (FMSDI) Pilot

Phases of the OGC Initiative

**1** PHASE  
Aug – Dec 2021

## Marine Data Availability and Accessibility Study (MDAAS)

Request for Information assessing data availability and accessibility for Marine Protected Areas in the North Sea and Baltic Sea.

### SPONSORS

**DGA** Danish Geodata Agency

**2** PHASE  
Jan – Jun 2022

## Towards a Federated Marine SDI: IHO and OGC Standards Applied to MPA Data

Advanced interoperability of MPA data through IHO S-122 and OGC API standards; introduced the IGIF-MSDI Maturity Framework.

### SPONSORS

**DGA** Danish Geodata Agency  
**UKHO** UK Hydrographic Office  
**NGA** National Geospatial-Intelligence Agency

**3** PHASE  
Jul 2022 – Jan 2023

## Connecting Land and Sea to Protect the Arctic Environment

Extended use cases to the Arctic; sea-based health and safety scenario tied to the Arctic Voyage Planning Guide.

### SPONSORS

**NGA** National Geospatial-Intelligence Agency

**4** PHASE  
Mar – Dec 2023

## Connecting Land and Sea for Global Awareness

Three regional threads — Singapore, Arctic Canada, and the Caribbean — focused on land-sea data integration and digital twins.

### SPONSORS

**MPA** Maritime & Port Authority of Singapore  
**SLA** Singapore Land Authority  
**NOAA** U.S. NOAA  
**NRCan** Natural Resources Canada  
**UKHO** UK Hydrographic Office

**5** PHASE  
2024 – 2025

## FMSDI Pilot 2024 — Land–Sea Data Integration

Builds on prior phases to address coastal data integration through digital twins, marine cadaster, and ocean-science linkages.

### SPONSORS

**UKHO** UK Hydrographic Office  
**NOAA** U.S. NOAA  
**NGA** National Geospatial-Intelligence Agency

# Plenty of good reporting

- Phase 1 / 2: [OGC 22-013r3] [Towards a Federated Marine SDI: IHO and OGC standards applied to Marine Protected Area Data Engineering Report](#)
- Phase 3: [OGC 23-010] [Towards a Federated Marine SDI: Connecting Land and Sea to Protect the Arctic Environment Engineering Report](#)
- Phase 4: [OGC 23-027] [OGC Federated Marine Spatial Data Infrastructure Pilot 2023 - Connecting Land and Sea for Global Awareness](#)
- Phase 5: [OGC 24-061] [Summary Report for OGC Federated Marine SDI 2024 Pilot - Bridging Land and Sea](#)
- Phase 5: [OGC 24-064] [OGC Good Practices Report for OGC Federated Marine SDI 2024 Pilot - Bridging Land and Sea](#)



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# Focus to drive Phase 6

- Phase 1 / 2: [OGC 22-013r3] Towards a Federated Marine SDI: IHO and OGC standards applied to Marine Protected Area Data Engineering Report
- Phase 3: [OGC 23-010] Towards a Federated Marine SDI: Connecting Land and Sea to Protect the Arctic Environment Engineering Report
- Phase 4: [OGC 23-027] OGC Federated Marine Spatial Data Infrastructure Pilot 2023 - Connecting Land and Sea for Global Awareness
- Phase 5: [OGC 24-061] Summary Report for OGC Federated Marine SDI 2024 Pilot - Bridging Land and Sea
- Phase 5: [OGC 24-064] OGC Good Practices Report for OGC Federated Marine SDI 2024 Pilot - Bridging Land and Sea



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# So how do we validate Best Practices?



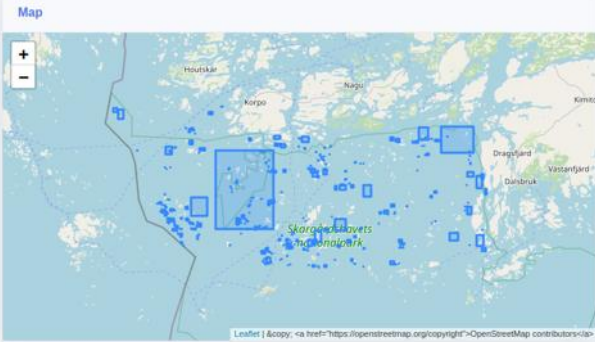
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# OGC Research philosophy



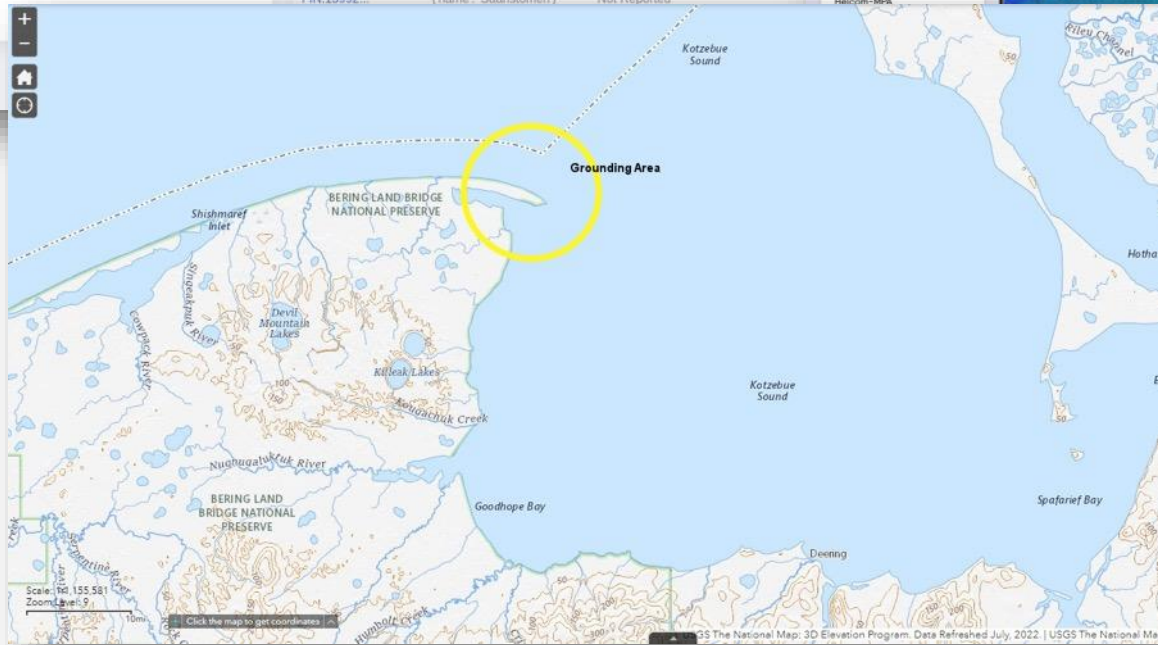
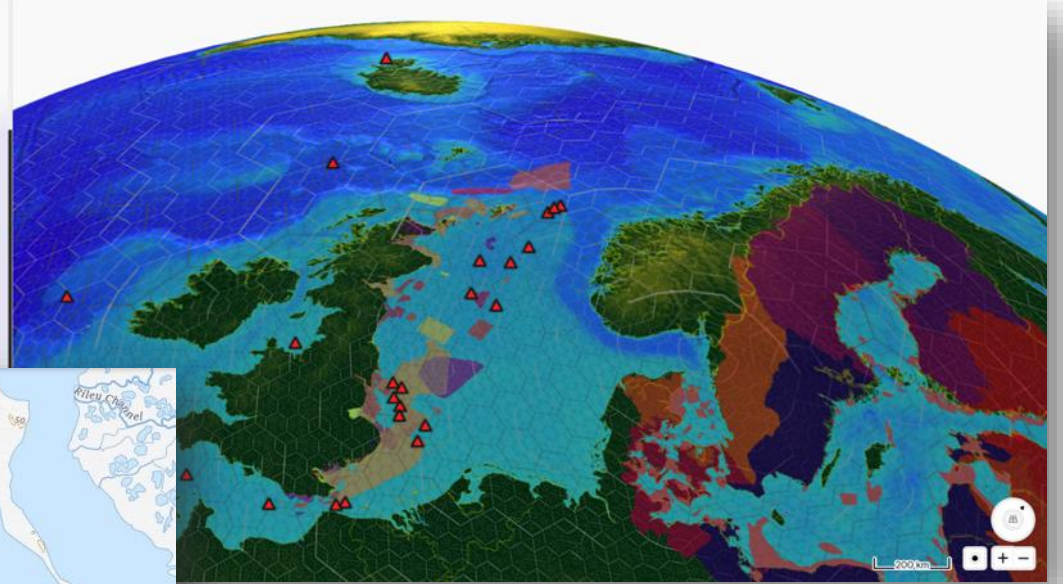
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# Bounding Box S-122 Marine Protected Areas, WDPA



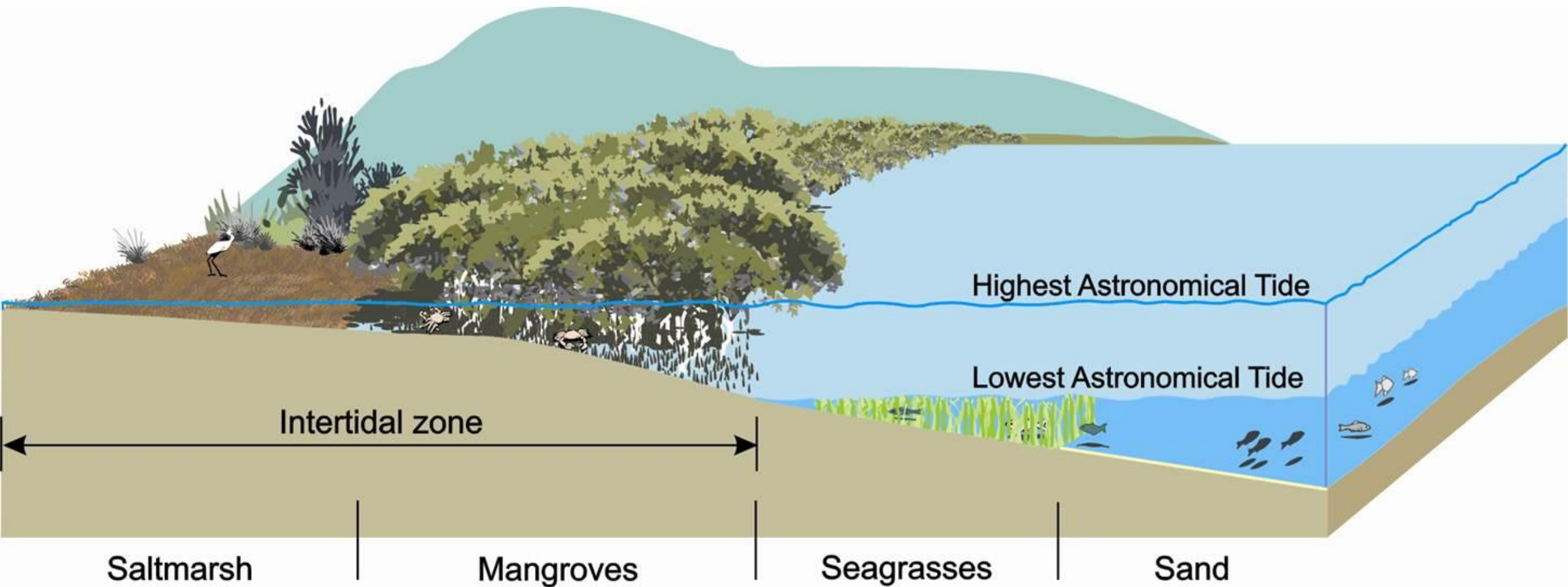
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- public/GEBCO\_Bathymetry  
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- Baltic-Sea-Catchment-Ar...  
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# Increasingly focusing on the “white ribbon”



IHO

International  
Hydrographic  
Organization

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# The current Good Practices

- Establish a Common Geodetic Reference Frame
- Discovery and Analysis Readiness of Data (FAIR principles)
- Filling the Geospatial Data Void (often in the “white ribbon”)
- Multiagency Governance – the IGIF-MSDI Maturity Roadmap
- Managing Resolution – start with point datasets



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# Input needed

- All participants are encouraged to review the Good Practices document and provide feedback
  - Anything underdeveloped or unclear
  - Concrete ideas for testable experiments or solutions
  - References to other defined practices
  - Success (or failure) stories that could be included as examples
- [OGC 24-064] [OGC Good Practices Report for OGC Federated Marine SDI 2024 Pilot - Bridging Land and Sea](#)



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# From Good to Best Practices – FMSDI Phase 6



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# OGC Marine Domain Working Group thoughts

## Application Profiles

- Build on the recommended set of Good Practices with specific application profiles based on the core OGC standards
- Assess if the OGC API – Environmental Data Retrieval (EDR) Standard is valuable in data use and analytic workflows (OGC API - EDR allows for arbitrary geometric extraction of information from data cubes)

## Semantic Interoperability

- machine-readable shared vocabularies across domains tightly integrated with data quality and metadata
- Leverage OGC's Definition Server and IHO Geospatial Information Registry
- Leverage joint OGC-ISO Data Quality registry

## Integrity, Provenance, and Trust

- Moving up the value chain from raw data to decision ready indicators requires standardization of the observation dataset lifecycle
- Defining fitness for purpose and how to gain trust in that fitness

## Capacity Building

- support training and capacity building to implement Best Practices suitable for regional, environmental and budgetary constraints



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# The “white ribbon” may still be the best context

- Complex data management environment
- Diverse stakeholders
- Land and Sea mapping communities have expertise that can be ported to the other
- Real-world and scary problems
  - Cable protection at and near landings (recent interest from ICPC)
  - Risky navigation in the world’s trouble spots
  - Port infrastructure and autonomous systems

