

Operational Framework for Integrated Marine Geospatial Information Management (IGIF-Hydro)



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



Speakers

Ms. Emily Cikamatana

Division for Ocean Affairs and the Law of the Sea
Office of Legal Affairs

Ellen Vos

Netherlands Hydrographic Service & Marine Information and Data Centre
Country Experience

John Nyberg

Working Group on Marine Geospatial Information
IGIF-Hydro



IGIF-Hydro History

Foundational themes for the IGIF-Hydro

The Operational Framework

Vision

Mission

Goals

IGIF-Hydro Structure

Part One

Part Two

Future Enhancements

Decade of Ocean Science for Sustainable Development

Example of use

Global Consultation

Lessons Learned

Agenda



IGIF-Hydro History

- Established Working Group – 2017
- Have held 4 expert face-to-face and 13 virtual meetings
- Completed White Paper on Readily Available and Accessible (Open) Marine Geospatial Information – 2020
- Held an in person seminar on Effective and Integrated MGI “Singapore Statement on Effective and Integrated Marine Geospatial Information Management”– 2022
- IGIF-Hydro accepted as a Decade of Ocean Science for Sustainable Development Action - 2022
- Received endorsement of IGIF-Hydro Part 1 – 2022
- Completed IGIF-Hydro Part 2, global consultation and test workshops - 2023



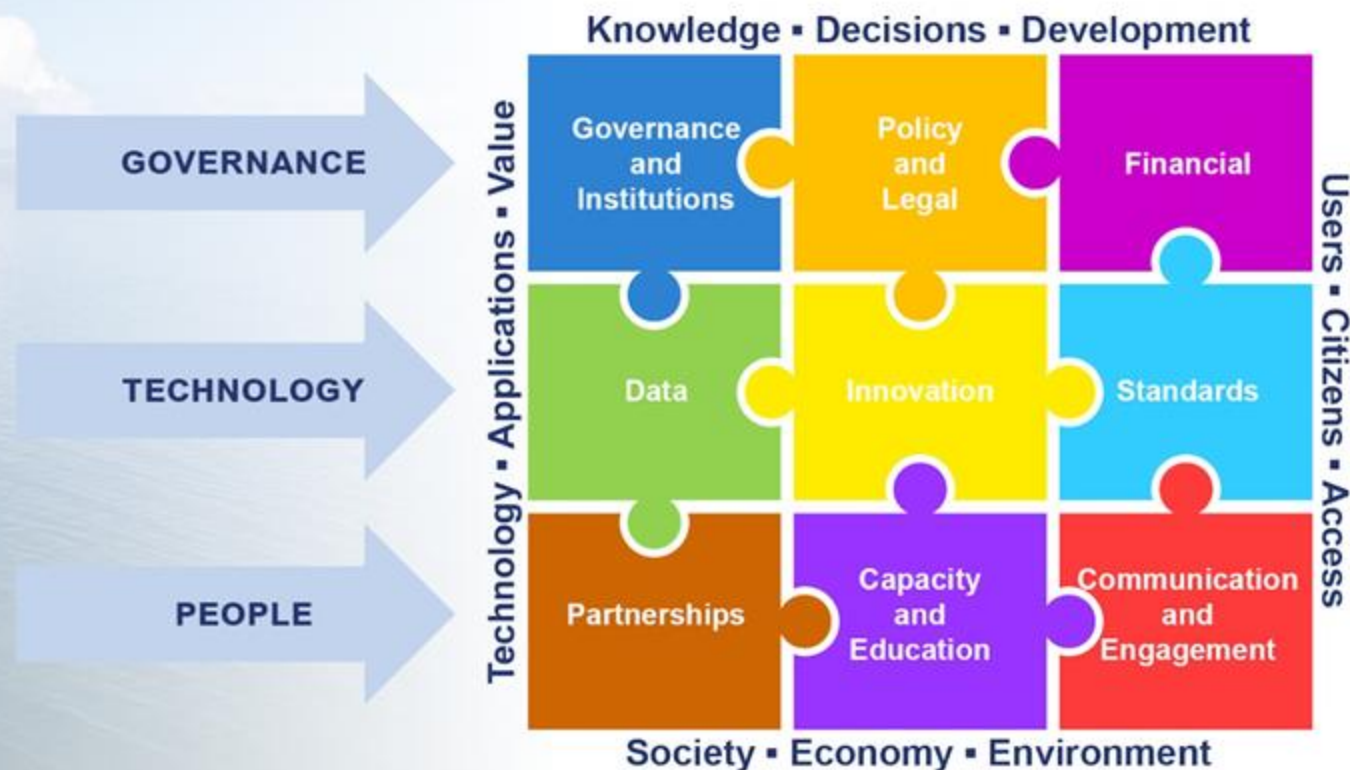
Our desired future

SUSTAINABLE DEVELOPMENT GOALS





The Integrated Geospatial Framework provides a basis and guide for developing, integrating, and strengthening geospatial information management.



Anchored by nine Strategic Pathways, the Framework is a mechanism for articulating and demonstrating national leadership in geospatial information, and the capacity to take positive steps.



White Paper on Readily Available and Accessible (Open) Marine Geospatial Information

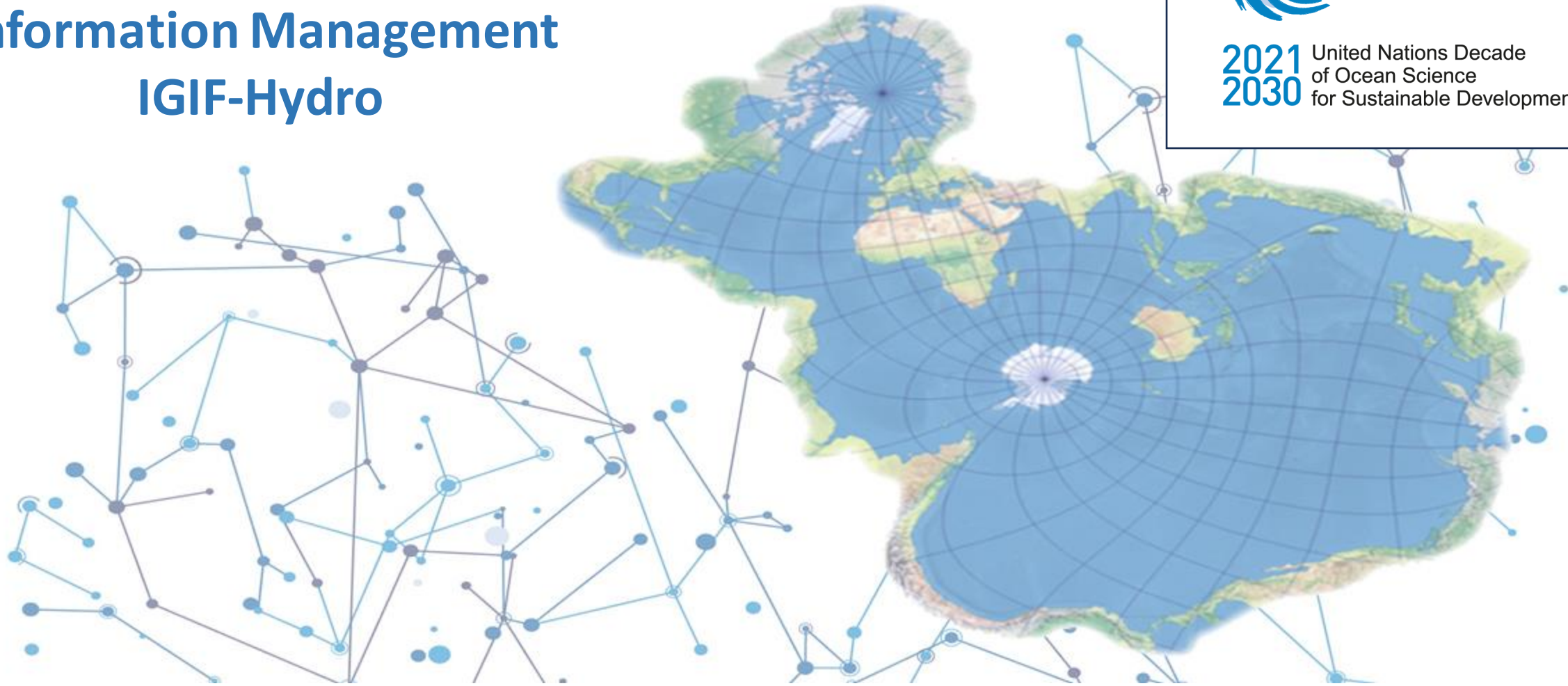
**A reference on the benefits and challenges of managing and providing accessible
marine geospatial information**



Operational Framework for Integrated Marine Geospatial Information Management IGIF-Hydro



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on
Marine Geospatial Information

Positioning geospatial information to address global challenges

ggim.un.org



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Vision

Integrating water into the global geospatial information
infrastructure ecosystem



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on
Marine Geospatial Information

Positioning geospatial information to address global challenges

ggim.un.org

Mission



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

To provide practical guidance that countries can use to enhance the availability and accessibility of marine geospatial information, inclusive of all water-related jurisdictions, and to realize the greatest benefit from their integrated geospatial information management arrangements for the betterment of society, environment, and economy. This Guide expands upon the IGIF's nine strategic pathways where considerations for water might be different or require specific attention.

The idea of this Guide is not to replicate the IGIF but to:

- Provide practical advice and promote best practices and broad perspectives
- Support any body, state, or organization
- Assist implementers of the IGIF Strategic Pathways
- Establish and/or maintain a national geospatial framework
- Ensure the inclusion of water in that framework



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on
Marine Geospatial Information

Positioning geospatial information to address global challenges

ggim.un.org

Goals



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

- Facilitate Data Partnerships,
- Increase the use of international Standards,
- Increase Capacity Development Opportunities,
- Ensure Data Interoperability,
- Improve Data Accessibility and Availability,
- Provide Guidance for Emerging Marine Geospatial Programs.



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on
Marine Geospatial Information

Positioning geospatial information to address global challenges

ggim.un.org



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Operational Framework for Integrated Marine Geospatial Information Management (IGIF-Hydro)

Two part document

Part One – background, challenges and introduction to value propositions

Part Two – broken down by IGIF Strategic pathways for the water domain

Scope – Oceans, Seas, rivers, waterways/watercourses, lakes, inland waters, wetlands, glaciers...

Part 1 – The Strategic Overview

- Overview
- Introduction and Background
- The Main Challenges

Part 2 – The Strategic Pathways

- A Value Proposition for the Marine Domain
- Introduction
- Governance and Institution
- Legal and Policy
- Data
- Standards
- Partnerships
- Capacity and Education
- Communication and Engagement



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on
Marine Geospatial Information

Positioning geospatial information to address global challenges

ggim.un.org



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

IGIF-H Part One

B. Objectives

The objectives of the Working Group, as decided at the 7th Session of UN-GGIM, are to:

- ▶ play a leading role at the policy level by raising political awareness and highlighting the importance of reliable, timely and fit-for-purpose marine geospatial information to support the administration, management and governance of the marine and ocean environments;
- ▶ encourage the use of internationally agreed-upon geospatial information frameworks, schemas, systems and established standards to improve the growing inter-dependent relationships between people and the marine environments; and
- ▶ support the Committee of Experts in the development of norms, principles, guides and standards to increase significantly the availability of high-quality, timely and reliable geospatial information including any regional capacity development initiatives.

Terms of Reference

Membership

Workplans

Meetings

Resources

Resources

- ▶ [White Paper - Readily Available and Accessible Marine Geospatial Information](#)
- ▶ [Operational Framework for Integrated Marine Geospatial Information Management \(Part One\)](#)



- The Twelfth UN-GGIM Committee of Experts:
 - Supported the development roadmap in two parts
 - Supported [IGIF-H Part One](#)
- High-level summary, catalyst for change, our desired future, vision, mission, goals and background for the IGIF-H.



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on Policy and Legal Frameworks
for Geospatial Information Management

Positioning geospatial information to address global challenges

ggim.un.org



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



all nine pathways on the table IGIF-Hydro Part Two



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

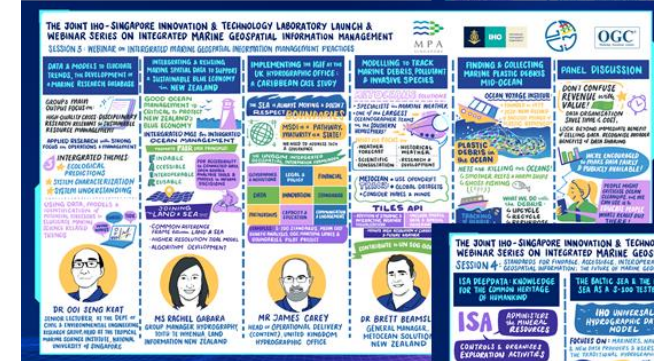
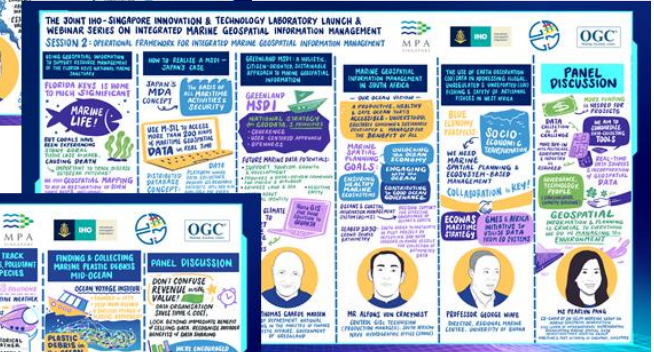
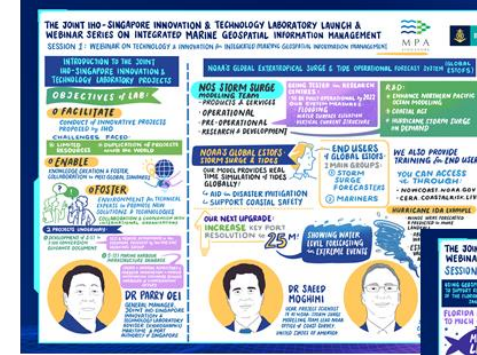
Working Group on
Marine Geospatial Information

Positioning geospatial information to address global challenges

ggim.un.org

Value Propositions

- Nautical Charting and Transportation
- Supporting Resource Management and Planning
- Established Maritime Boundaries
- Subsistence
- Emergency Response and Disaster Management Response
- Integrated Marine Cadastral Systems
- Energy - Oil, Gas, and Marine Resources
- Environmental Protection
- Climate Change
- Scientific Research
- Marine Debris and Ocean Plastics
- Coral Reef Conservation
- Fishery Management



https://ggim.un.org/meetings/2021/WG-MGI_webinar/

Decade of Ocean Science Action



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

A screenshot of the IGIF-HYDRO website header. The background is a dark teal color with a faint pattern of fish. In the top left corner, there are logos for UNESCO and the United Nations Decade of Ocean Science. The top right corner features a navigation menu with four items: 'ABOUT US', 'LATEST', 'TAKE ACTION', and 'COMMUNITY', each with a downward arrow. The center of the page features a large white wave logo and the text '2021 United Nations Decade of Ocean Science for Sustainable Development' and 'IGIF-HYDRO' in large white letters.



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on
Marine Geospatial Information

Positioning geospatial information to address global challenges

ggim.un.org

IHO WEND-100 Matrix

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
			S-101 (ENC)			S-102 (Bathy Surface)			S-104 (Water Levels)			S-111 (Surface Currents)				
			Readiness Level	Readiness Description	Score	Readiness Level	Readiness Description	Score	Readiness Level	Readiness Description	Score	Readiness Level	Readiness Description	Score		
1																
2																
3			Governance and Institutions (A)	The product is part of a documented national or regional institutional plan, custodianship (a managing organization) has been identified and has accepted the management responsibility. All has been agreed at the national authority and RHC level.	11.10	Governance and Institutions (B)	The product is part of a documented national or regional institutional plan, custodianship (a managing organization) has been identified and has accepted the management responsibility. The policy has been endorsed at the national level but NOT at the RHC level.	8.40	Governance and Institutions (A)	The product is part of a documented national or regional institutional plan, custodianship (a managing organization) has been identified and has accepted the management responsibility. All has been agreed at the national authority and RHC level.	11.10	Governance and Institutions (A)	The product is part of a documented national or regional institutional plan, custodianship (a managing organization) has been identified and has accepted the management responsibility. All has been agreed at the national authority and RHC level.	11.10	Governance and Institutions (A)	The product is part of a documented national or regional institutional plan, custodianship (a managing organization) has been identified and has accepted the management responsibility. All has been agreed at the national authority and RHC level.
4			Policy and Legal (B)	Product has a documented policy regarding data protection, licensing, sharing and liability. The policy has been endorsed by the national authority but NOT at the RHC level.	8.40	Policy and Legal (B)	Product has a documented policy regarding data protection, licensing, sharing and liability. The policy has been endorsed by the national authority but NOT at the RHC level.	8.40	Policy and Legal (B)	Product has a documented policy regarding data protection, licensing, sharing and liability. The policy has been endorsed by the national authority but NOT at the RHC level.	8.40	Policy and Legal (B)	Product has a documented policy regarding data protection, licensing, sharing and liability. The policy has been endorsed by the national authority but NOT at the RHC level.	8.40	Policy and Legal (B)	Product has a documented policy regarding data protection, licensing, sharing and liability. The policy has been endorsed by the national authority but NOT at the RHC level.
5			Data (C)	Product is supported through national data collection and is NOT regionally agreed as suitable. There is a regular process for data supply to update product that ensures suitable update cycle for product.	5.70	Data (D)	Product has been produced but data is not regularly applied for updates.	3.00	Data (C)	Product is supported through national data collection and is NOT regionally agreed as suitable. There is a regular process for data supply to update product that ensures suitable update cycle for product.	5.70	Data (C)	Product is supported through national data collection and is NOT regionally agreed as suitable. There is a regular process for data supply to update product that ensures suitable update cycle for product.	5.70	Data (C)	Product is supported through national data collection and is NOT regionally agreed as suitable. There is a regular process for data supply to update product that ensures suitable update cycle for product.
6			Financial (E)	This product is not being considered by any hydrographic office in the region.	0.00	Financial (B)	The product is supported by a business model that includes current funding sources, obligations, financial risks, and future investments has been completed. An agreed upon business case that justifies funding and investment has been completed. The product has a documented, well defined socio-economic value. All has been agreed at the national level, NOT at the RHC level.	8.40	Financial (E)	This product is not being considered by any hydrographic office in the region.	0.00	Financial (E)	This product is not being considered by any hydrographic office in the region.	0.00	Financial (E)	This product is not being considered by any hydrographic office in the region.
7			Financial (A) Financial (B) Financial (C) Financial (D) Financial (E)	Product has been produced, but is NOT available for use to influence national technological advances, innovation, and academic uses.	3.00	Innovation (D)	Product has been produced, but is NOT available for use to influence national technological advances, innovation, and academic uses.	3.00	Innovation (D)	Product has been produced, but is NOT available for use to influence national technological advances, innovation, and academic uses.	3.00	Innovation (D)	Product has been produced, but is NOT available for use to influence national technological advances, innovation, and academic uses.	3.00	Innovation (D)	Product has been produced, but is NOT available for use to influence national technological advances, innovation, and academic uses.
8			Standards (E)	Product is built using IHO standard that is in version 2.0.0 or earlier (S-102 must be version 2.0.0 or earlier). Standard is considered to be managed by IHO and in the process of being endorsed by the IHO Member States.	5.70	Standards (C)	Product is built using IHO standard that is in version 2 or earlier (S-102 must be version 2.0.0 or earlier). Standard is considered to be managed by IHO and in the process of being endorsed by the IHO Member States.	5.70	Standards (C)	Product is built using IHO standard that is in version 2 or earlier (S-102 must be version 2.0.0 or earlier). Standard is considered to be managed by IHO and in the process of being endorsed by the IHO Member States.	5.70	Standards (C)	Product is built using IHO standard that is in version 2 or earlier (S-102 must be version 2.0.0 or earlier). Standard is considered to be managed by IHO and in the process of being endorsed by the IHO Member States.	5.70	Standards (C)	Product is built using IHO standard that is in version 2 or earlier (S-102 must be version 2.0.0 or earlier). Standard is considered to be managed by IHO and in the process of being endorsed by the IHO Member States.
9			Partnerships (C)	The product is NOT distributed through a Regional ENC Center (RENC). Product principles (transboundary arrangements) have NOT been agreed upon at the RHC level. Product stakeholders have been included in product development.	5.70	Partnerships (C)	The product is NOT distributed through a Regional ENC Center (RENC). Product principles (transboundary arrangements) have NOT been agreed upon at the RHC level. Product stakeholders have been included in product development.	5.70	Partnerships (C)	The product is NOT distributed through a Regional ENC Center (RENC). Product principles (transboundary arrangements) have NOT been agreed upon at the RHC level. Product stakeholders have been included in product development.	5.70	Partnerships (D)	The product is NOT distributed through a Regional ENC Center (RENC). Product principles (transboundary arrangements) have NOT been agreed upon at the RHC level. Product stakeholders have NOT been included in product development.	5.70	Partnerships (D)	The product is NOT distributed through a Regional ENC Center (RENC). Product principles (transboundary arrangements) have NOT been agreed upon at the RHC level. Product stakeholders have NOT been included in product development.
10			Capacity and Education (C)	Product availability has NOT been promoted through the RHC, including the needs, values and benefits of the product. Opportunity for training on how to produce and use the product is available throughout the RHC region at a significant cost to Member States.	5.70	Capacity and Education (C)	Product availability has NOT been promoted through the RHC, including the needs, values and benefits of the product. Opportunity for training on how to produce and use the product is available throughout the RHC region at a significant cost to Member States.	5.70	Capacity and Education (C)	Product availability has NOT been promoted through the RHC, including the needs, values and benefits of the product. Opportunity for training on how to produce and use the product is available throughout the RHC region at a significant cost to Member States.	5.70	Capacity and Education (C)	Product availability has NOT been promoted through the RHC, including the needs, values and benefits of the product. Opportunity for training on how to produce and use the product is available throughout the RHC region at a significant cost to Member States.	5.70	Capacity and Education (C)	Product availability has NOT been promoted through the RHC, including the needs, values and benefits of the product. Opportunity for training on how to produce and use the product is available throughout the RHC region at a significant cost to Member States.
11			Communication and Engagement (D)	Product has been produced, but product narrative has NOT been developed. Potential relationships, including advocates, partners, users and third parties have NOT been identified.	3.00	Communication and Engagement (D)	Product has been produced, but product narrative has NOT been developed. Potential relationships, including advocates, partners, users and third parties have NOT been identified.	3.00	Communication and Engagement (D)	Product has been produced, but product narrative has NOT been developed. Potential relationships, including advocates, partners, users and third parties have NOT been identified.	3.00	Communication and Engagement (D)	Product has been produced, but product narrative has NOT been developed. Potential relationships, including advocates, partners, users and third parties have NOT been identified.	3.00	Communication and Engagement (D)	Product has been produced, but product narrative has NOT been developed. Potential relationships, including advocates, partners, users and third parties have NOT been identified.
12				Total:	48.30		Total:	51.30		Total:	48.30		Total:	45.60		





Global Consultation Results

Feedback Collected over the past 3 months;

- **Generally positive**
- **Add Value Propositions (consider annex)**
- **Define Target Audience (Part 1 does that)**
- **Examples of Best Practice**
- **Cost associated with training**
- **Add Summary at End**





2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Lessons Learned



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on Policy and Legal Frameworks
for Geospatial Information Management

Positioning geospatial information to address global challenges

ggim.un.org



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Thank You

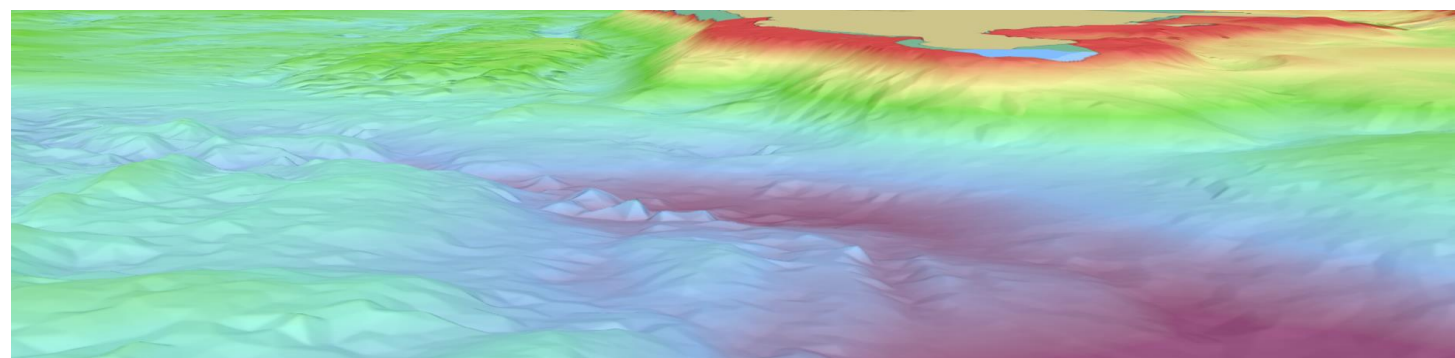
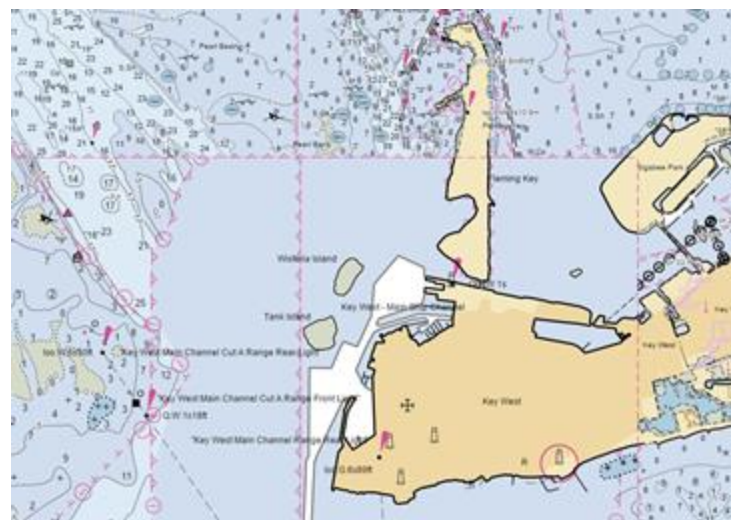
John.nyberg@noaa.gov





Marine Transportation – Nautical Charting and Beyond

- Foundational component of transportation infrastructure
- Improves safety and efficiency for maritime commerce
- Protects the environment



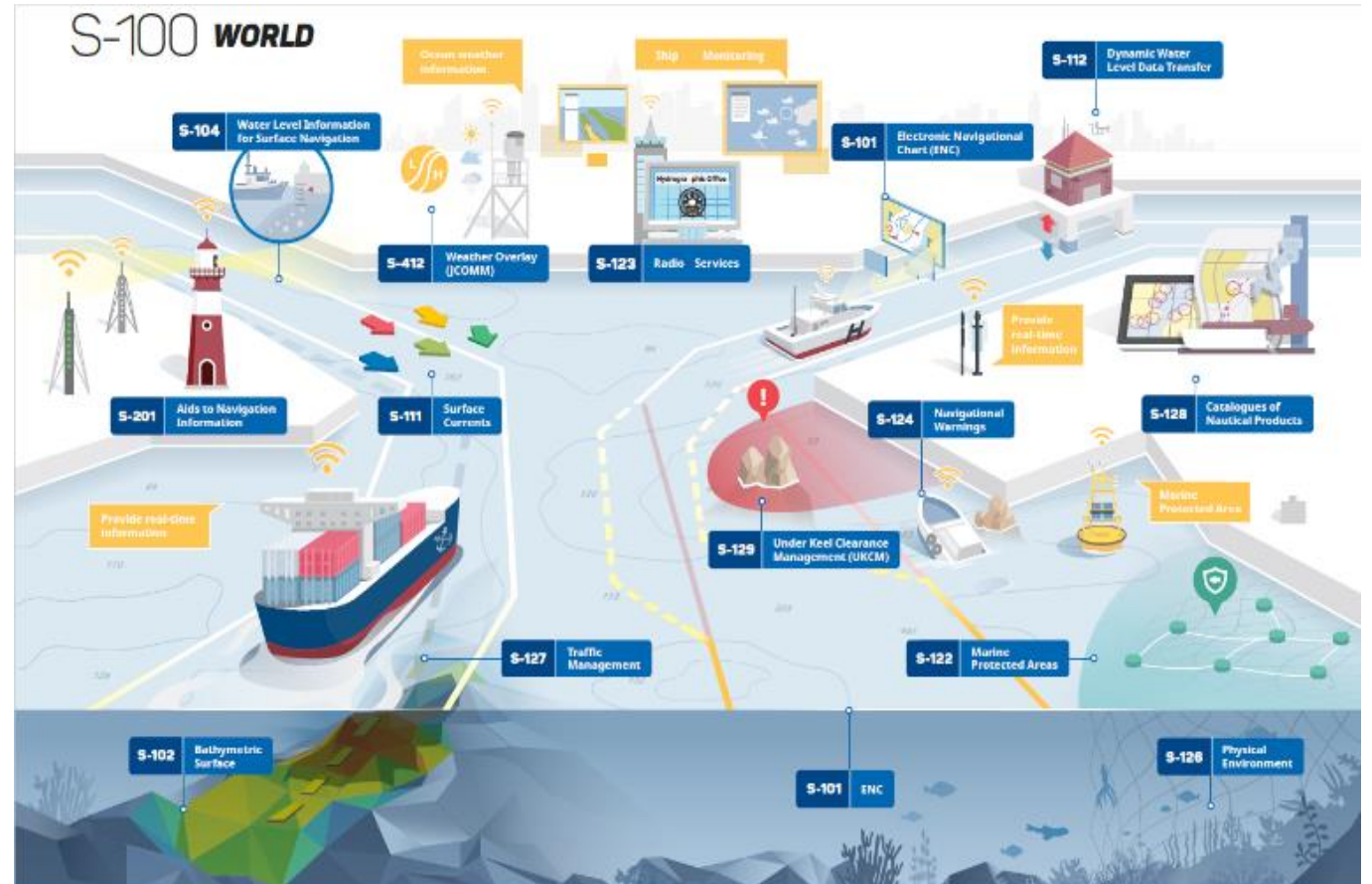


S-100 - the IHO Building blocks



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

- Provides the **data framework** for the development of the next generation Electronic Navigational Charting products, as well as other digital products required by the hydrographic, maritime and GIS communities
- Leads to a global **consistency** of products
- Internationally recognized framework for the structure and delivery of products for the hydrographic and maritime community



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

Working Group on
Marine Geospatial Information

Positioning geospatial information to address global challenges

ggim.un.org