



IHO

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Hydrographic
Organization

STANDARDIZED MARINE PROTECTED AREAS AND THE UN-IGIF-HYDRO

DR JOHN E. NYBERG

INTERNATIONAL HYDROGRAPHIC ORGANIZATION



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International Hydrographic Organization

GET TO KNOW THE IHO

INTERNATIONAL HYDROGRAPHIC ORGANIZATION

Dedicated to supporting safe navigation and protection of the environment

WHAT WE DO



COORDINATE
activities among national hydrographic offices



MAINTAIN
uniformity in nautical charts and documents



ADOPT
effective methods of collecting and sharing hydrographic data

DEVELOP & PROMOTE
the field of hydrography and related technologies

MEMBER STATES

99 

HEADQUARTERS

MONACO

At the invitation of H.S.H. Prince Albert I of Monaco



ESTABLISHED

1921

Following the first international conference in 1919



LEADERSHIP

1 Secretary General

2 Directors

Elected every three years



HYDROGRAPHY

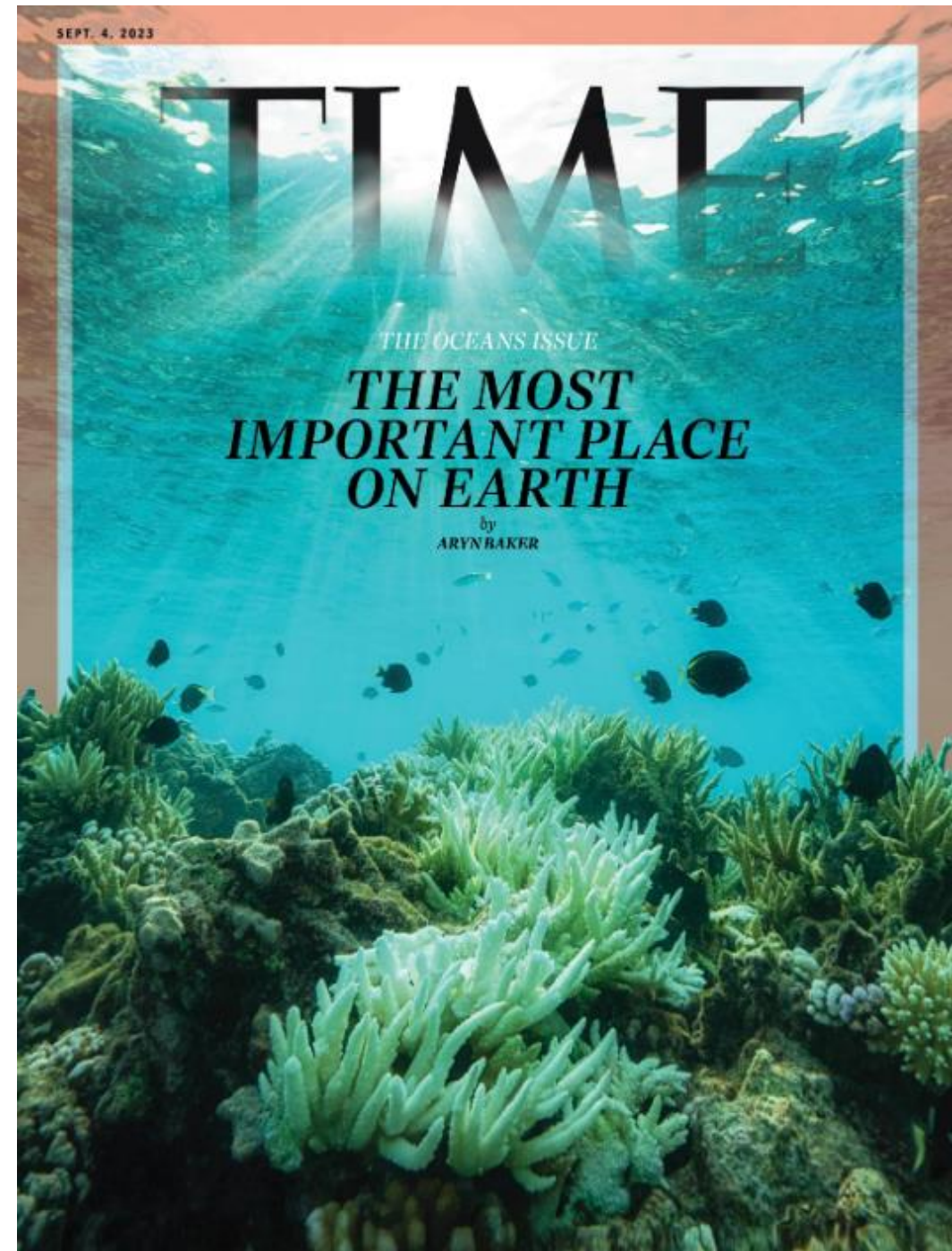
By mapping water depth, the shape of the seafloor and coastline, and the location of possible obstructions, hydrography helps maintain safe navigation and supports all other marine activities.



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An Exciting Time for Hydrography

- A call to Action
- Series of Commitments
- Focused Investment and Collaboration
- Advanced Technology and Modern Data Standards for Diverse Applications
- Coordinated Geospatial World





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Organisation
Hydrographique
Internationale

Phase 1 / Route Monitoring

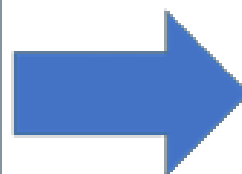
Phase 1

Route Monitoring Mode

- S-101 ENC
- S-102 Bathymetry
- S-104 Water Level
- S-111 Surface Currents
- S-124 Navigational Warnings
- S-129 UKC Management

Critical Framework

- IHO Geospatial Information Registry
- S-98 Interoperability Specification
- S-100 Universal Hydrographic Data Model
- S-128 Catalogue of Nautical Products
- S-164 Test Data Set for S-100 and ECDIS Type Approval



Phase 2 / Route Planning

Phase 2

Route Planning Mode

- S-122 Marine Protected Areas
- S-123 Marine Radio Services
- S-125 Marine Aids to Navigation (AtoN)
- S-126 Marine Physical Environment
- S-127 Marine Traffic Management
- S-131 Marine Harbour Infrastructure
- S-411 Ice Information (WMO)
- S-412 Weather and Wave Hazards (WMO)

+ S-100 Products used in
Monitoring Mode

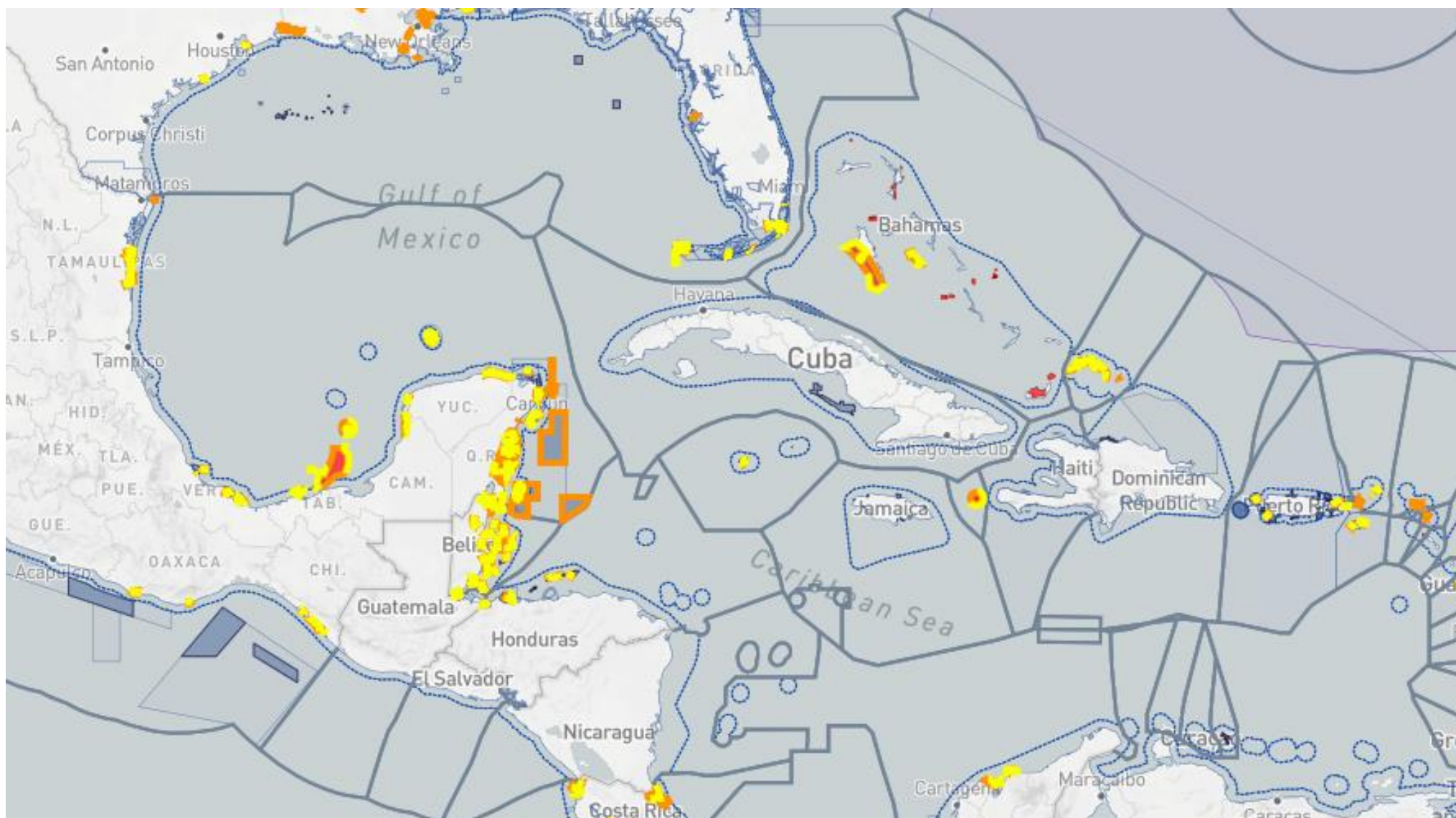
Figure 2 The IHO Navigational Package, for S-100 ECDIS, to be handled by the Interoperability Specification S-98. Additional layers and Phases may be added in the future.



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WHAT ARE MARINE PROTECTED AREAS AND WHERE ARE THEY?

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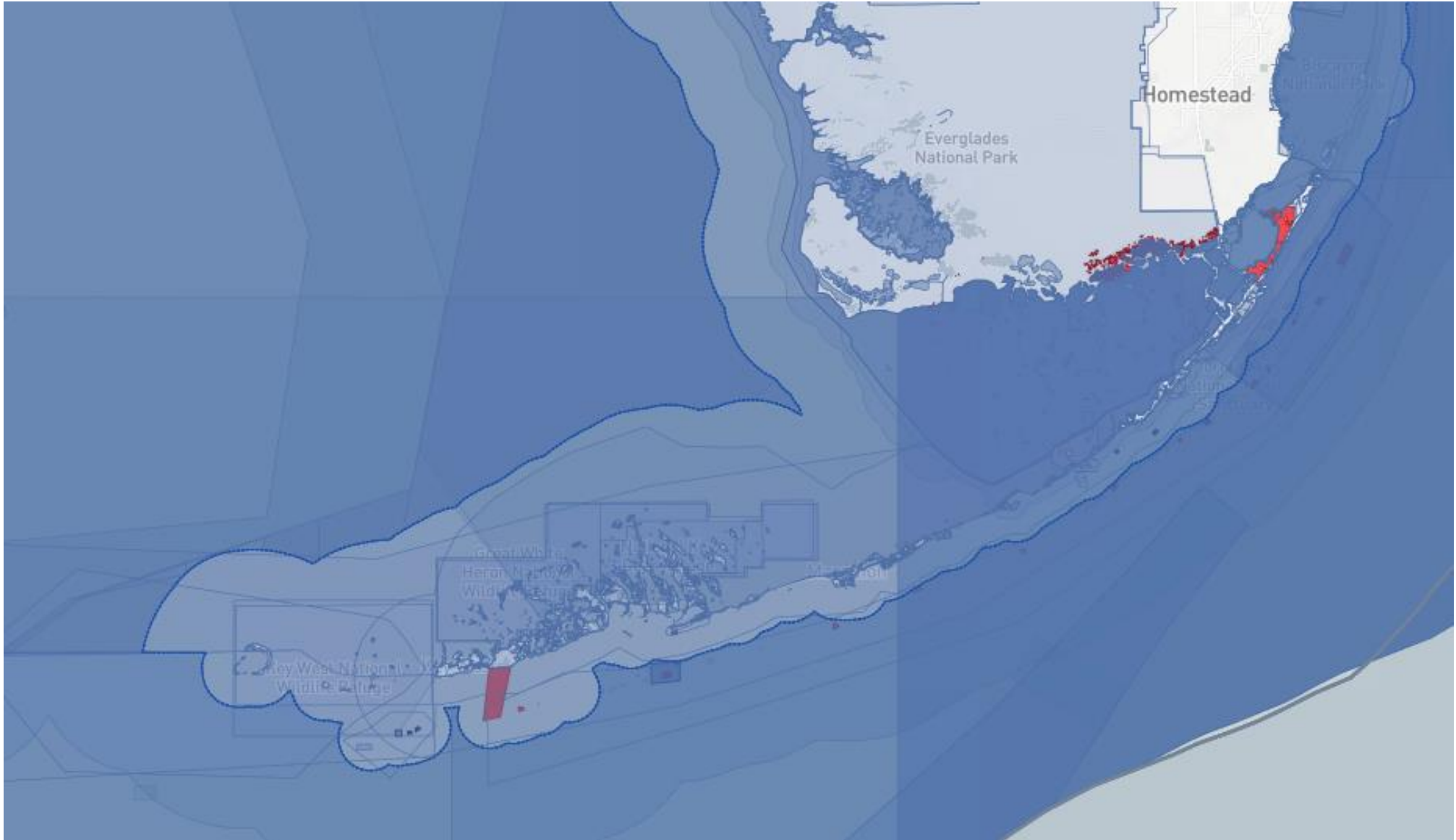




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WHAT ARE MARINE PROTECTED AREAS AND WHERE ARE THEY?

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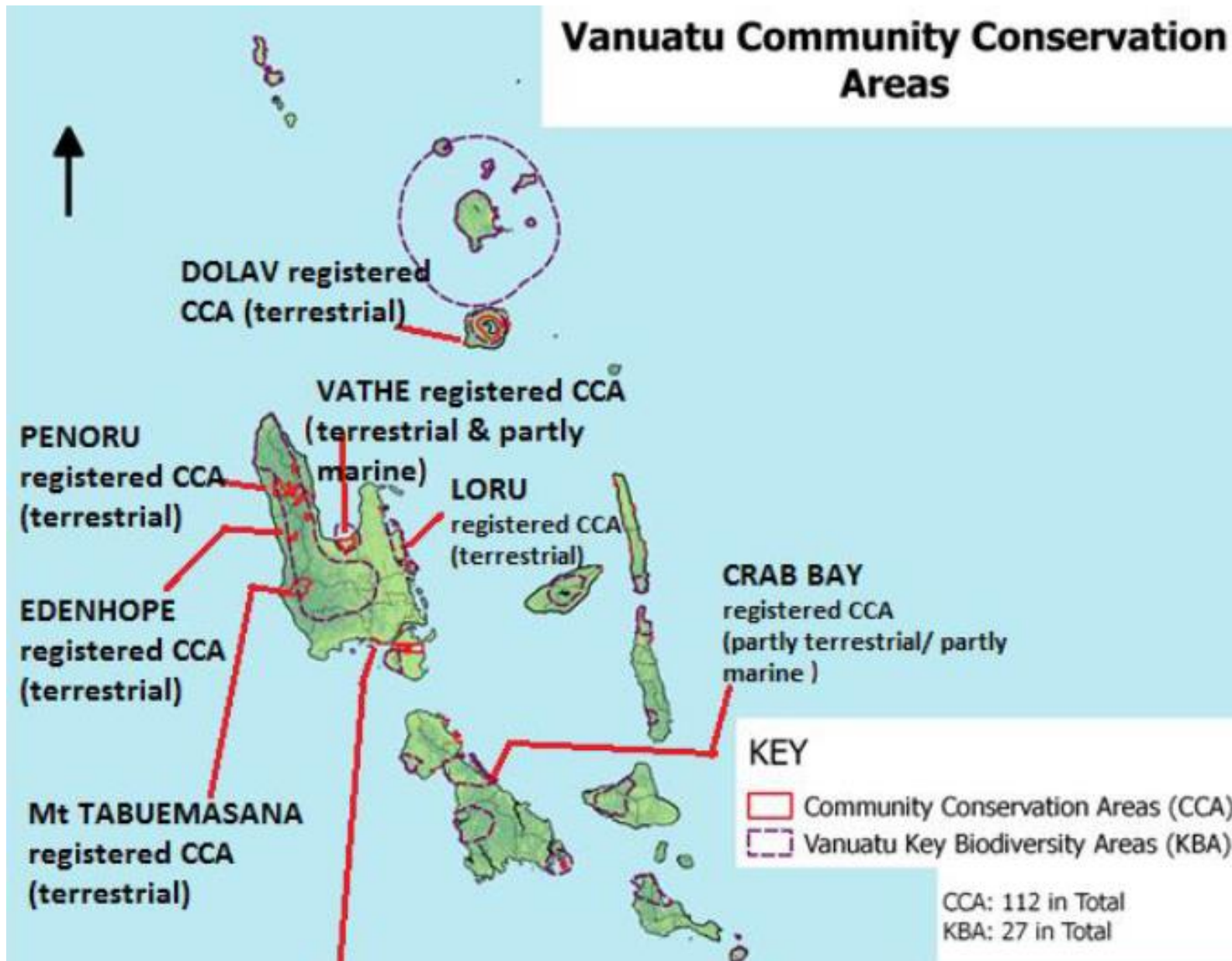




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MPA FROM A LOCAL PERSPECTIVE

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(Draft Marine Spatial Plan for Vanuatu)



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Coordinated Geospatial World

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



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

United Nations Committee of Experts on Global Geospatial Information Management
Working Group on Marine Geospatial Information



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UN-IGIF-HYDRO GOALS

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Build 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.

*United Nations Committee of Experts on Global Geospatial Information Management
Working Group on Marine Geospatial Information*



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STANDARDS FOR MARINE PROTECTED AREAS – IHO S-122

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IHO Geospatial Information Registry

Product Specification

[Home](#) / [GI REGISTERS](#) / [Product Specification](#)

Domain

Category

Product Information

Product ID	S-122
Title	Marine Protected Areas
Scope	Global
Related links	http://www.iho.int
Abstract	Marine Protected Areas dataset is a vector dataset containing all navigationally relevant information regarding the Marine Protected Areas within a defined geographical area.
Owner	IHO
Domain	IHO Hydro
Responsible body	IHO (NIPWG)
Contact	Eivind Mong eivind.mong@dfo-mpo.gc.ca
Remarks	S-122 Edition 1.0.0 is released for implementation and testing purposes only.



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MANY PIECES OF THE PUZZLE

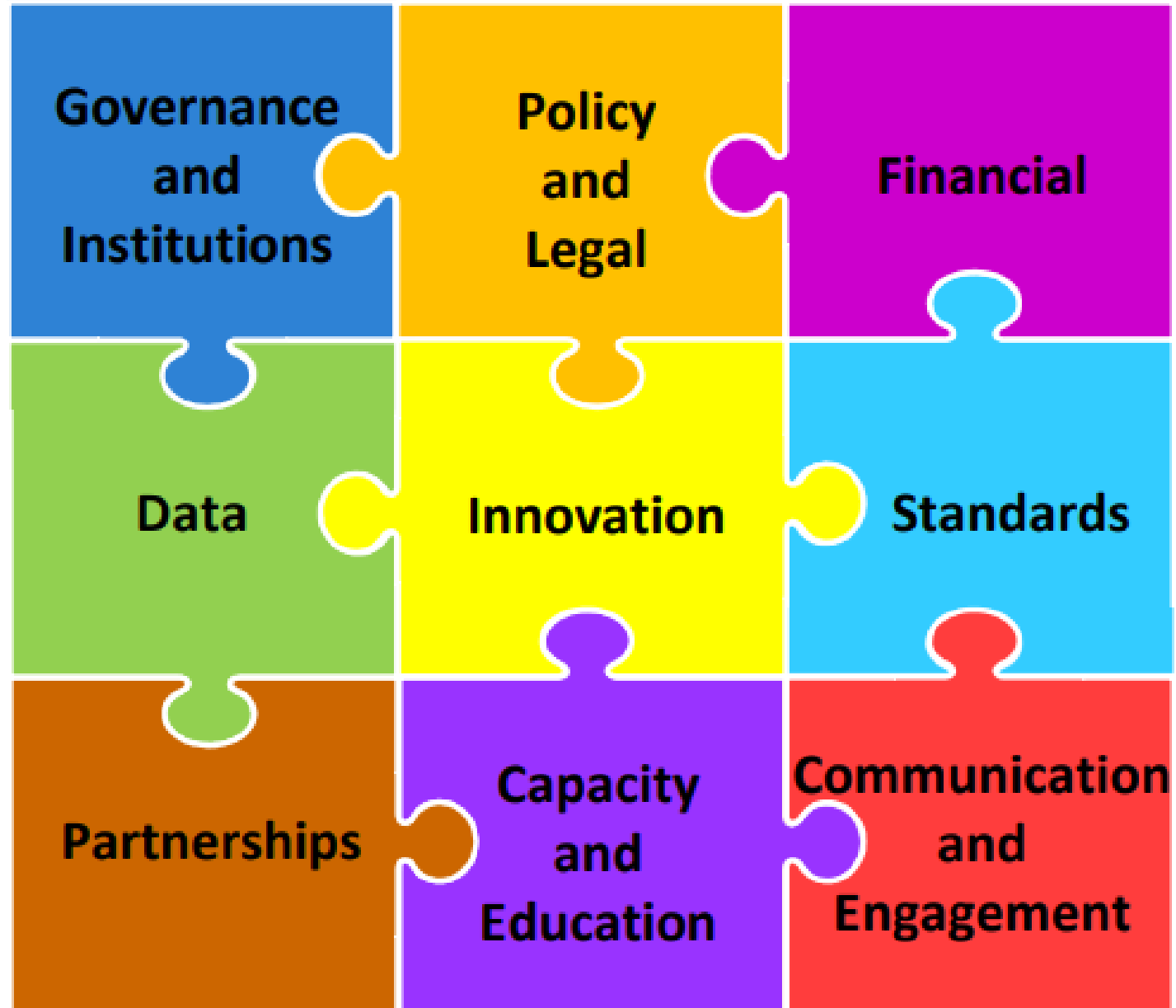


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MANY PIECES OF THE PUZZLE



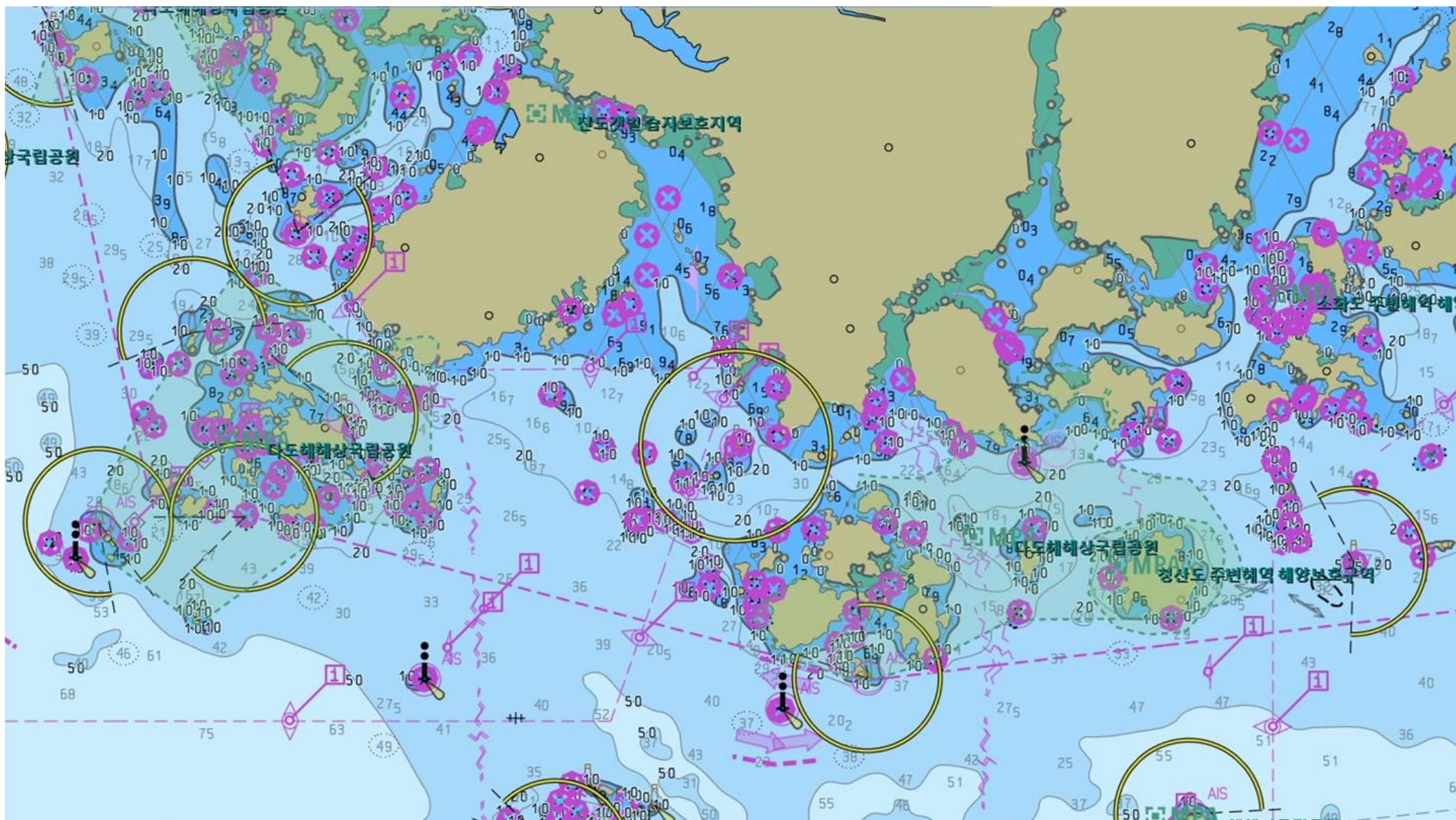
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INCLUSION IN MODERN NAVIGATION SYSTEMS

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Provided by the Korea Hydrographic and Oceanographic Administration (KHOA)



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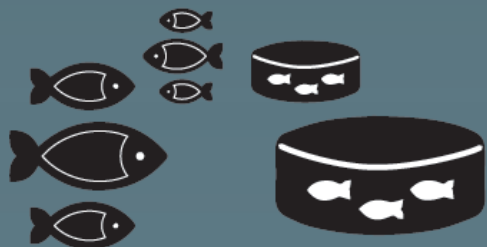


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SUPPORTING SUSTAINABLE DEVELOPMENT

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Fisheries & Aquaculture



>500 million
people rely on fish for 50% of their animal protein intake⁷

62%
contribution of aquaculture to global food fish production by 2030⁸



Hydrography supports the operation of aquaculture farms and capture fisheries, both of which are important drivers for ensuring global food security



Hydrographic surveying reduces the environmental impact of aquaculture farms and helps to keep wild fish stocks sustainable

HYDROGRAPHY: SUPPORTING SUSTAINABLE DEVELOPMENT



Beyond their primary purpose of ensuring safe navigation at sea, nautical and bathymetric charts derived from hydrographic surveys directly support almost all aspects of the Ocean Economy¹, and the furthering of hydrography will be one of the main themes in the upcoming UN Decade of Ocean Science for Sustainable Development^{2,3}



In 2030, the Ocean Economy will contribute:

40 million & **\$3 trillion**
full-time equivalent jobs in ocean-based industries¹ in global gross value added (GVA), doubling in value from \$1.5 trillion in 2016¹

And yet, **less than 0.05%** of the ocean floor has been mapped to the level of detail possible with today's technology⁴

Offshore Energy



50%
of global power generation remains from oil and gas in 2040⁷

36,000 TWh
potential for offshore wind power, more than current global demand of 23,000 TWh¹⁰



Hydrographic surveys are necessary for the siting of all offshore energy platforms including oil and gas, wind, wave, and tidal, and is therefore essential for our transition to clean energy



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SUPPORTING SUSTAINABLE DEVELOPMENT

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Shipping & Transport



Better nautical charts open up possibilities for shipping and marine tourism to developing coastal communities, such as small island developing states



Nautical charts reduce the impact of transport on marine habitats while ensuring safety of passage at sea



Coastal Infrastructure



Better hydrographic charts optimize the capacity and throughput of ports, contributing to safety and economic growth



Hydrographic knowledge enables better coastal defences and helps make coastal communities more resilient against flooding and extreme weather

26%

of the ocean economy is from marine tourism, making it the leading marine industry by 2030¹

90%

of all global trade is carried via the sea¹

\$36,000 to \$288,000

potential added value per ship of one foot of additional draught for a harbour⁵

>2.5 billion

people around the world live within 100km of the coast⁶




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Thank You

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