2nd IRCC WORKSHOP ON THE STRATEGIC PLAN
VTC, 28 April 2022

How MSDI can support measuring SPI?

How to visualize the IHO SPIs?

Goal 1: Evolving the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformation.

Goal 2: Increasing the use of hydrographic data for the benefit of society.

Goal 3: Participating actively in international initiatives related to the knowledge and the sustainable use of the Ocean.

Strategic Performance Indicators (SPI)

Targets	*SPI (measure for success)*	*Comments*[2]
Goal 1: Evolving the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformation		
1.1 Deliver standards for hydrographic data and specifications of hydrographic products; support their regular production; and coordinate regional and global services for their provision.	1.1.1 Percentage of Member States having operationalized production and distribution of hydrographic data products and services based on IHO Universal Hydrographic Data Model (S-100), under an implementation framework of coordination and agreed timelines (2026: 100%). 1.1.2 Number of hydrographic data products and services based on Universal Hydrographic Data Model that cater for the new requirements: autonomous shipping, reduction of emission.	1.1.1 Percentage of MS currently (2019) providing digital products
1.2 Develop standards, specifications and guidelines in the areas of data assurance, including cyber security and data quality assessment.	1.2.1 Percentage of hydrographic data products and services based on S-100 model that are covered by IHO standards, specifications and guidelines on cyber security (2026: 100%). 1.2.2 Percentage of navigationally significant areas (e.g. charted traffic separation schemes, anchorages, channels) for which the adequacy of the hydrographic knowledge is assessed through the use of appropriate quality indicators (2026:100%).	1.2.2 Calculation method to be consistent with C55 calculation
1.3 Use capacity building and training to develop and increase the ability of Member States to support safety and efficiency of maritime navigation.	1.3.1 Ability and capability of Member States to meet the requirements and delivery phases of the S100 implementation plan (2026: 50%).	

		Comments[2]
		2.1.1 Monitoring will be based on the increase of the value of the indicator and assessment of its significance
		2.2.1 See C-55 2.2.2 Success of new edition of S-44 assessed from its applications to new fields
increase coverage, consistency, quality of surveys in poorly surveyed areas.	Hydrographic Surveys (S-44)	
2.3 Apply UN shared guiding principles for geospatial information management in order to ensure interoperability and extended use of hydrographic data in combination with other marine-related data.	2.3.1 Number of HOs reporting success applying the principles in their national contexts (2026: 70%).	

		Comments[3]
		ble use of the Ocean
		marine safety on MSI (2026 90%).
		for Digital Bathymetry ic offices. int for ingestion into the
		3.2.1 & 3.2.2 Monitoring will be based on the increase of the value of the indicators, and assessment of its significance 3.2.3 Measured annually and reported through regional hydrographic commission to IRCC and the regional Seabed 2030 coordination centers
3.3 Implement a comprehensive IHO digital communication strategy in order to enhance its visibility and accessibility to its work	3.3.1 Number of visits, likes, re-postings, etc. associated to the IHO social media sites. 3.3.2 Volume downloaded from the IHO website and Geographical Information System (GIS).	See above

IHO International Hydrographic Organization

A practical example on how MSDI (GIS) can support measuring SPI.

IHO Strategic Plan for 2021-2026.

IHO Publication C-55.

A practical example on how MSDI can support measuring SPI.

IHO Publication C-55 – in the paper version (528 p.).


INTERNATIONAL HYDROGRAPHIC ORGANIZATION

ORGANISATION HYDROGRAPHIQUE INTERNATIONALE

ORGANIZACION HIDROGRAFICA INTERNACIONAL

IHO International Hydrographic Organization

IHO/OHI Publication C-55

Status of Hydrographic Surveying and Charting Worldwide

Etat des levés hydrographiques et de la cartographie marine à travers le monde

Estado de los Levantamientos Hidrográficos y de la Cartografía Náutica a nivel mundial

2 March / mars / marzo 2022

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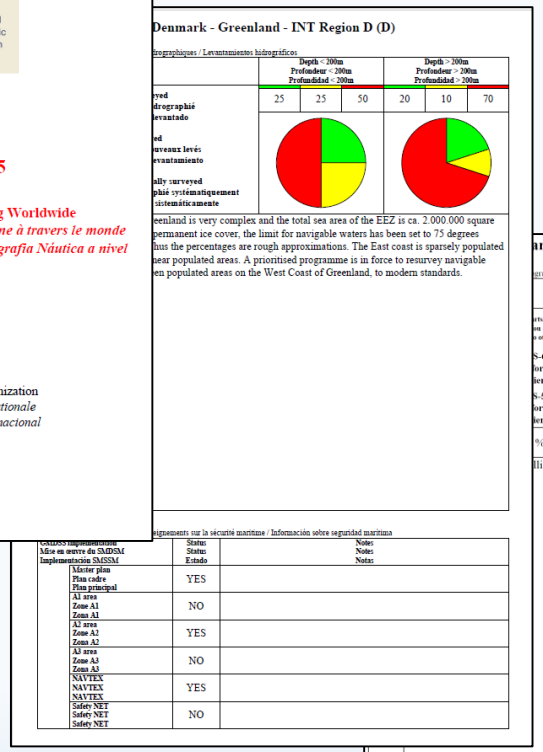
MONACO

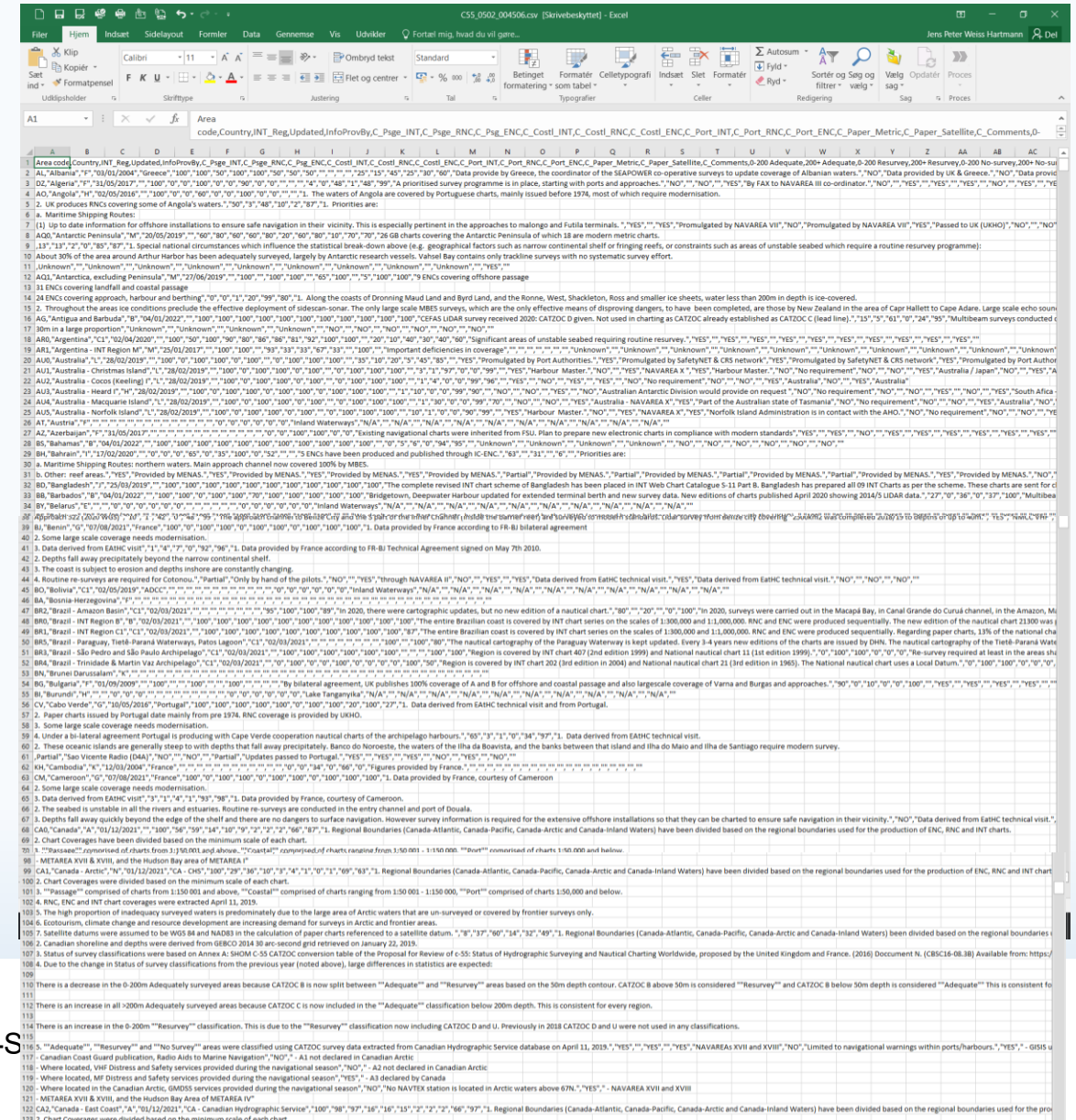

Denmark - Greenland - INT Region D (D)

Maritime Safety Information / Renseignements sur la sécurité maritime / Información sobre seguridad marítima

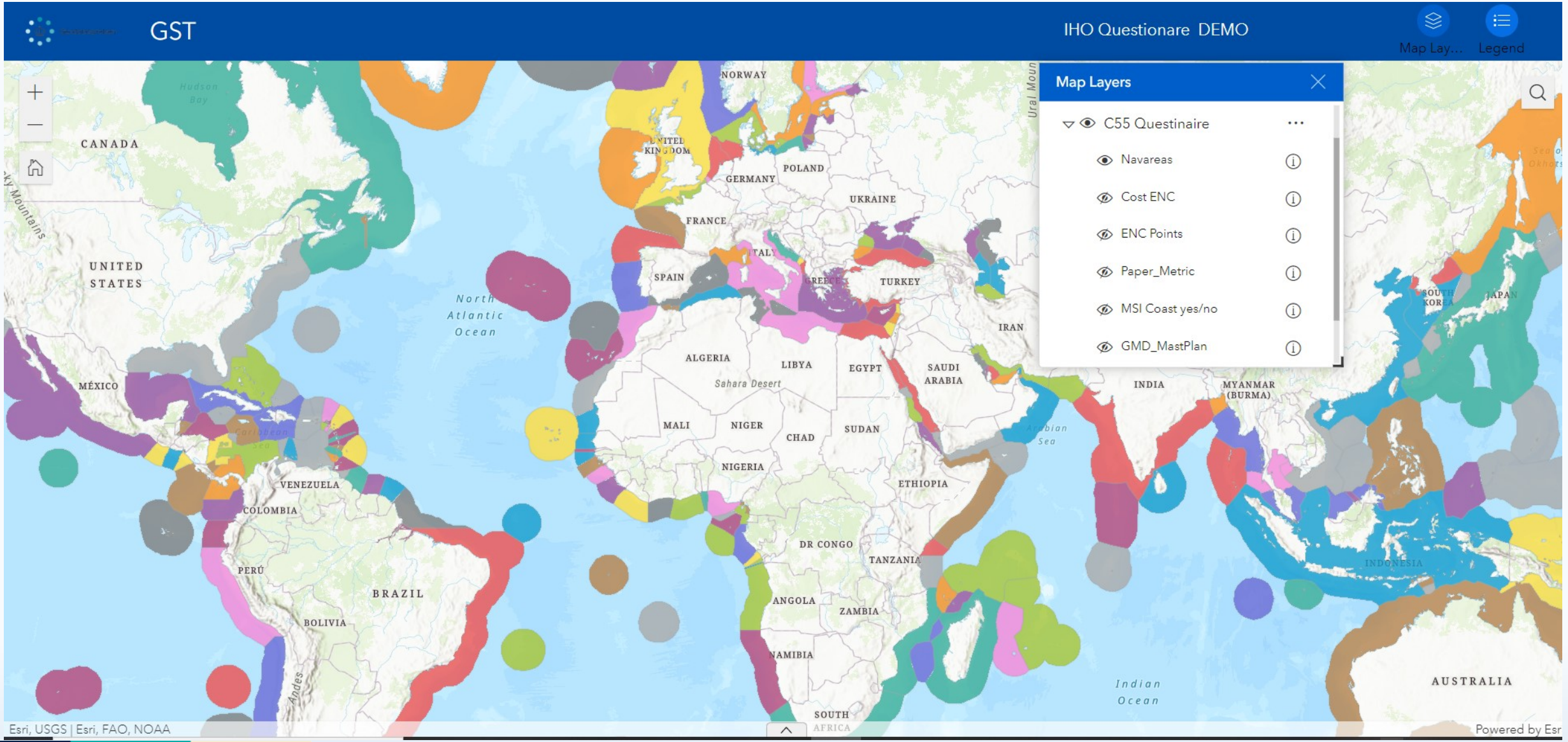
Navigational information / Informations nautiques / Información náutica	Status / Estado	Notes / Notas
Local warnings / Avertissements locaux / Avisos locales	YES	KalaallitNunaata Radio (KNR). Navigational warnings via Aasiaat Radio VHF. Arctic web https://arcticweb-test.e-navigation.net/.
Coastal warnings / Avertissements côtiers / Avisos costeros	YES	Navigational warnings via Aasiaat Radio MF. NAVTEX via Greenland and Iceland.
NAVAREA warnings / Avertissements NAVAREA / Avisos NAVAREA	NO	Navarea I, IV, XIX and XVIII Coordinators
Information on ports and harbours / Information sur les ports et rades / Información sobre puertos	YES	Danish Notice to Mariners (EfS).

Last update / Mise à jour / Actualización: 26/10/2021

IHO Publication C-55 – in a digital format.



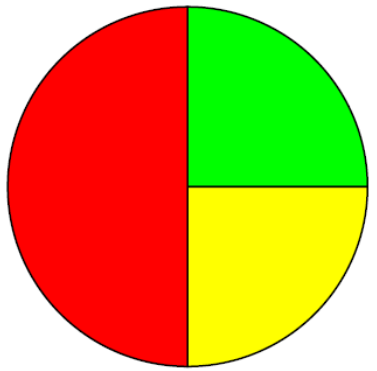
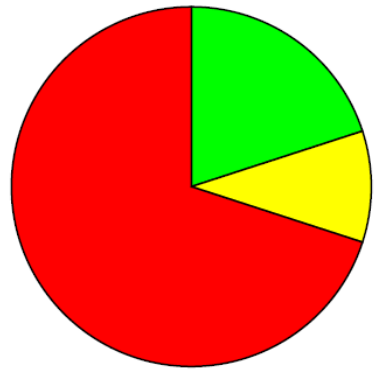
Navarears used in IHO Publication C-55 – visualized in GIS (same system/software as IHO into GIS)



Hydrographic surveying, Survey coverage from IHO Publication C-55.

Denmark - Greenland - INT Region D (D)

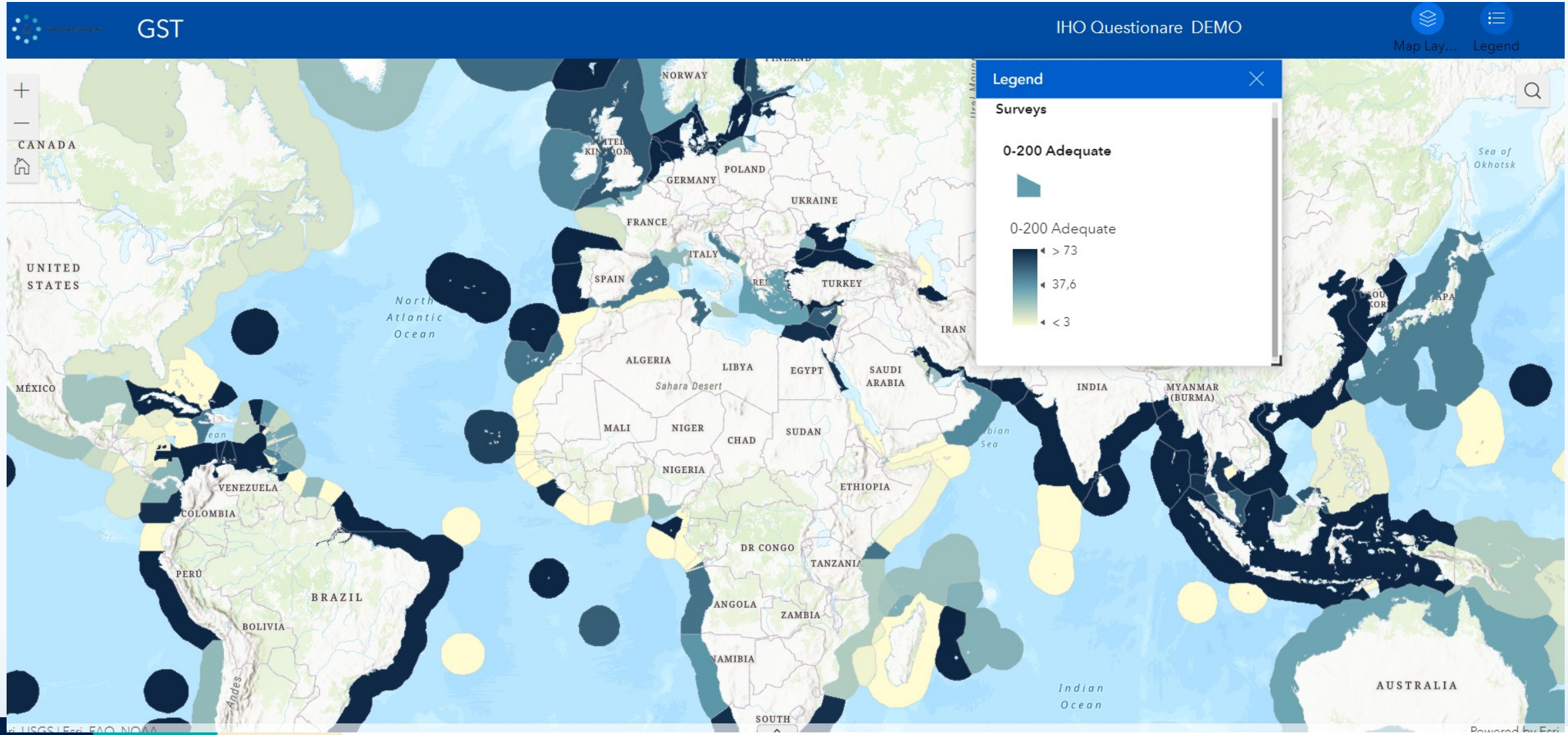
Hydrographic surveying / Levés hydrographiques / Levantamientos hidrográficos

Survey coverage Couverture hydrographique Cobertura hidrográfica	Depth < 200m Profondeur < 200m Profundidad < 200m			Depth > 200m Profondeur > 200m Profundidad > 200m		
	Adequately surveyed Correctement hydrographié Adecuadamente levantado	Re-survey required Nécessitant de nouveaux levés Requiere nuevo levantamiento	Never systematically surveyed Jamais hydrographié systématiquement Nunca levantado sistemáticamente	Adequately surveyed Correctement hydrographié Adecuadamente levantado	Re-survey required Nécessitant de nouveaux levés Requiere nuevo levantamiento	Never systematically surveyed Jamais hydrographié systématiquement Nunca levantado sistemáticamente
	25 %	25 %	50 %	20 %	10 %	70 %
						

Notes
Notes
Notas

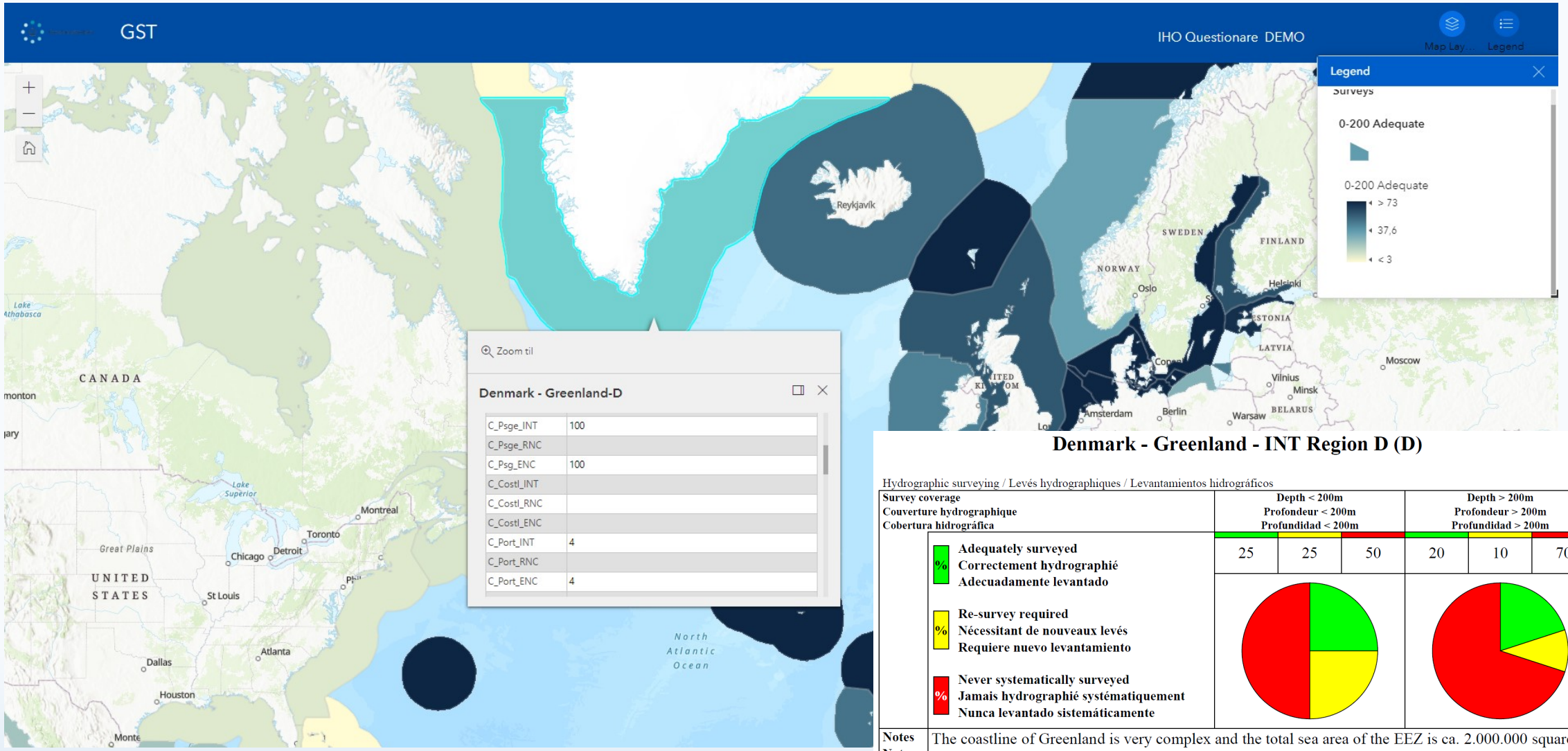
The coastline of Greenland is very complex and the total sea area of the EEZ is ca. 2.000.000 square kilometres. Due to permanent ice cover, the limit for navigable waters has been set to 75 degrees northern latitude. Thus the percentages are rough approximations. The East coast is sparsely populated and only surveyed near populated areas. A prioritised programme is in force to resurvey navigable routes to and between populated areas on the West Coast of Greenland, to modern standards.

Hydrographic surveying, Survey coverage in IHO Publication C-55 – visualized in GIS (same as IHO into GIS)
Overview. Adequate surveyed between 0 and 200 meters in %, shown in different colors.



Hydrographic surveying, Survey coverage in IHO Publication C-55 – visualized in GIS (same as IHO into GIS)

Detailed information available of all arears.



Denmark - Greenland - INT Region D (D)

Hydrographic surveying / Levés hydrographiques / Levantamientos hidrográficos

Survey coverage Couverture hydrographique Cobertura hidrográfica	Depth < 200m Profondeur < 200m Profundidad < 200m			Depth > 200m Profondeur > 200m Profundidad > 200m		
% Adequately surveyed Correctement hydrographié Adecuadamente levantado	25	25	50	20	10	70
% Re-survey required Nécessitant de nouveaux levés Requiere nuevo levantamiento						
% Never systematically surveyed Jamais hydrographié systématiquement Nunca levantado sistemáticamente						

Notes Notes Notas	The coastline of Greenland is very complex and the total sea area of the EEZ is ca. 2.000.000 square kilometres. Due to permanent ice cover, the limit for navigable waters has been set to 75 degrees northern latitude. Thus the percentages are rough approximations. The East coast is sparsely populated and only surveyed near populated areas. A prioritised programme is in force to resurvey navigable routes to and between populated areas on the West Coast of Greenland, to modern standards.

Maritime Safety Information. GMDSS implementation. Fra IHO Publication C-55.

Maritime Safety Information / Renseignements sur la sécurité maritime / Información sobre seguridad marítima

GMDSS implementation Mise en œuvre du SMDSM Implementación SMSSM		Status Status Estado	Notes Notes Notas
	Master plan Plan cadre Plan principal	YES	
	A1 area Zone A1 Zona A1	NO	
	A2 area Zone A2 Zona A2	YES	
	A3 area Zone A3 Zona A3	NO	
	NAVTEX NAVTEX NAVTEX	YES	
	Safety NET Safety NET Safety NET	NO	

Maritime Safety Information. Navigation Information. IHO Publication C-55 – visualized in GIS.

Maritime Safety Information / Renseignements sur la sécurité maritime / Información sobre seguridad marítima

Navigational information Informations nautiques Información náutica		Status Status Estado	Notes Notes Notas
	Local warnings Avertissements locaux Avisos locales	YES	KalaallitNunaata Radio (KNR). Navigational warnings via Aasiaat Radio VHF. Arctic web https://arcticweb-test.e-navigation.net/.
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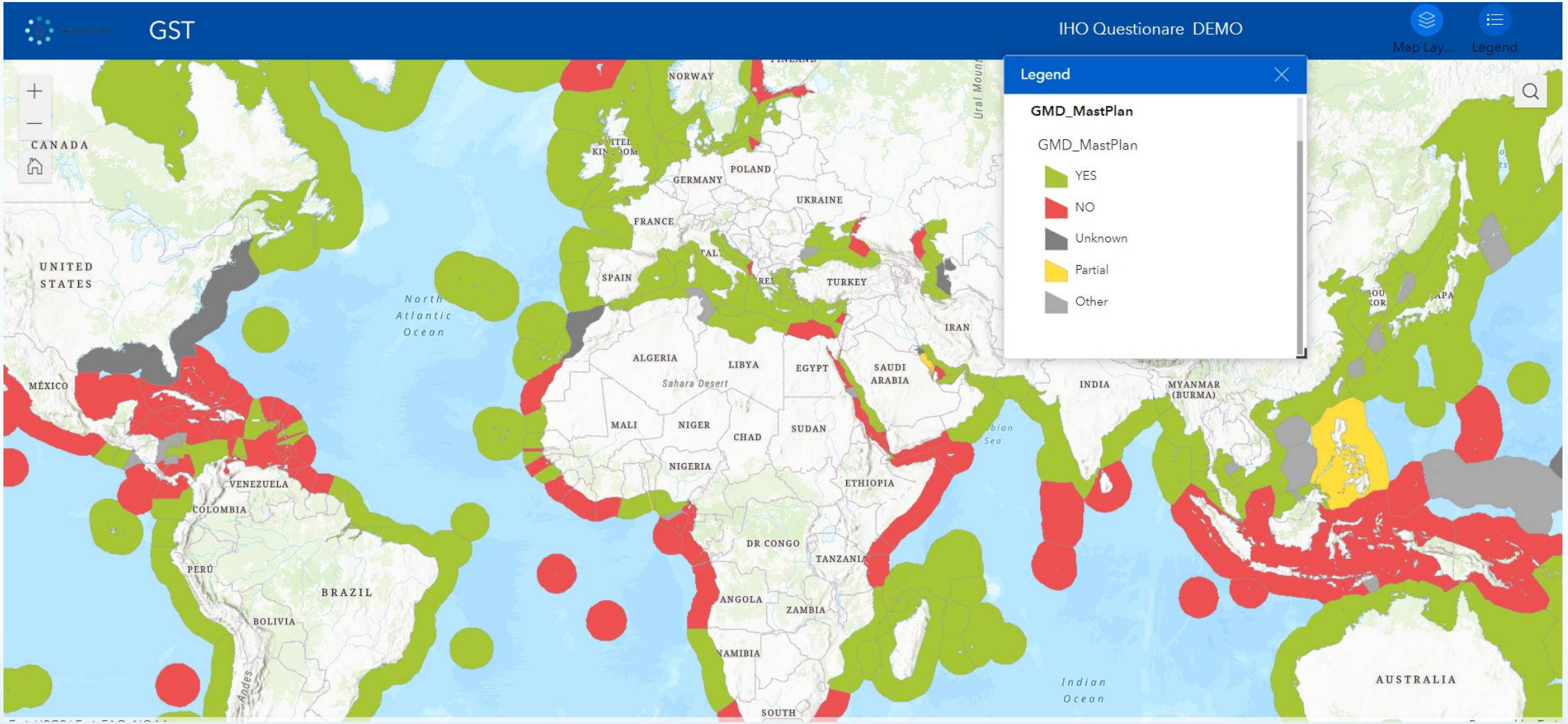
	NAVAREA warnings Avertissements NAVAREA Avisos NAVAREA	NO	Navarea I, IV, XIX and XVIII Coordinators
	Information on ports and harbours Information sur les ports et rades Información sobre puertos	YES	Danish Notice to Mariners (EfS).

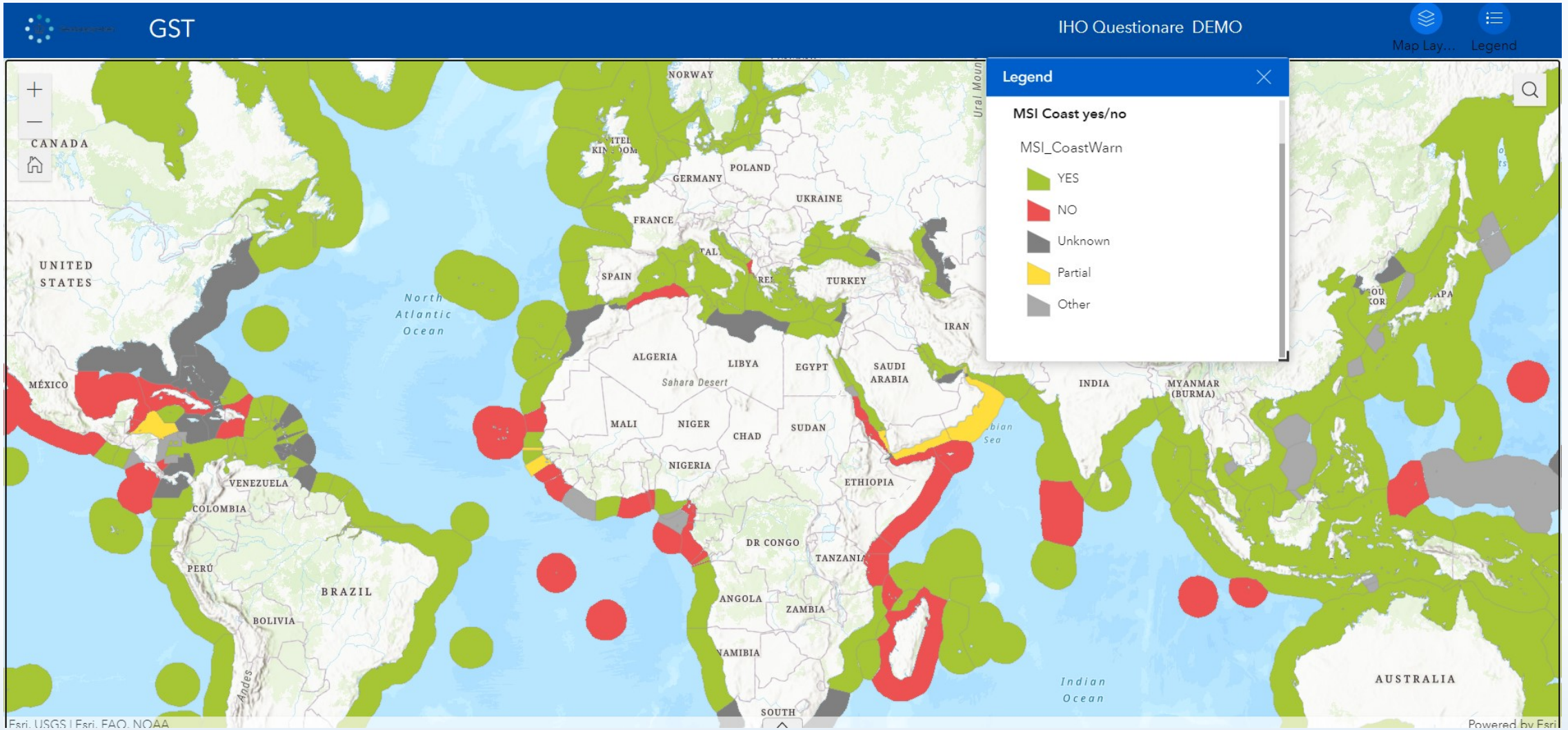
Maritime Safety Information. GMDSS implementation. IHO Publication C-55 – visualized in GIS.

Status GMDSS Masterplan.



Maritime Safety Information. Navigation Information. IHO Publication C-55 – visualized in GIS.

Status Coastal warnings.

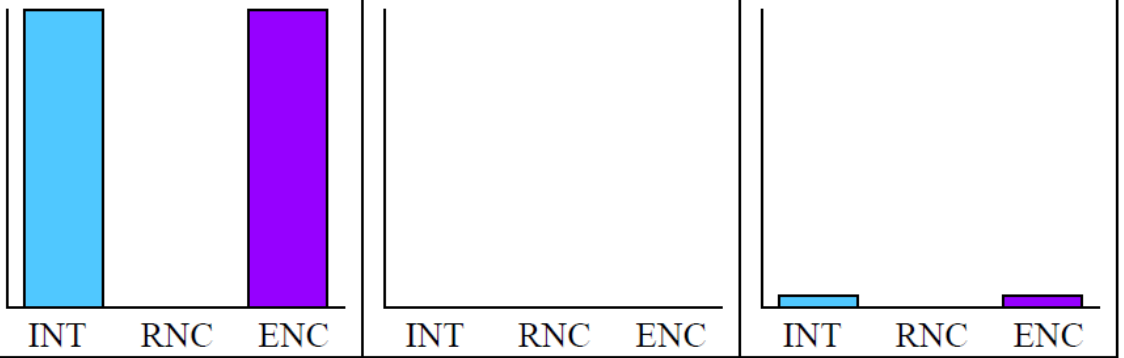


Nautical charting. Coverage of charts published. From the IHO Publication C-55.

Denmark - Greenland - INT Region D (D)

Nautical charting / Cartographie marine / Cartografia náutica

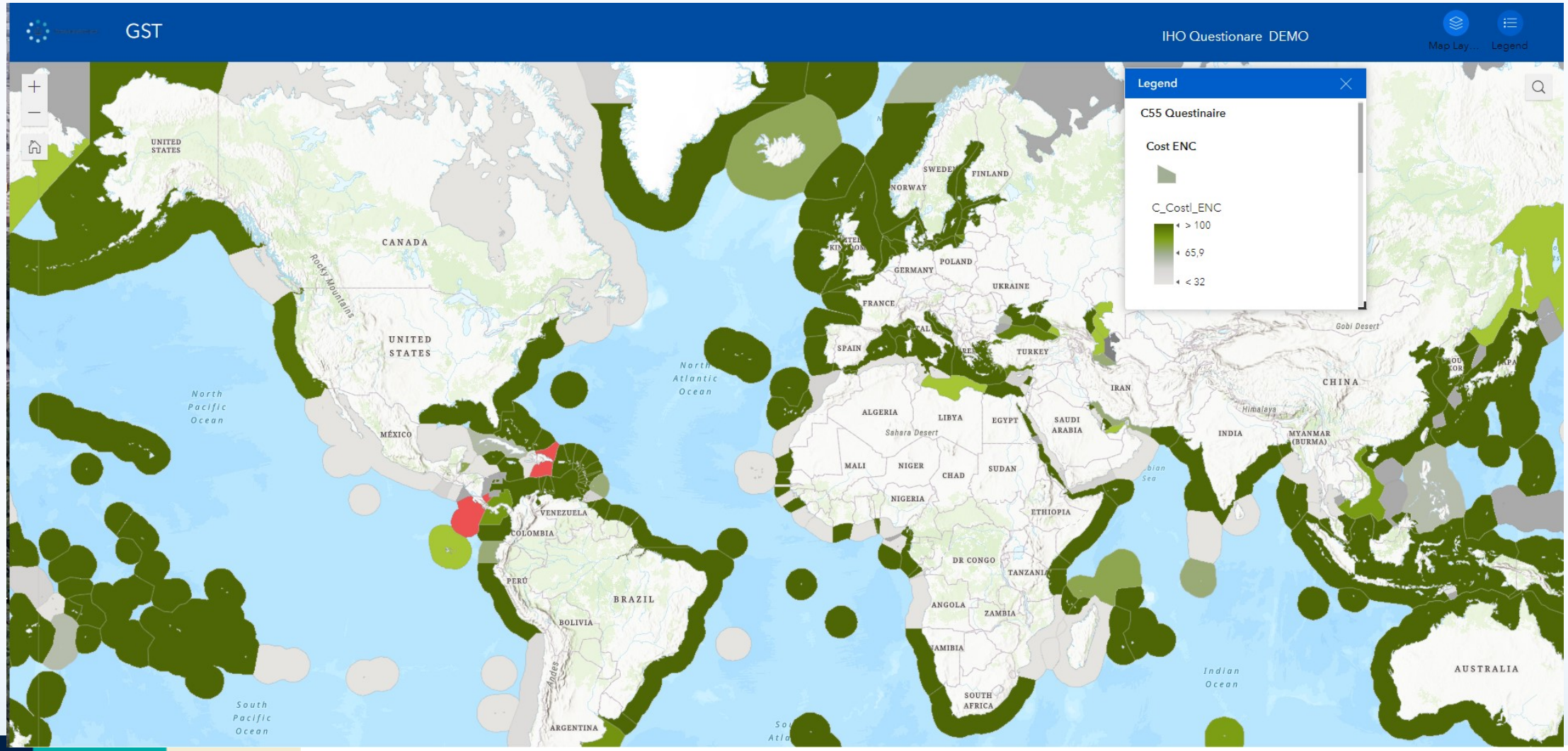
Coverage of charts published Couverture des cartes publiées Cobertura de cartas publicadas	Offshore passage Navigation au large Pasaje offshore	Landfall and Coastal passage Atterrissage et navigation côtière Recalada y Pasaje costero	Approaches and Ports Approches et ports Aproches y puertos
% Covered by INT or other paper charts meeting S-4 Couvert par des cartes papier INT ou autres conformes S-4 Cubiertas por cartas de papel INT o otras cumpliendo S-4	100 / 100		4 / 4
% Covered by RNC meeting S-61 Couvert par des RNC conformes S-61 Cubiertas por RNC cumpliendo S-61			
% Covered by ENC meeting S-57 Couvert par des ENC conformes S-57 Cubiertas por ENC cumpliendo S-57			



Paper charts showing depth in meters Cartes papier avec les profondeurs en mètres Cartas de papel con profundidades en metros	100 %	Paper charts referenced to a satellite datum Cartes papier rapportées à un système géodésique satellitaire Cartas de papel referidas a un datum satelital		Data source Source des données Origen de los datos	
Notes	New charts referes to a satellite datum.				

Nautical charting. Coverage of charts published. From IHO Publication C-55 – visualized in GIS.

Coverage of ENC.
Landfall and Coastal passage

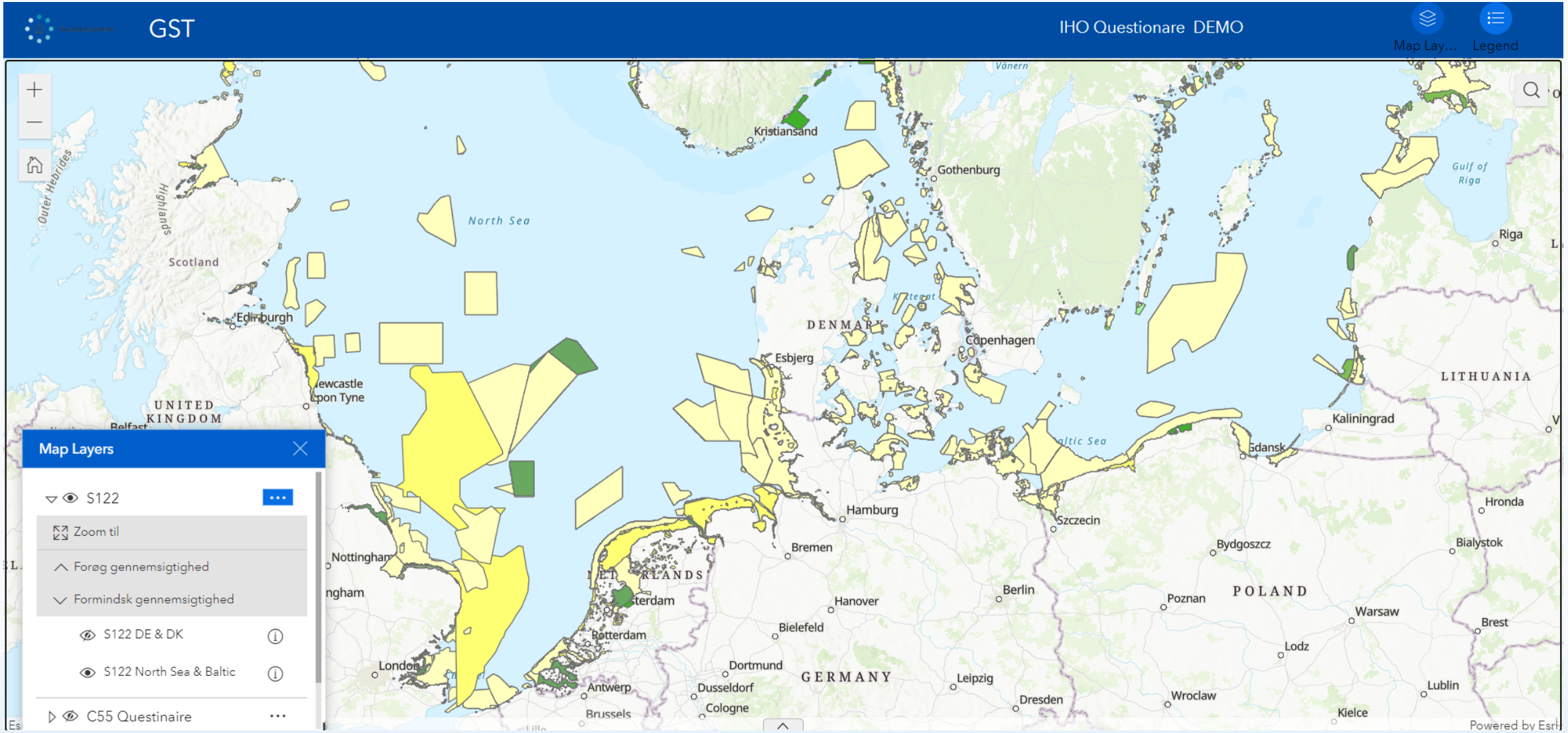


Nautical charting. Coverage of charts published. From IHO Publication C-55 – visualized in GIS.

Coverage of ENC.
Offshore passage + Landfall and Coastal passage + Approach and Ports = 300% (full coverage)

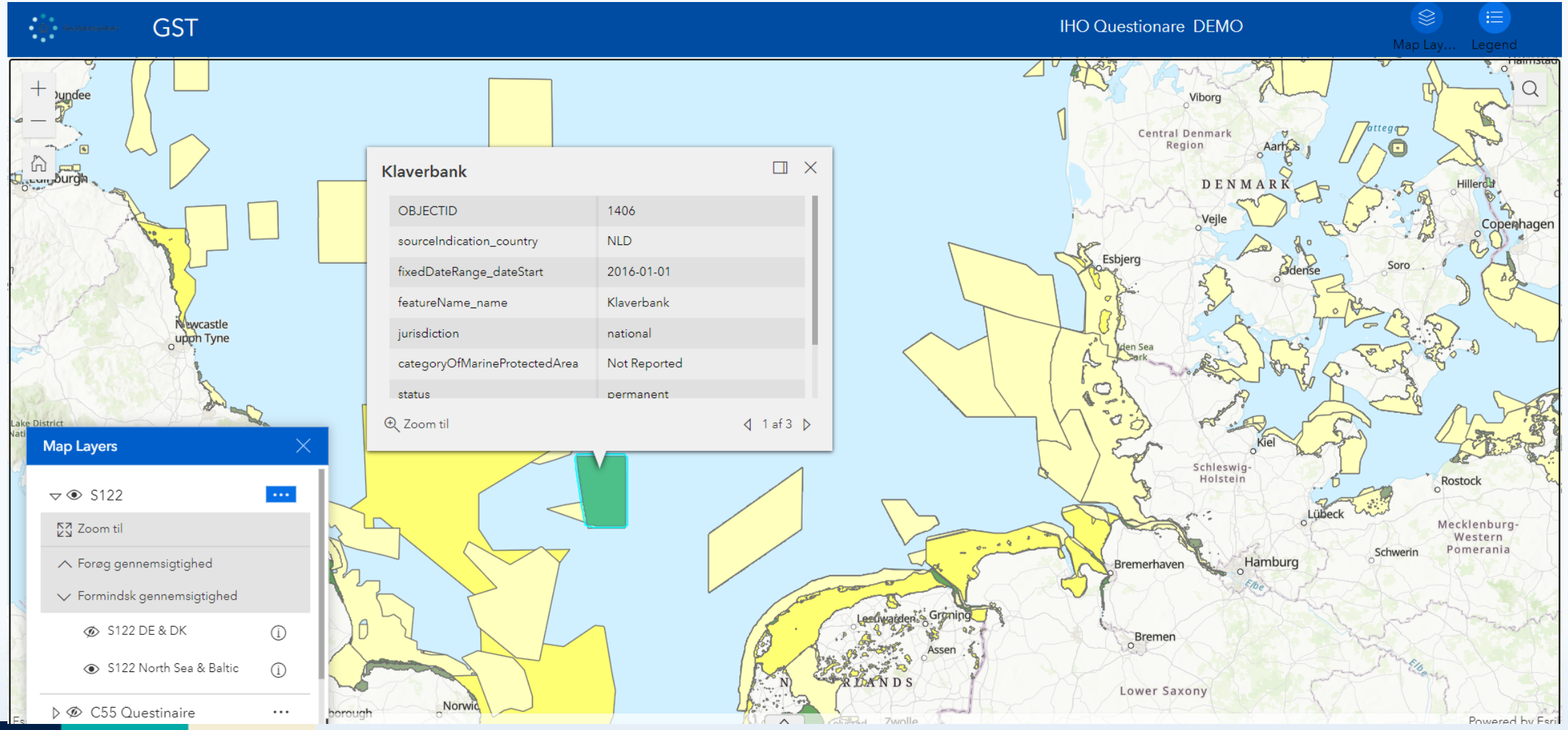
S-122 data (Converted MPA data) for the Baltic Sea and North Sea.

Overview of S-122 data available.



S-122 data (Converted MPA data) for the Baltic Sea and North Sea.

Detailed information available of each S-122 datasets.



Quality management principles

1. Customer Focus :
Customer focus is a crucial principle of quality management.

Customer-focused companies are committed to meeting their customers' needs and providing them with high levels of customer service.

To do this, they must identify what their customers want, how they behave, and their expectations for the company's products or services.

They also need to consider changing trends in society to continue to meet their customers' needs as time goes on.

Draft MSDIWG questionnaire

MARINE SPATIAL DATA INFRASTRUCTURES (MSDI) QUESTIONNAIRE

Member State/Organization: _____

The intent of this questionnaire is to determine the level of MSDI and Marine Spatial Planning (MSP) implementation that can support and promote regional and international cooperation and data exchange with regards to the provision of hydrographic information.
Please share this questionnaire with all National Organizations that have MSDI and MSP data and invite them to fill it and return to the IHO Secretariat (if it is required in Word format, please contact info@iho.int).

Question	Answer
General	
Please provide your name and e-mail	
Name of organization	
Purpose of the organization	Select: Hydrographic Office, Maritime Safety Authority, National Geospatial Data Agency, private company, other
Country	
Increasing the use of hydrographic data for the benefit of society	
Would you consider it important to have a inter-regional portal which provides hydrographic information for the public?	**If yes, state the importance** (Select one option: High, Medium or Low)
Is your hydrographic data publicly available through a national and or regional data portal?	(Yes/No)
If yes, how can your hydrographic data be found and what type of data is available?	(Please describe)
Is the information about the format of these hydrographic data available?	(Yes/No)
Are the metadata available? If yes, what kind of metadata are available?	(Yes/No. If yes, please select one or more options: Coverage, Scale, Horizontal and Vertical Datums, Limits, Quality, Revision, Date, Owner/Provider, technology used, Comments)
Is detailed information about quality of data available (e.g CATZOC)?	(Yes/No)
Please provide any other additional information about the available data.	(Please describe)
Surveys:	
Are the status and quality of surveys in your waters of jurisdiction available and accessible for the public?	(Yes/No)
Which technologies are primarily used in the national HO surveys?	(Please describe)
Are there governance models and any legal aspects related with the survey data?	(Yes/No)

s and e-rtaining to	(Please provide)
ted with d in your	(Yes/No)
ere future ng of CSB	(Please describe)
mation ivities if	(Please describe)
onal urity odel or	(Please describe)
case	(Please describe)
ther initiatives	(Please describe)
C-55 up	(Yes/No)
o surveys elieve to	(Please describe)
al and international cooperation in marine spatial data	
cipation	
ished, and	(Yes/No and If yes please select one option: High, Medium or Low)
national national	(Name)
national MSDI contact point.	(Name and email)
Is there a national Governance model for the MSDI? If yes, please describe the model and provide the Link.	(Yes/No. If yes, please describe and provide the link)
Provide the link to the MSDI website.	(Link)
Is information about data available and if so, is the download of data possible, including HO data? If yes, please provide the link to the website or portal where the data is available.	(Yes/No. If yes, please provide the link)
Information about data formats. Please describe the data formats adopted and approved.	(Please describe)
What do you consider the main functions	(Select: Portal, Web map service, Web feature

1. Customer Focus:

SPI 2.2.

Build a portal to support and promote regional and international cooperation in marine spatial data infrastructures (MSDI).

=>

The IHO MSDIWG is planning to send out a CI in order to identified the user needs with relation to a IHO portal.

3. Engagement of people.

=>

To discuss the questionnaire at the MSDIWG13 meeting in may.

Some considerations about how MSDI can support measuring SPI.

Visualizing SPIs:

1) **If data/information is available digital and in a structured way it is easy to visualize the information**

2) **All data/information has to be georeferenced/positioned.**
   => Which arears do we want to measure for the different SPIs, IHO/Regional/National/RENC?
   E.g. Denmark belongs to 4 RHC, and 6 different Navarears. In MSDI we just use a national approach.
   There are overlapping RHC

3) **All SPIs have to be unique.**
   If we have more items in one SPI they have to be separated

4) **We need to have the same approach on how to do the measurement for all countries/arears**
   Percentage of Member States having operationalized production and distribution of hydrographic data products and services based on IHO Universal Hydrographic Data Model (S-100), under an implementation framework of coordination and agreed timelines (2026: 100%)
   E.g. MS calculation; 1) 100% of all S-100 products, 2) 100% of specific S-100 products, 3) 100% of S-101 and S-102?

5) **If historical data is needed in the future storage has to be established.**

Questions?

Link to the practical example on how MSDI (GIS) can support measuring SPI.

https://experience.arcgis.com/experience/b8e8486eb26d42bdb8ff3c9e3718dd3a/