

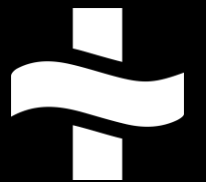


Working together to
assure navigational safety

IC-ENC S-100 Progress Update

MACHC23 9.5A

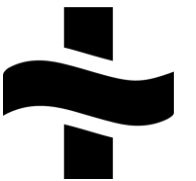
Wednesday 30th November 2022



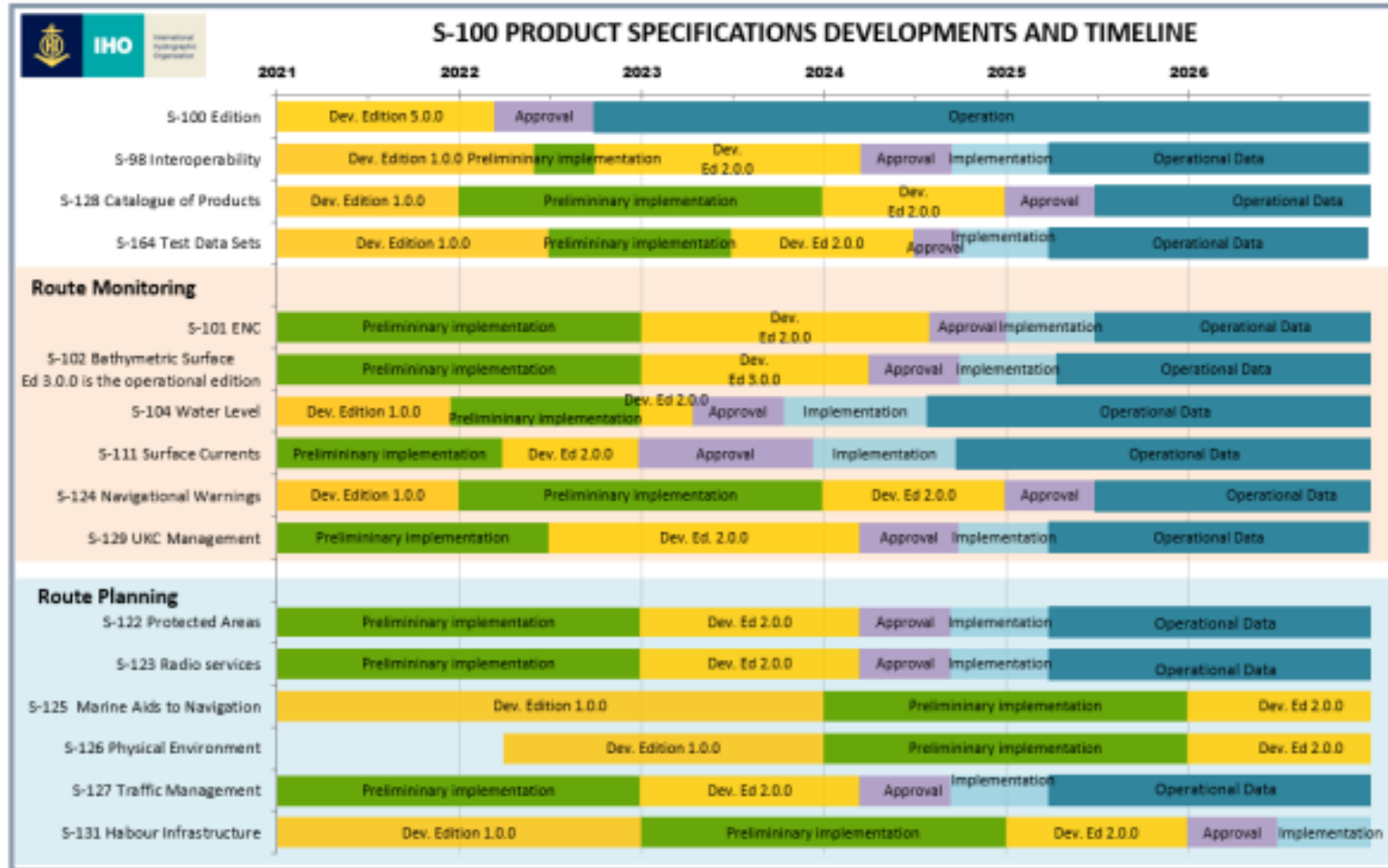


Contents

1. Context: IHO S-100 Roadmap & IC-ENC Members S-10x Production Plans
2. IC-ENC S-10x Service Developments
3. Product Development & Testing (PDT) License
4. ENC Conversion Readiness checks
5. Collaboration through Learning Management System
6. Summary

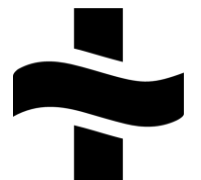


IHO S-100 Roadmap



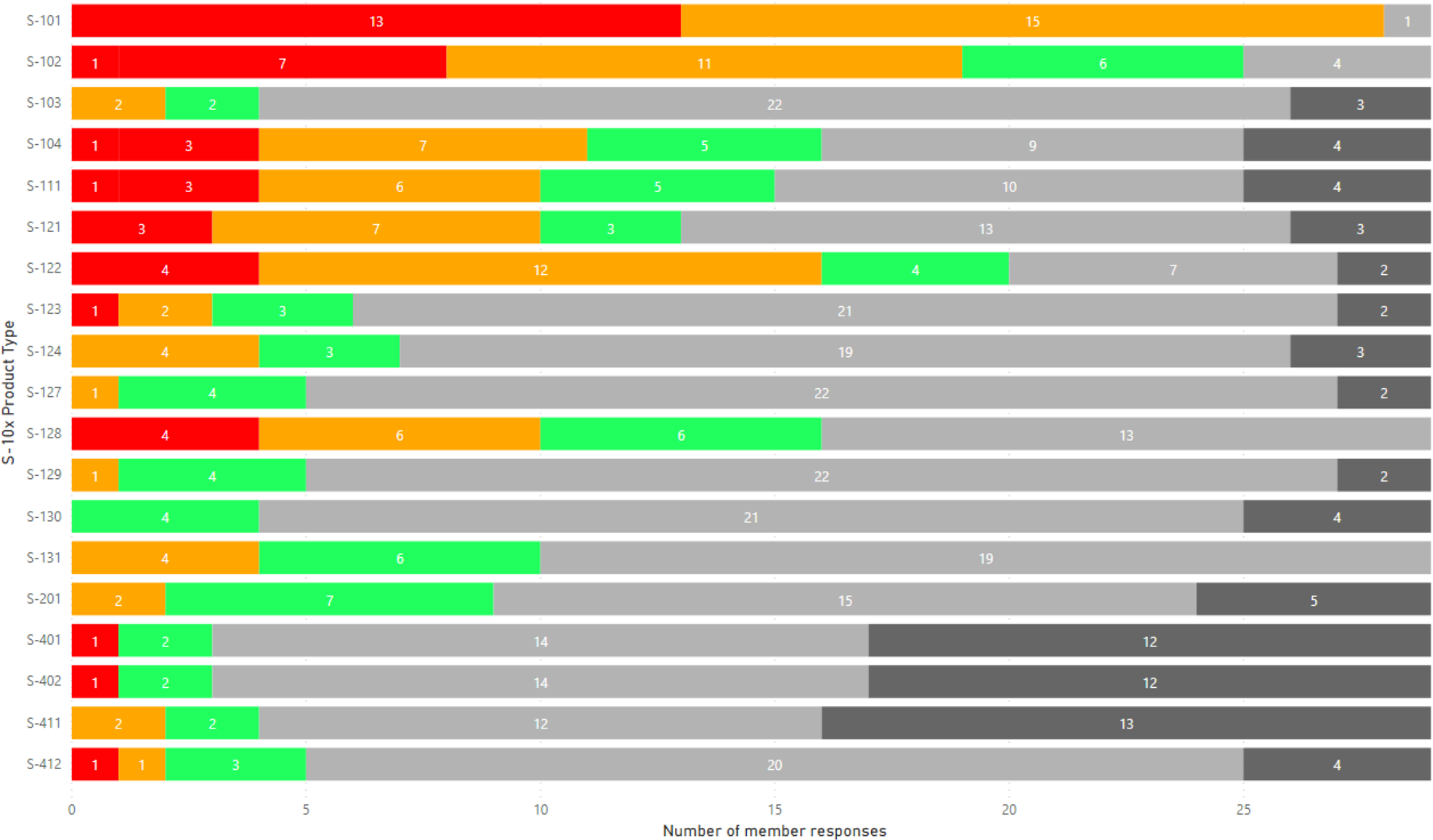
S-100 ECDIS legal to use after **1 January 2026** and from **1 January 2029** new systems must comply with the proposed IMO Resolution on ECDIS Performance Standards.

Substantial coverage of S-101 required by 2026.

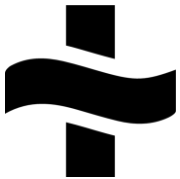




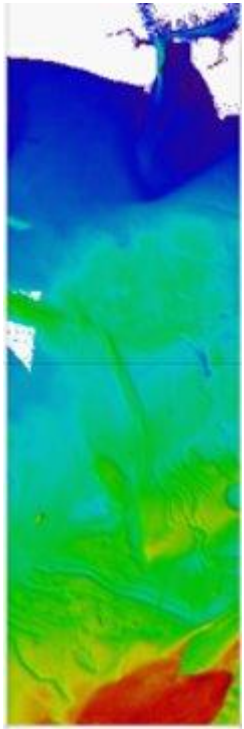
2022 IC-ENC Members S-10x Production Plans Survey



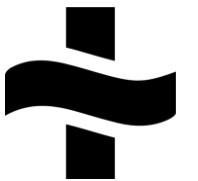
Timescale	
<div></div> Now/very near	Now or expected during 2022
<div></div> Near-term	2023 - 2024
<div></div> Medium-term	Within the next 5 years - by 2027
<div></div> Long-term	Within the next 10 years - by 2032
<div></div> Unknown	Unknown
<div></div> N/A	N/A



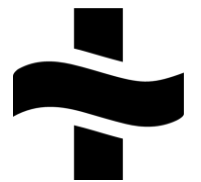
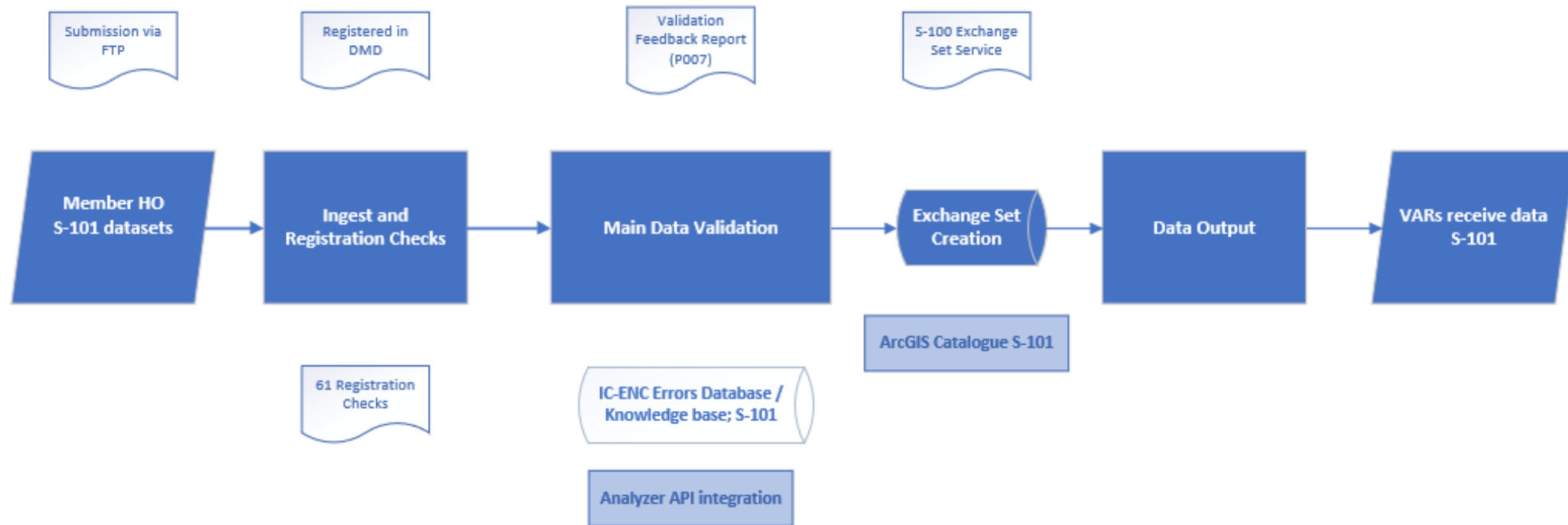
IC-ENC S-10x Service Developments



- ▶ First generation S-10x services:
 - S-101 - Electronic Navigational Chart (ENC)
 - S-102 - Bathymetric Surface Product
 - S-104 - Water Level Information for Surface Navigation
 - S-111 - Surface Currents
 - S-122 - Marine Protected Areas
 - S-128 - Catalogue
 - Conversion Readiness Service (S-57 to S-101)



S-101 Service



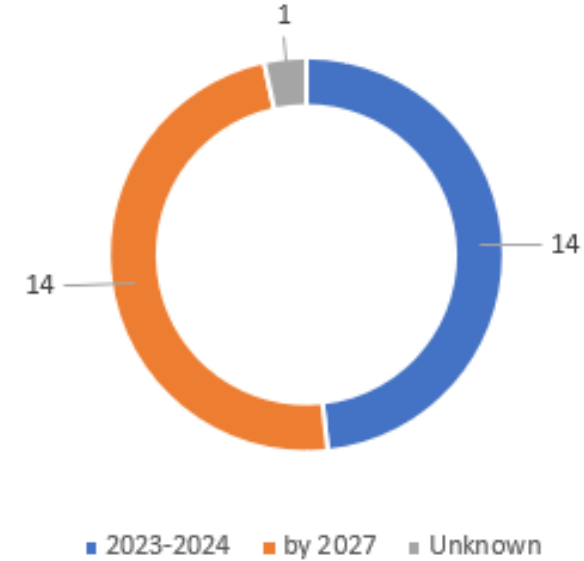
S-101 Service

S-101 Electronic Navigational Chart (ENC):

Aim:

- Establish an end-to-end S-101 service, data ingest, assessment and data output

S-101 Production Plans



	Strategic view	Service Vision		Service Description		Product Profile		Technical Development - Proof of Concept								Technical Development - Full	
Service	Steering Committee endorse RENC service	Draft Vision	Vision Approved by Members	Draft Description	Description Approved by Members	Draft Product Profile	Product Profile Approved by Members	Draft Initial Validation (Registration) Checks	Initial Validation (Registration) Checks Approved	Ingest and Initial Validation / Registration Process built	Initial Release Process built	Milestone: Proof of Concept service available to Members and Intermediaries	Discrete products available under PDT license	IC-ENC initial service available under PDT License	PDT feedback loop established	Draft Metadata Template	Metadata Template Approved by Members
				2022-Q1	2022-Q2	2022-Q1	2022-Q2	2022-Q1	2022-Q2	2022-Q2	2022-Q4	2022-Q4	2022-Q4	2022-Q4	2022-Q4	2023	2023
S-101	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	4 - Started but mild delay / risks	7 - Complete	7 - Complete	7 - Complete	8 - Complete (ahead of schedule)	Yes	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	2 - Started and on track	1 - Not due to start yet

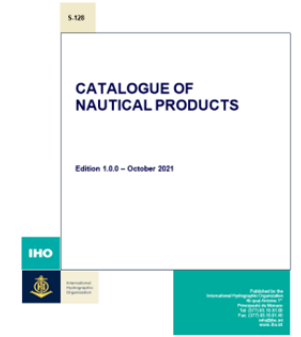


S-102 Service...

	Strategic view	Service Vision		Service Description		Product Profile		Technical Development - Proof of Concept								Technical Development - Full	
Service	Steering Committee endorse RENC service	Draft Vision	Vision Approved by Members	Draft Description	Description Approved by Members	Draft Product Profile	Product Profile Approved by Members	Draft Initial Validation (Registration) Checks	Initial Validation (Registration) Checks Approved	Ingest and Initial Validation / Registration Process built	Initial Release Process built	Milestone: Proof of Concept service available to Members and Intermediaries	Discrete products available under PDT license	IC-ENC initial service available under PDT License	PDT feedback loop established	Draft Metadata Template	Metadata Template Approved by Members
S-102	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	2022-Q1	2022-Q1	2022-Q2	2022-Q2	2022-Q3	2022-Q3	2022-Q1	2022-Q2
	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	Yes	7 - Complete	1 - Not due to start yet	1 - Not due to start yet	7 - Complete	7 - Complete

S-104, S-111 Services...

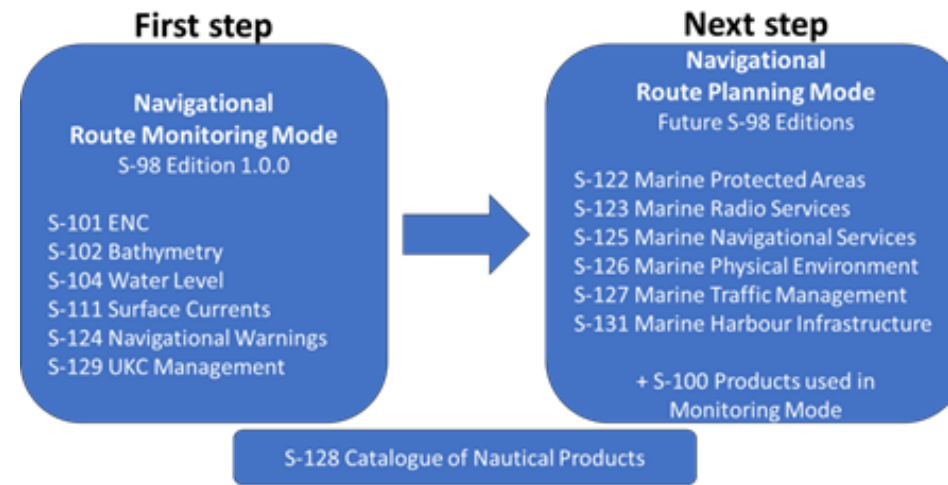
	Strategic view	Service Vision		Service Description		Product Profile		Technical Development - Proof of Concept								Technical Development - Full	
Service	Steering Committee endorse RENC service	Draft Vision	Vision Approved by Members	Draft Description	Description Approved by Members	Draft Product Profile	Product Profile Approved by Members	Draft Initial Validation (Registration) Checks	Initial Validation (Registration) Checks Approved	Ingest and Initial Validation / Registration Process built	Initial Release Process built	Milestone: Proof of Concept service available to Members and Intermediaries	Discrete products available under PDT license	IC-ENC initial service available under PDT License	PDT feedback loop established	Draft Metadata Template	Metadata Template Approved by Members
S-111		2022-Q1	2022-Q2	2022-Q1	2022-Q2	2022-Q1	2022-Q2	2022-Q1	2022-Q2	2022-Q3	2022-Q4	2022-Q4	2022-Q4	2022-Q4	2022-Q4	2022-Q1	2022-Q2
	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	7 - Complete	4 - Started but mild delay / risks	7 - Complete	7 - Complete	8 - Complete (ahead of schedule)	8 - Complete (ahead of schedule)	Yes	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	7 - Complete	4 - Started but mild delay / risks
S-104		2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023
	7 - Complete	8 - Complete (ahead of schedule)	8 - Complete (ahead of schedule)	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	No	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet	1 - Not due to start yet



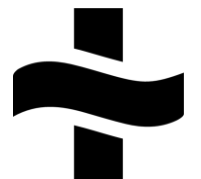
Addition of S-128 into IC-ENC Work Plan

- New 2022 IC-ENC Work Plan theme for S-128: Catalogue of Nautical Products (CNP)
 - Describes the status of nautical products
 - Edition 1.0.0 endorsed at HSSC14 for implementation and testing
- Key component of the IHO S-100 Roadmap

- ECDIS requirements:
 - Essential part of the S-100 ECDIS for update status
 - Provides coverage information to show availability of datasets
- Source for IC-ENC S-100 graphical catalogue.



The IHO Navigational Package to be handled by the Interoperability Specification S-98. Additional layers may be added in the future.



IC-ENC

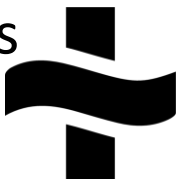
Product Development & Testing Licence

- It supports innovation and developments of new service, tools, technology, hardware etc.
- 5 out of 10 IC-ENC/MACHC Members have responded and “opted in” (CL2021/30)
- IC-ENC Value Added Resellers have all joined...



Formal feedback loop – the user!!

- Third party has been appointed to conduct formal research interviews – this way we can report on user experiences and define user needs back up to HOs
- Intent to support other stakeholders e.g. IHO Testbed activity etc





ENC Conversion Readiness Checks

- Included as part of IC-ENC's Conversion Readiness Service, an extension of the S-57 ENC Validation Service
- A set of custom checks which highlight where action can be taken in the S-57 ENC in readiness for conversion to S-101, i.e. "conversion ready ENC's"
- The custom checks align to S-65 Annex B 1.1.0 (S-57 to S-101 Conversion Guidance) and are built in 7Cs Analyzer
- The checks are run on all base cell validations
- Recommended action is logged in the Validation Feedback Report
- The checks are included in the IC-ENC Knowledgebase

P007 Form



Conversion Readiness Checks

In preparation for the transition from S-57 to S-101, we are starting to incorporate custom checks into your validation feedback reports to help you prepare your ENC's for conversion from S-57 to S-101. These checks are included as part of IC-ENC's Conversion Readiness Service.

This cell contains the following recommendations based on the currently available Conversion Readiness Checks:

1. ~~TopmarToDaymark~~

Description:

This conversion readiness check has identified two instances of TOPMAR in the S-57 ENC which have parent/child relationships with LNDMRK features.

Impact:

When converted, if a TOPMAR does not have a parent/child relationship with a beacon, buoy or LITFLT, it will be converted into a Daymark feature instead of becoming a complex attribute ~~topmark~~ as part of the parent feature.

Reference:

S-65 Annex B 1.0.0 12.3.1, 12.4.1, 12.4.2; 12.6; S-101 DCEG 1.0.2 7.2

Action:

Please review these two TOPMAR features and amend if required.



Instance:

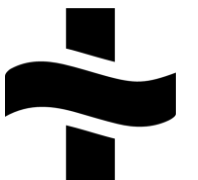
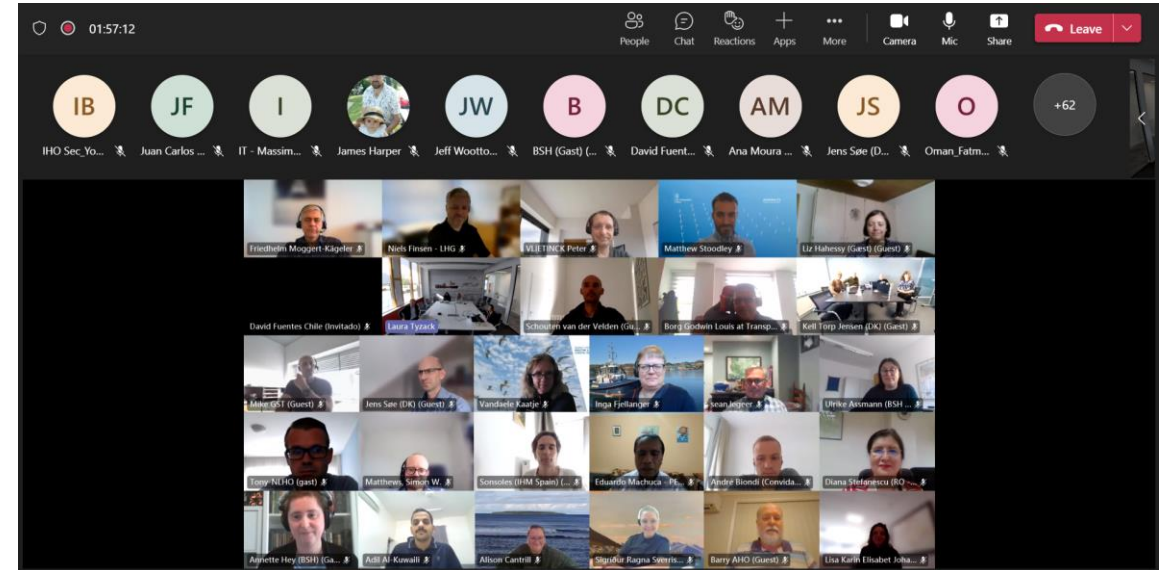
Object	FOID	Position
TOPMAR	BE 0000033675 00003	51-13.807111N, 002-55.893235E
TOPMAR	BE 0000033677 00003	51-13.639378N, 002-56.095780E

Validation Software Error Message:

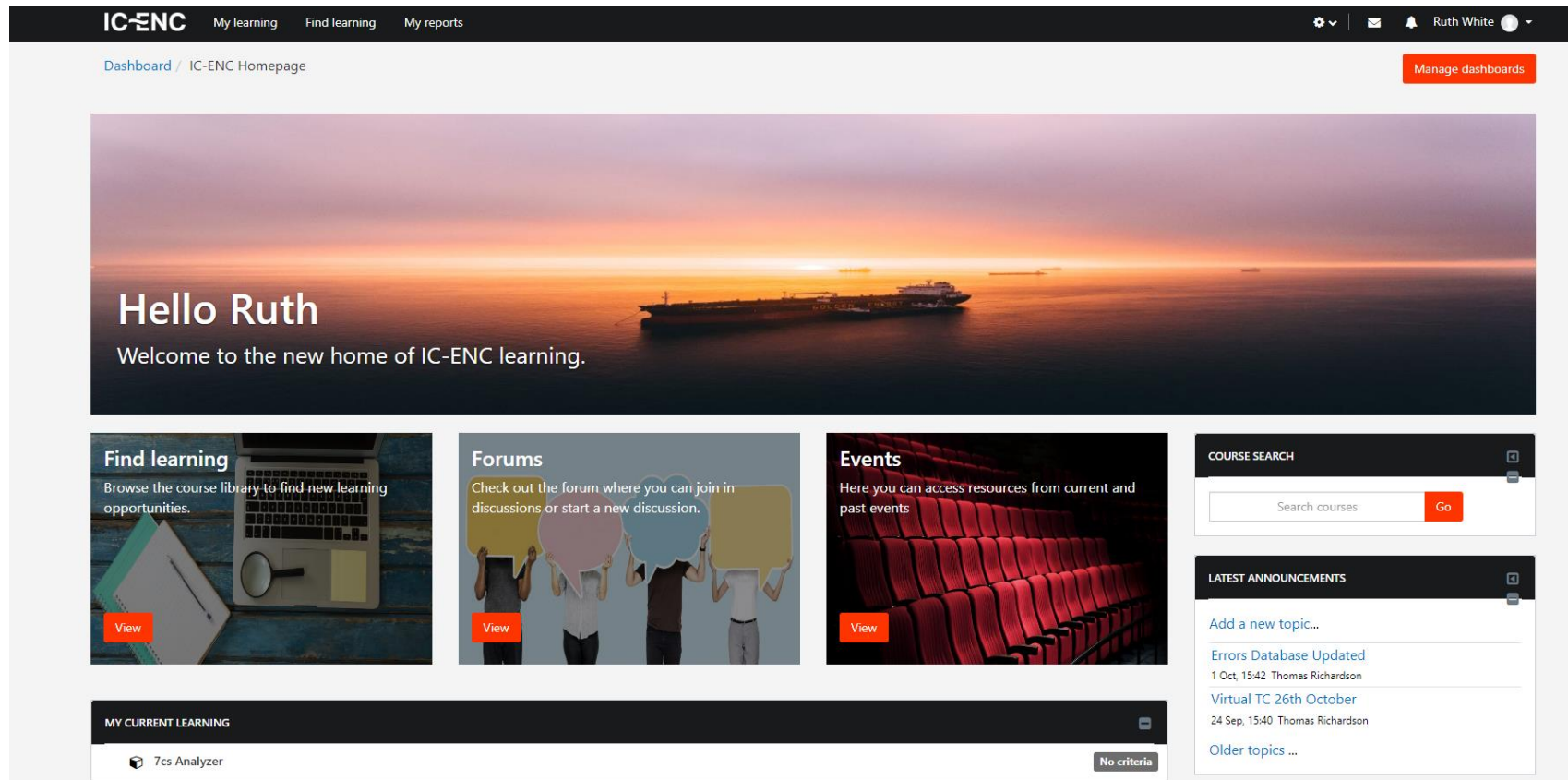
~~TopmarToDaymark~~: All instances of TOPMAR which do not have a parent/child relationship with a beacon, buoy or LITFLT OR have a parent/child relationship with any other feature, will be converted into S-101 feature Daymark. Ref: S-65 Annex B 1.0.0 12.3.1, 12.4.1, 12.4.2; 12.6; S-101 DCEG 1.0.2 7.2
There were two instances of this message

Technical Conference (TC) 22_5

- Tuesday 13th December
- Virtual event via Microsoft Teams
- Three short sessions:
 - S-101 conversion demonstration 10:45-12:00 GMT/UTC
 - Data Management Database (DMD) developments and demonstration 12:30-13:30
 - Technical Conference 2022 review 14:00-15:00
- Members can sign up for TC22_5 at <https://www.ic-enc.org/lms>



IC-ENC Learning Management System

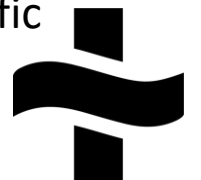


The screenshot shows the IC-ENC Learning Management System dashboard for user Ruth White. The top navigation bar includes links for 'My learning', 'Find learning', and 'My reports', along with a user profile dropdown for 'Ruth White'. The main header area displays 'Hello Ruth' and a welcome message: 'Welcome to the new home of IC-ENC learning.' Below this, there are three main content areas: 'Find learning' (Browse the course library to find new learning opportunities), 'Forums' (Check out the forum where you can join in discussions or start a new discussion), and 'Events' (Here you can access resources from current and past events). Each of these areas has a 'View' button. To the right, there is a 'COURSE SEARCH' section with a search bar and a 'Go' button, and a 'LATEST ANNOUNCEMENTS' section with a list of recent updates, including 'Errors Database Updated' and 'Virtual TC 26th October'. At the bottom, there is a 'MY CURRENT LEARNING' section showing '7cs Analyzer' with a 'No criteria' button.

The IC-ENC Learning Management System (LMS) was established in 2021.

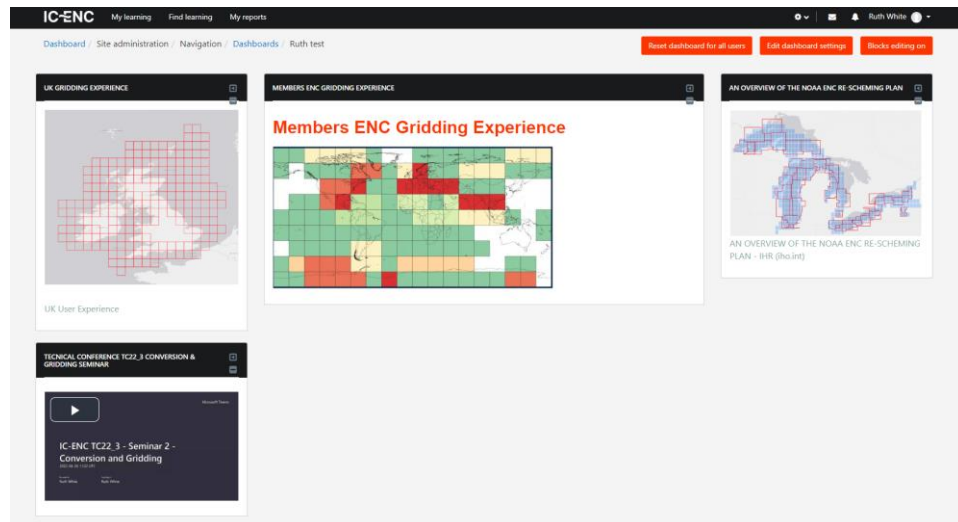
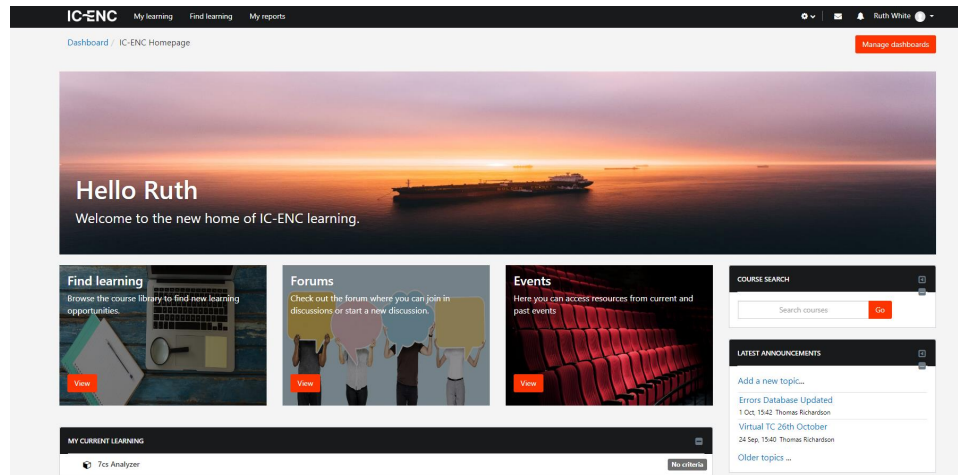
The LMS has been going from strength to strength with now 476 learner accounts having been created.

The LMS Can be configured to include 'guest' accounts for non IC-ENC Members and have access to specific content.





Collaboration through IC-ENC LMS



Discussion Forum

Add a new discussion topic

Discussion

S-104, S-111, and S-412 data conversion

Uncertainty

Dataset File Naming

Spatial Resolution

ECDIS Load

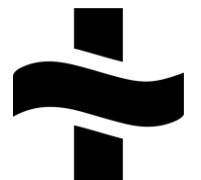
Dataset Titles

S-122 Marine Protected Areas

Best Practice and Experiences with Gridded ENC Schemes

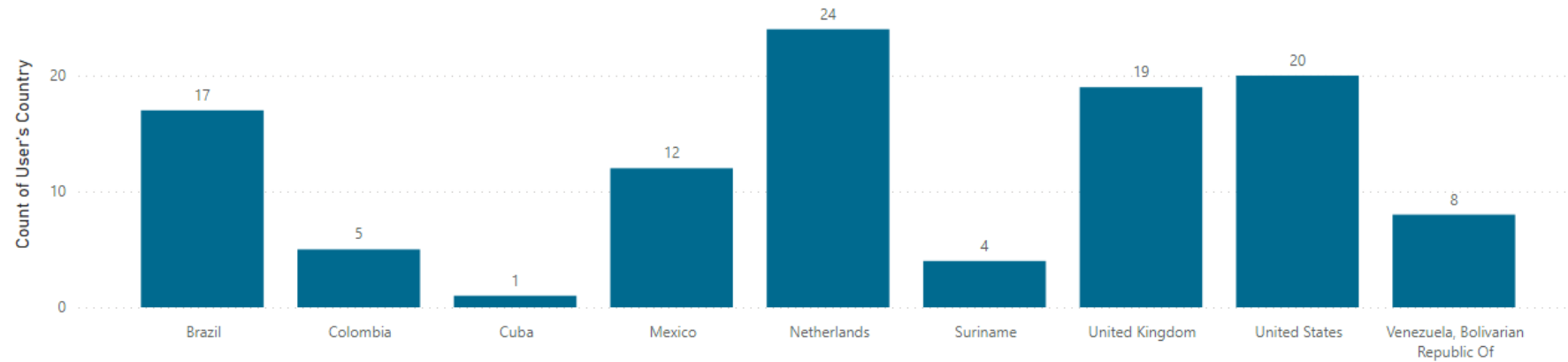
S-102 Bathymetric Surface

Best Practice for Migration to a Database for ENCs



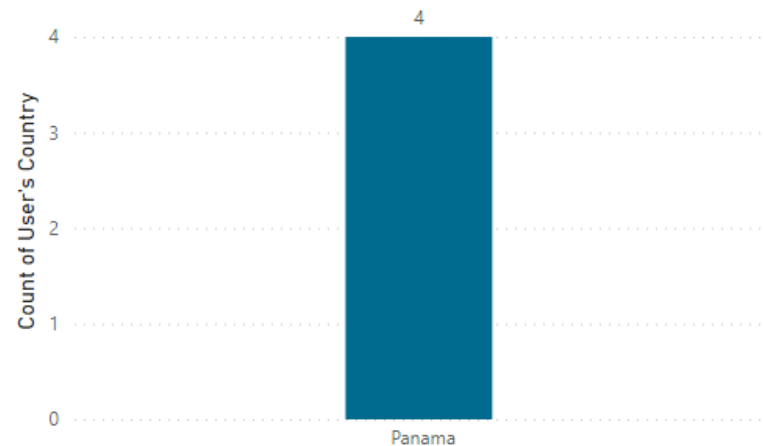
MACHC Members IC-ENC LMS Accounts

MACHC Member IC-ENC LMS Accounts

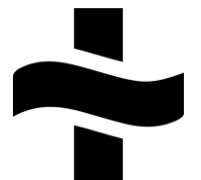
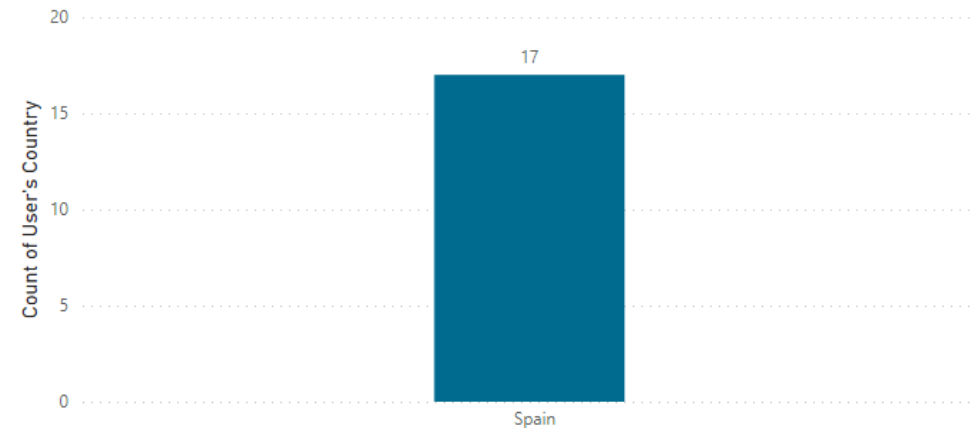


The IC-ENC LMS have many MACHC Member learner accounts

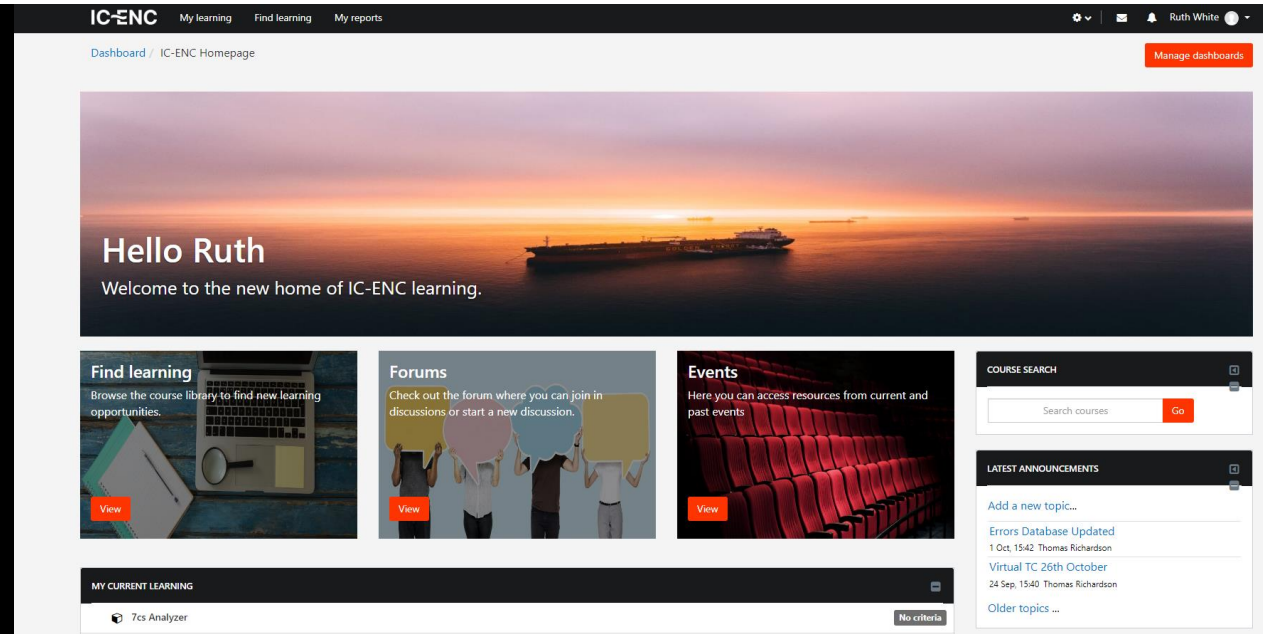
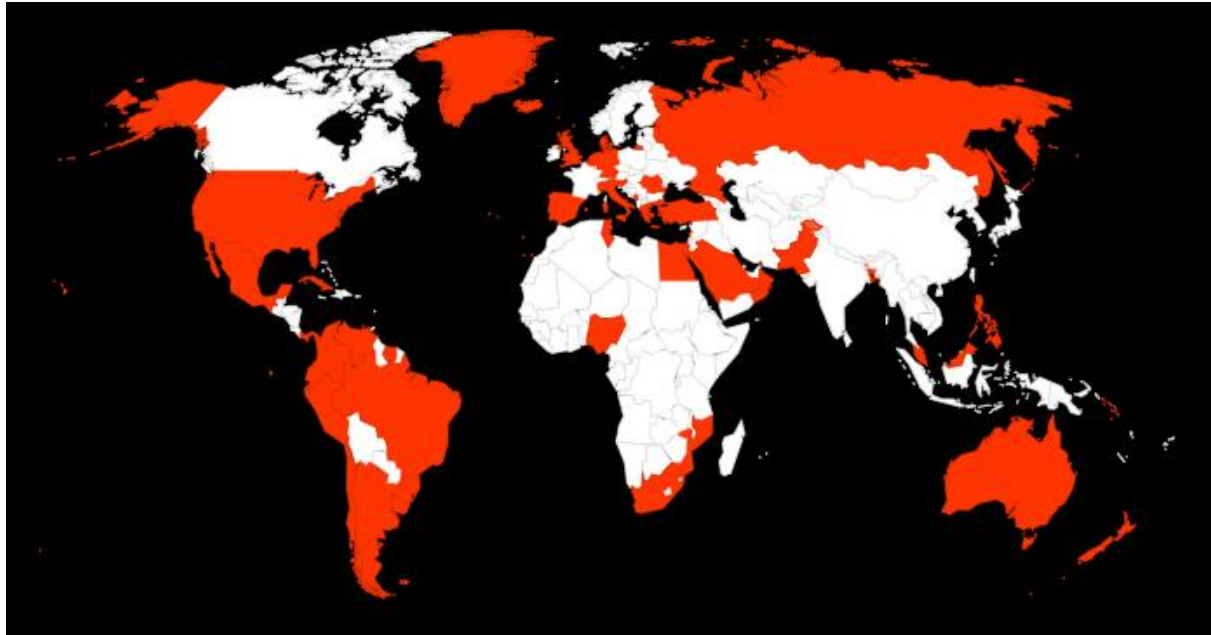
MACHC Associated Member IC-ENC LMS Accounts



MACHC Observer Member IC-ENC LMS Accounts



IC-ENC Summary



ADMIRALTY
Maritime Data Solutions

 **ChartWorld**
Navigation Experts

NAVTOR 


PRIMAR®

 **ChartWorld**
Navigation Experts

Quality charts
for OpenCPN
O-charts

 **iNavX**
iNavX, powered by SiiTech

 **SiiTech**

- ▶ First generation S-10x services:
 - S-101 - Electronic Navigational Chart (ENC)
 - S-102 - Bathymetric Surface Product
 - S-104 - Water Level Information for Surface Navigation
 - S-111 - Surface Currents
 - S-122 - Marine Protected Areas
 - S-128 - Catalogue
 - Conversion Readiness Service (S-57 to S-101)

