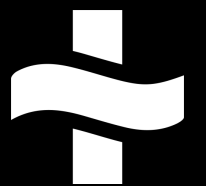




Working together to
assure navigational safety

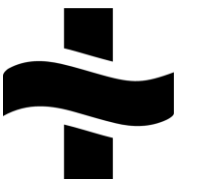
IC-ENC to MACHC – November 2024

James.Harper@ic-enc.org



Agenda

1. The breadth of the MACHC region
2. IC-ENC Overview
3. Help and support to Members
4. Activity Fund
5. MACHC opportunities/call to action



IC-ENC



1. Support IC-ENC Members to achieve safe and compliant navigation



2. Support IC-ENC Members to define and deliver the benefits of S-1XX (including increased efficiency of navigation and protection of the environment)



3. Increase the number and type of users of IC-ENC Members' products and ensure an appropriate financial return



4. Support the IC-ENC Membership community to operate in the most efficient way



5. Develop and maintain the IC-ENC operating, governance and business models

IC-ENC

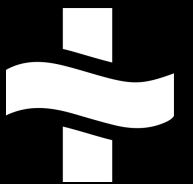
Working together to
assure navigational safety

IC-ENC HQ
Taunton, UK

IC-ENC North America
Washington, USA

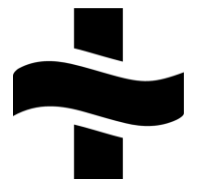
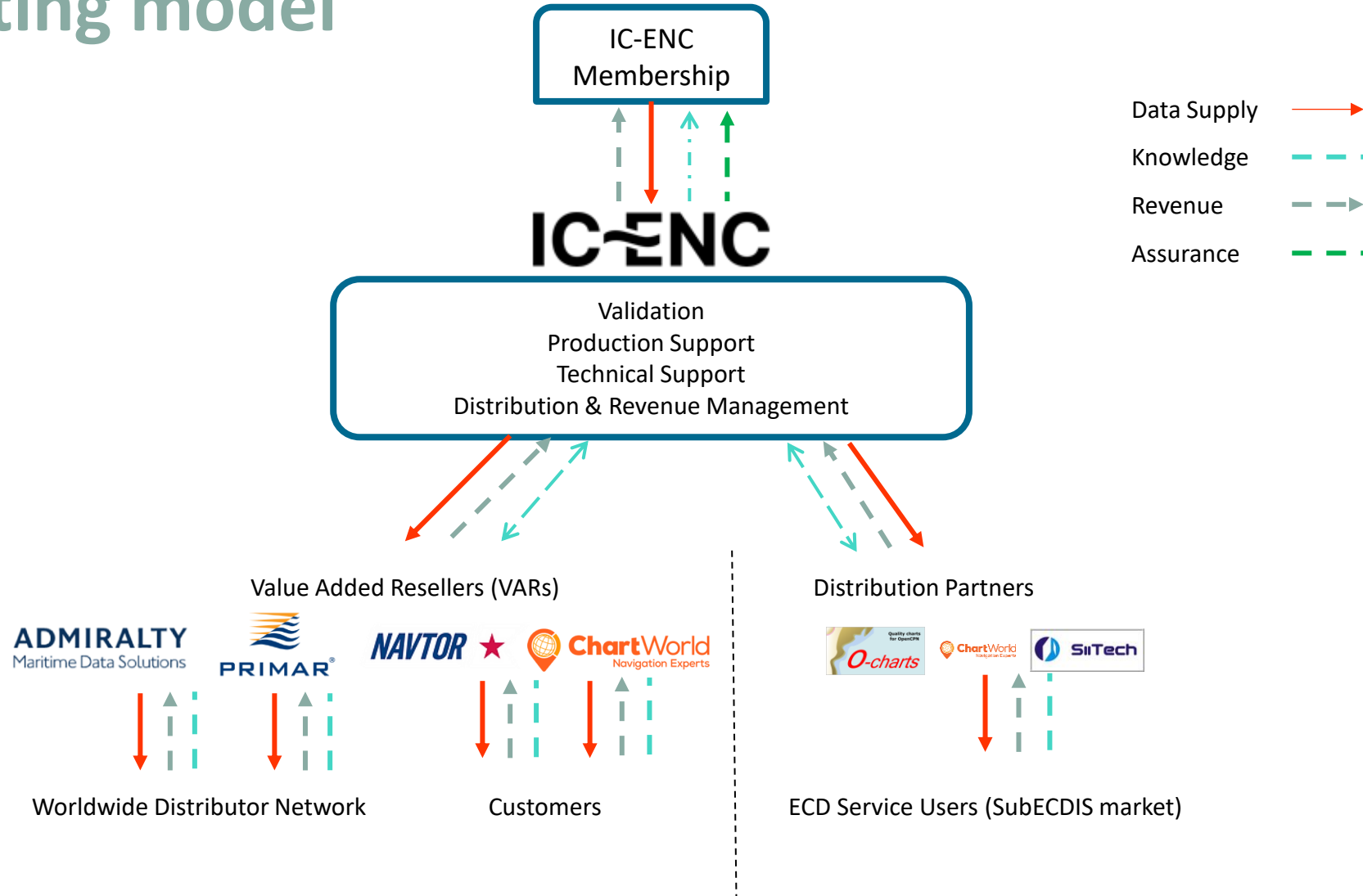
IC-ENC Latin America
Niterói, Brazil

IC-ENC Australia
Wollongong, Australia



IC-ENC

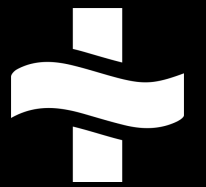
Operating model





Working together to
assure navigational safety

Help and Support to Members



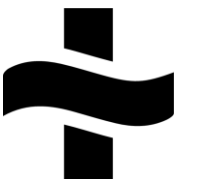
IC-ENC

The IC-ENC community

You are not alone!

IC-ENC is a **community of other likeminded organisations.**

As a new Member we can facilitate the sharing of good practice from other HOs to help build your own office's skills, knowledge and experience.





Face to face

Face-to-face training in various locations around the world, for example:

- ENC Quality Assurance / Validation
- ENC Conversion
- Technical Conferences

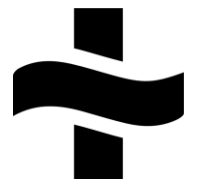


Bespoke training

- At an HO office
- At one of the IC-ENC offices
 - Specific “buddy” appointed as a main point of contact



This photo is of a course in Oman, April 2024. IC-ENC Members from the region are learning how to prepare S57 ENCs for conversion to S101 ENCs.



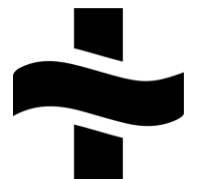
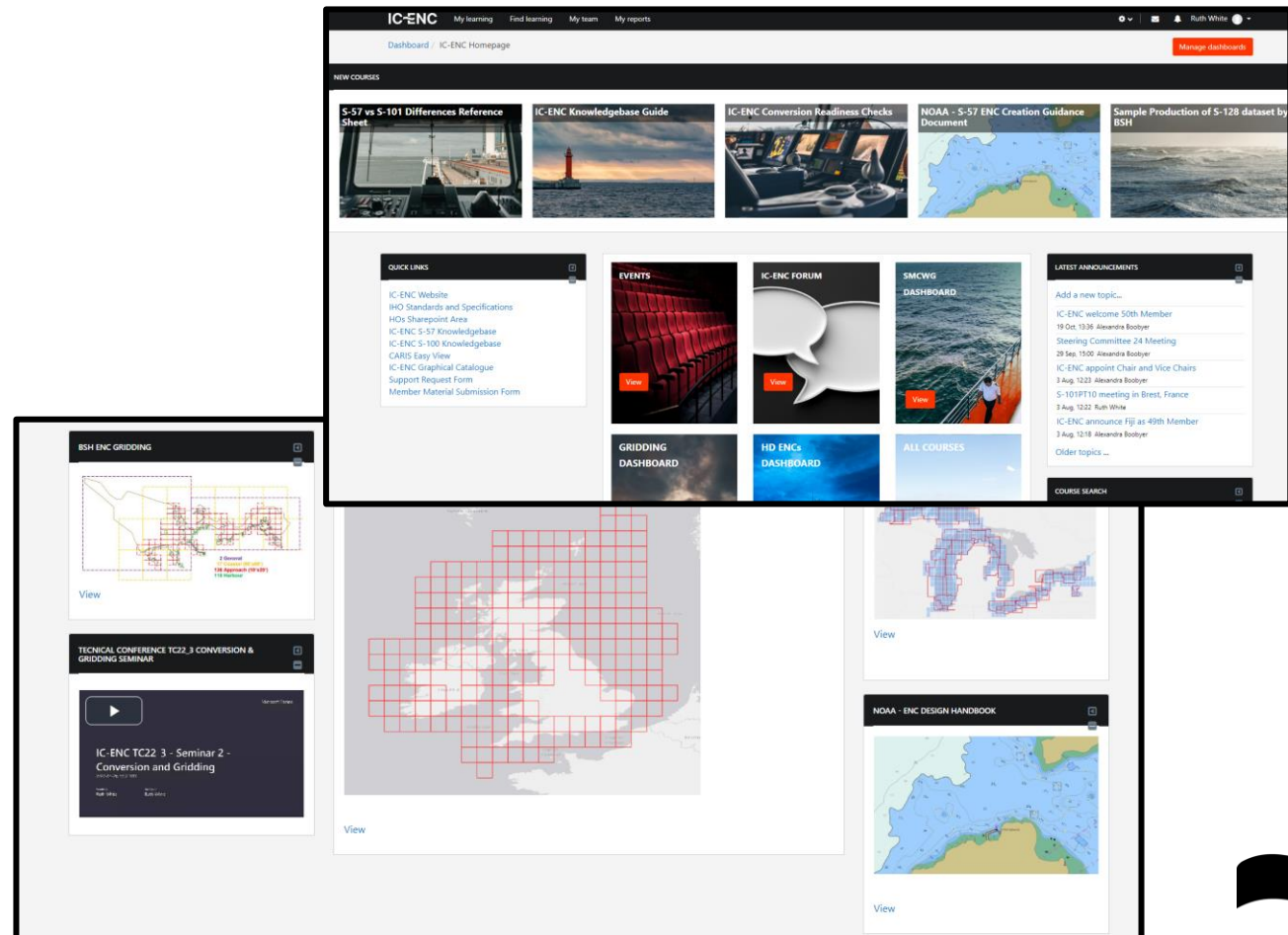


Learning Management System (LMS)

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

The LMS provides Members with a rich resource of learning and an opportunity to correspond with each other via the IC-ENC forum.

Immediate access to new Members, and the community of over 600 users.





LMS Library Content

Our full LMS Library content can be viewed on our IC-ENC website via the following link [LMS Courses — IC-ENC](https://www.ic-enc.org/lmscourses)

www.ic-enc.org/lmscourses

Current content includes:

- IC-ENC Conversion Readiness Checks
- Sample Production of S-128 Datasets
- S-57 ENC Creation Guidance Booklet
- S-57 to S-101 Conversion (training recordings)
- Introduction to S-100 (training recordings)
- Industry Webinar (recordings)
- Technical Conference discussion recordings

IC-ENC Learning Library

Browse IC-ENC's wide range of learning materials, featuring webinars, courses, events and much more

The content detailed below is available exclusively to Members who will need to log into their Learning Management System (LMS) account. If you do not have an account, please click the link below to request one.

[Request an LMS Account](#)

If you would like access to this content or would like to enquire about becoming a Member, please click the button below.

[Contact Us](#)

Featured

Introduction to S-101 ENC Production (CARIS)
An Introduction on how to create, validate and update IHO S-57 format ENCs using the CARIS S-57 Composer.

[Learn more](#)

S-101 ENC Production - CARIS S-57 Composer 4.1
An Introduction to IHO S-101 ENC Product Specification as used to create S-101 Edition 1.0.0 ENCs.

[Learn more](#)

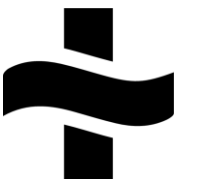
"The instructors were very kind and very clear. It was a very useful course."

- Servicio de Hidrografía Naval, Argentina | S-57 to S-101 Conversions Course

IC-ENC

MACHC opportunity....

- IC-ENC Members: Consider if your office is getting maximum gain from the LMS
- Others: Consider seeking LMS access from IC-ENC



Member-to-Member secondments (new in 2024)

- Community ethos, Member spend time with each other to learn from each other.
- <https://www.ic-enc.org/secondments>



GST: S-57 ENC production in Esri

Mon, 3 Mar 2025 – Fri, 14 Mar 2025
Danish Geodata Agency (map)

[View Event →](#)

UKHO: Sustainability within Hydrography

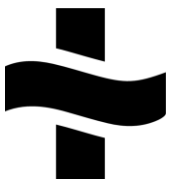
Mon, 31 Mar 2025 – Fri, 4 Apr 2025
UKHO (map)

[View Event →](#)

NOAA: Esri Chart Production

Mon, 21 Apr 2025 – Fri, 2 May 2025
NOAA (map)

[View Event →](#)



Upcoming Opportunities

United States (NOAA)

Survey Vessel & NOAA Overview

IC-ENC (UKHO)

Validation Team Overview

Danish Geodata Agency

Opportunity to be confirmed

Panama Canal Authority

Opportunity to be confirmed

Australian Hydrographic Office

Opportunity to be confirmed

[Click here to register your interest](#)



United Kingdom Hydrographic Office
UKHO Quality Management Systems & ISO9001

[Read Blog](#)



Australia Hydrographic Office
IC-ENC Validation Overview

[Read Blog](#)



Instituto Hidrográfico de la Marina
Bathymetric Data Processing

[Read Blog](#)



Hellenic Navy Hydrographic Service
S-102 Focus

[Read Blog](#)



IC-ENC

MACHC opportunity....

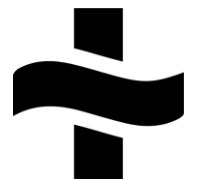
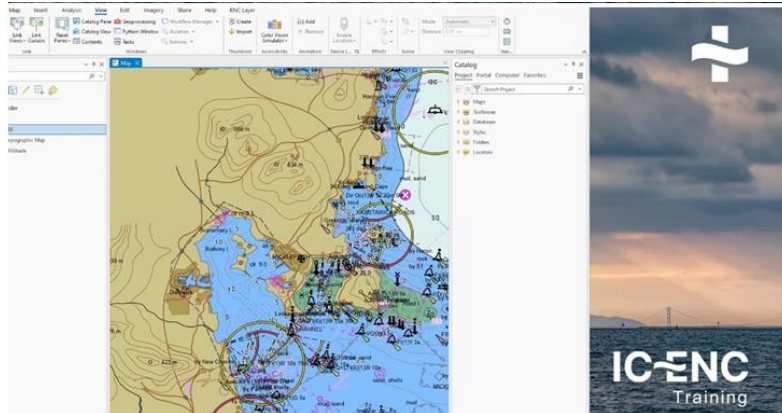
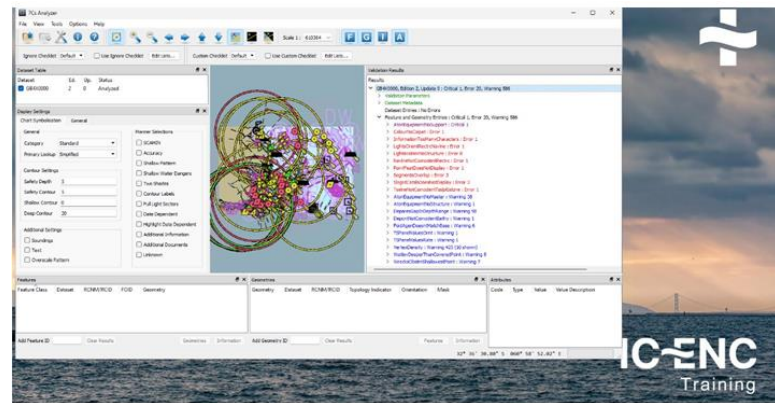
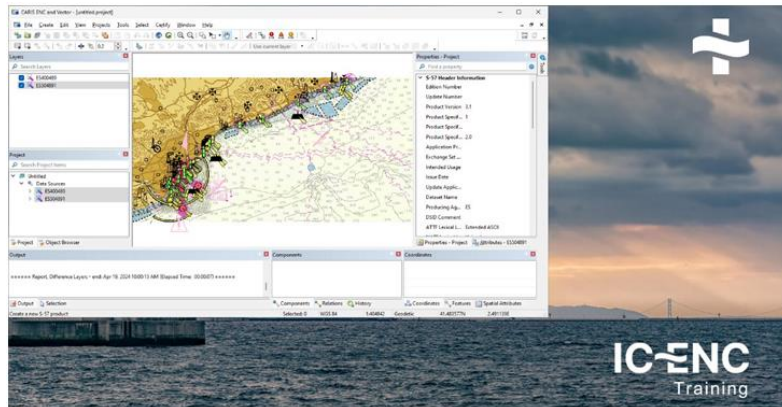
- Consider **attending** an IC-ENC Member-to-Member secondment
- Consider **hosting** an IC-ENC Member-to-Member secondment
- Consider **requesting** a secondment topic



IC-ENC

Cloud training environment

Online environment to support face-to-face training and online learning. Contains software to allow learners to **gain practical experience**, not just theory...





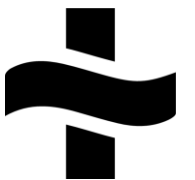
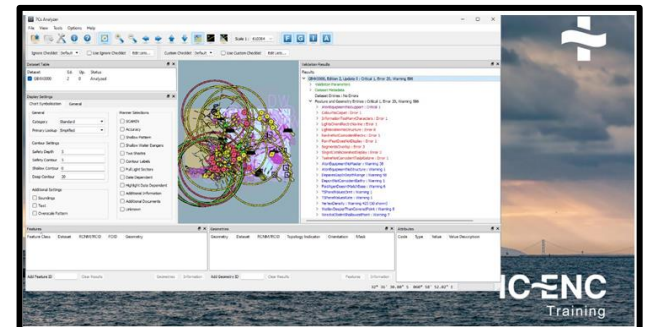
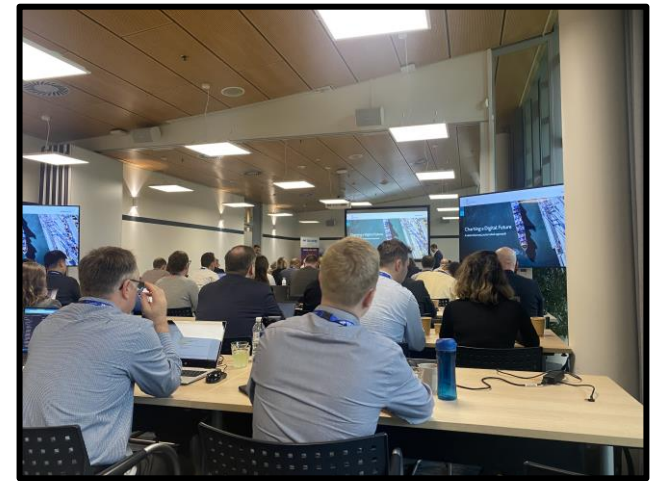
IC-ENC/Industry/User Conferences

In collaboration with CARIS and Esri, IC-ENC have arranged for Members to attend user conferences and bespoke training workshops.

Bespoke training workshops on topics such as **S-102**, **S-104** and **S-111** using our IC-ENC Learning Cloud take place to allow practical hands-on exercises.

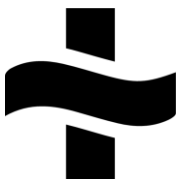
4 User conference & Bespoke training have been scheduled:

- Eindhoven, Netherlands (30th September – 4th October 2024) CARIS
- **Viña Del Mar – Chile (9th - 12th December 2024) CARIS**
- Manila, Philippines (27th - 30th January 2025) CARIS
- Washington, United States (24th - 28th February 2025) Esri



MACHC opportunity....

- Consider the remaining IC-ENC/Industry/User events
- For those attending the CARIS event in Chile one next week, feedback your ideas to improve the event for next time



IC-ENC

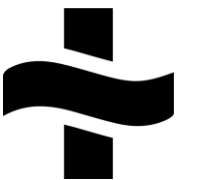
“ACTIVITY FUND”

IC-ENC Members are supporting an ACTIVITY FUND, whereby a portion of their national ENC revenue is set aside for other projects.

2024: A significant number of Members have ‘opted in’ (**USD450k**)

2025: Moving to a ‘whole group’ approach, with additional voluntary contributions (**USD700k/year**). Expectation is that this scheme will be in place in future years too.

Projects that have been approved are for a large range of topics...



Status of “Activity Fund” projects

Ref	Title	Status	Ref	Title	Status	Ref	Title	Status
2023-01	Development and finalization of S-98	Delivered	2023-08	MBSHC ENC QA and conversion workshop	Delivered	2024-06	AU S100 testbed project	Moved to Work Plan
2023-02	S-164 – Test Data Sets for S100 ECDIS	Delivered	2023-09	S102 and S104 training	Approved	2024-07	S-98 Proj Mgmt 2025 extension	In Progress
2023-03	IHO Operational S-100 Infrastructure Study.	Overtaken By Events	2024-01	S100 Costs/Benefits study	Moved to Work Plan	2024-08	S-164 – 2025 extension (cont of 2023/02)	In Progress
2023-04	S-122 Marine Protected Area Product Specification Update	Delivered	2024-02	S158 Validation Checks.	Overtaken By Events	2024-09	3 x S58 critical error test datasets	In Progress
2023-05	S100 Security Scheme - legal advice and contract drafting	In progress	2024-03	S100 validation checks	In Progress	2024-10	MACHC Tides and Water Levels S104	Approved
2023-06	Development of S-101 2.0.0 Test Datasets	Delivered	2024-04	ECDIS Overlapping study	Proposed	2024-11	SEPHC S100 implementation review	Under discussion
2023-07	Bespoke two-stage ENC conversion training (4 cohorts, regionally)	In Progress	2024-05	S158 Test Datasets	Approved			





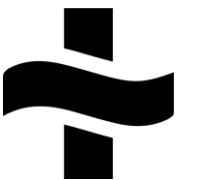
This very week, here in Panama: ENC Conversion training

- Thank you to Panama Canal Authority for hosting this event
- Event is in Spanish language (translation)
- Face-to-face supported with online cloud functionality



MACHC opportunity....

- Challenge IC-ENC with bold, ambitious, and beneficial proposals to the Activity Fund
 - Go for it! (Perhaps via the MACHC Working Groups?)
 - We can help draft the proposal

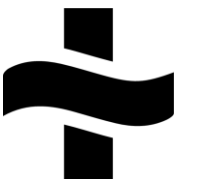




MACHC opportunities - summary


MACHC calls to action:

- Leverage the online resources (Learning Management System/Cloud Training environment).
- Member-to-Member secondments: Attend, Host, Request.
- IC-ENC/Industry/User events.
- Consider MACHC region projects from the ACTIVITY FUND... no idea is a bad idea!






2024 facts and figures, which may inspire some questions...


\$90m annual revenue collected on behalf of Members in 2024 

13,800  ENCs in the folio

 **30** IC-ENC team Members across 4 countries


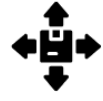
 **9,100** ENCs in the ECD service


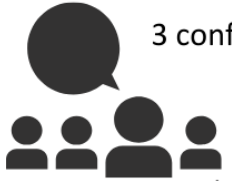
608  Learning Management Accounts

S-57 validation training delivered to trainees from 26 Members face to face in 2024 **54** 

417 safety critical error release preventions in 2024 

52  Members


Virtual training, discussions & seminars delivered to **300** delegates  **5** Distribution Partners and counting... 

1,036 **LinkedIn** followers  3 conferences hosted **235** delegates in 2024 

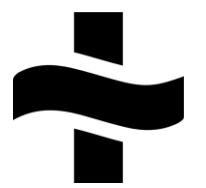
4 Value Added Resellers 

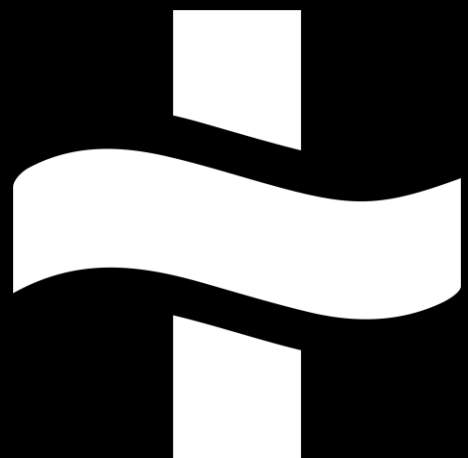
 **45,000** vessels served

S-1XX related training delivered to **60** trainees from 34 Members face to face in 2024 

 **8** Member to Member secondments hosted in 2024

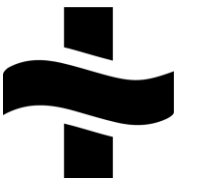
1,323  S-1XX trial datasets released under the Product Development & Testing Licence





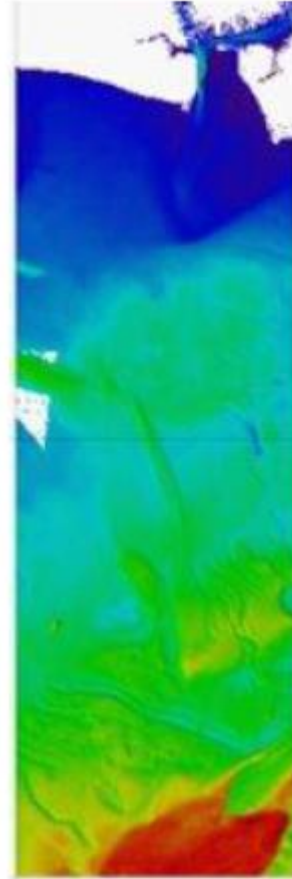
ENC Validation Service

- IC-ENC conducts independent validations on data it receives
- Ensure conformance to S-57 and S-58 standards and IC-ENC Policies
- Provide guidance on improving the quality of the Global ENC Folio
- ECDIS Usability
- Validation Checks conducted by a range of validation tools
 - dKart Inspector
 - 7Cs ENC Analyzer
 - IC-ENC DMD
- IC-ENC Knowledgebase
- Bespoke feedback report produced for each ENC file



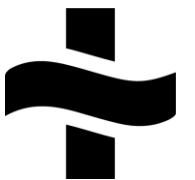
S-100 services - technical

- IC-ENC has developed the first generation of S-100 services, S-101, S-102, S-104, S-111, S-122, and S-128 generation with four key goals in mind:
 1. Member engagement, ensuring IC-ENC supports its Members with their S-100 prioritisations
 2. Community ethos in sharing production experience, recognising that across the IC-ENC Membership, Members are at different stages of their transition to S-100, and no-one is left behind
 3. Close alignment with the IHO Phase 1/Route Monitoring prioritised product types
 4. Increasing automation whilst continuing to provide value add to Members
- IC-ENC plans to identify/develop the next generation of S-100 services through further Member engagement

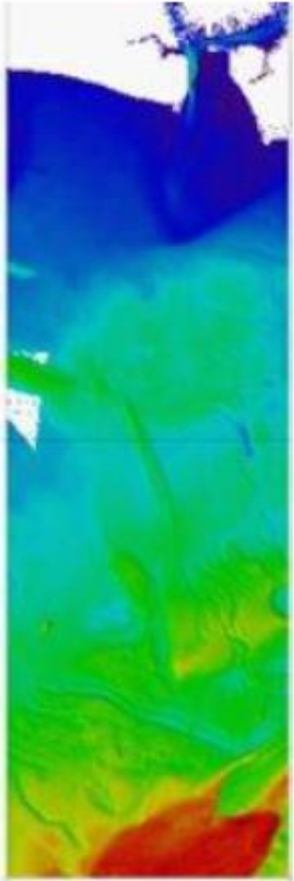


First generation S-10x services:

- 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 of Nautical Products
- Conversion Readiness Service



S-100 services – co-ordination and governance



Member support in the following areas:

- National co-ordination across multiple stakeholders
- The “S100 Business Case”
- National “S100 Implementation, Maintenance, Initial Benefits Realisation” plans
- Distribution chain appointment, oversight, monitoring, licensing model

