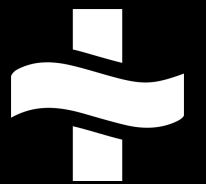




Working together to  
assure navigational safety

**IC-ENC to MBSHC – July 2024**

**James.Harper@ic-enc.org**





## Agenda

I will cover:

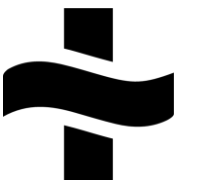
1. IC-ENC Overview
2. Help and support to (new) Members

James Harper,

IC-ENC General Manager

Based in IC-ENC Headquarters, Taunton, UK

[James.Harper@ic-enc.org](mailto:James.Harper@ic-enc.org)



# IC-ENC

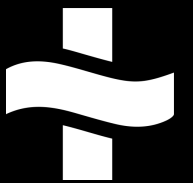
Working together to  
assure navigational safety

IC-ENC HQ  
Taunton, UK

IC-ENC North America  
Washington, USA

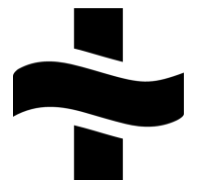
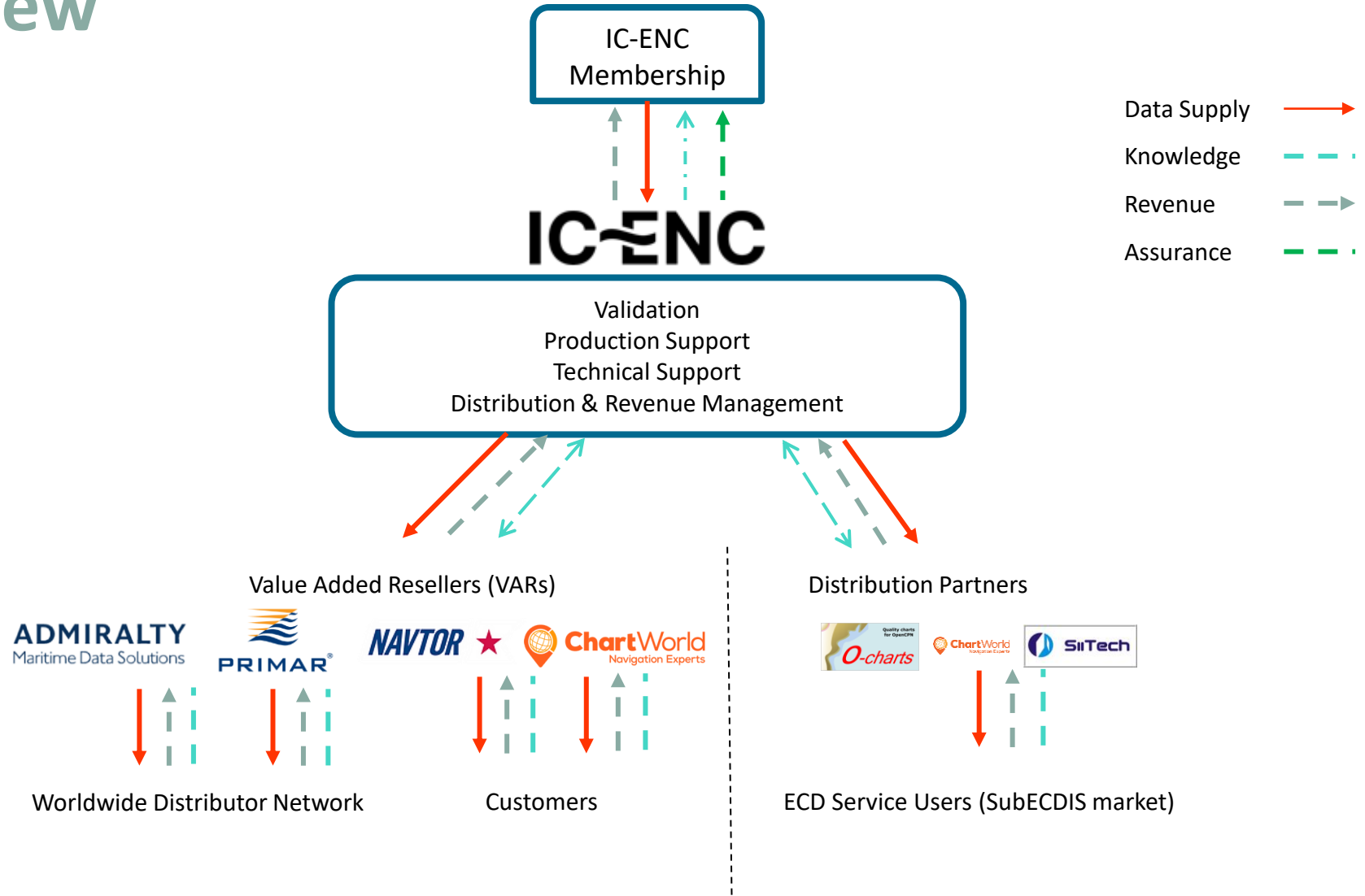
IC-ENC Latin America  
Niterói, Brazil

IC-ENC Australia  
Wollongong, Australia



# IC-ENC

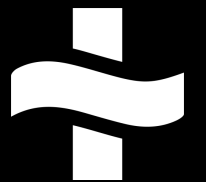
## Overview





Working together to  
assure navigational safety

# Help and Support to (new) Members





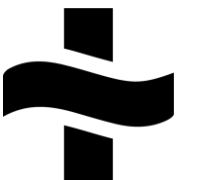
## The IC-ENC community

Becoming a Member of IC-ENC brings you into a **community of other likeminded HOs.**

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

We do this in a variety of ways...

- Face to Face,
- Online,
- Courses,
- Bespoke support,
- Learning from other IC-ENC Members,
- Supply of ECDIS software with training,
- And so on...



## Face to face training

Face-to-face training in various locations around the world

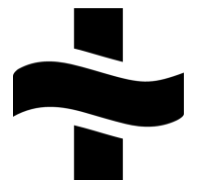
- ENC Quality Assurance / Validation
- ENC Conversion

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. IC-ENC Members from the region are learning how to prepare S57 ENCs for conversion to S101 ENCs.



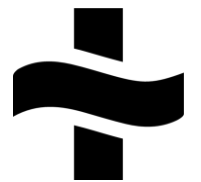
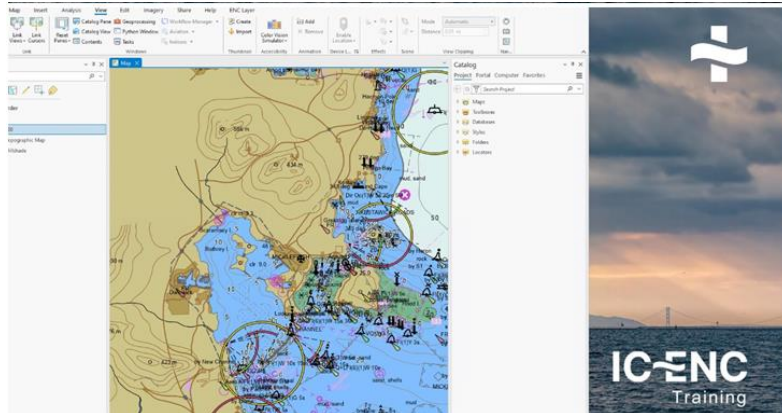
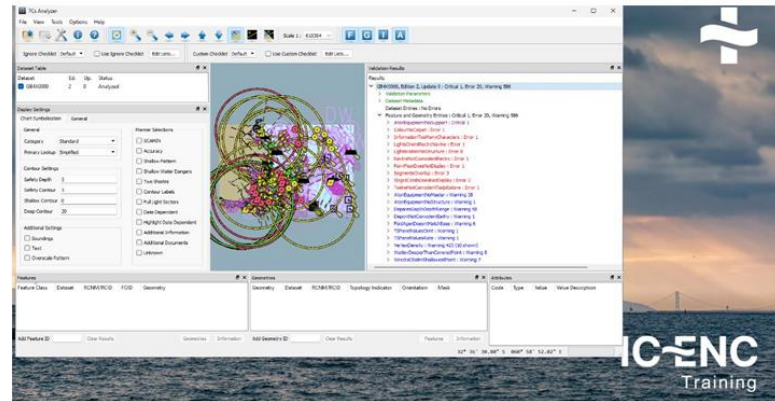
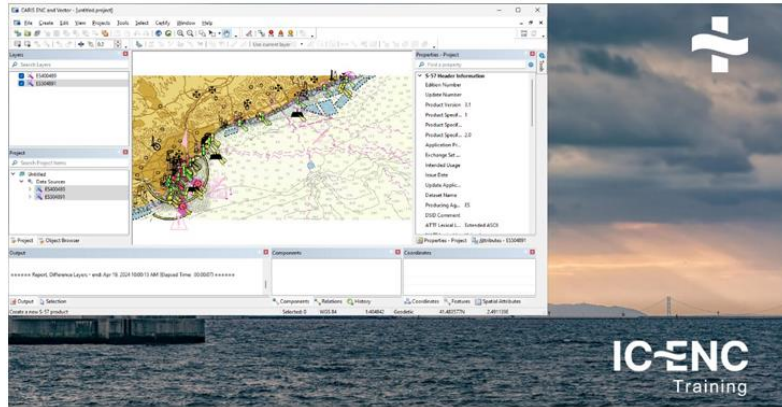


# IC-ENC

## Cloud training environment

Online environment to support face-to-face training and online learning.

Contains software to allow learns to **gain practical experience**, not just theory





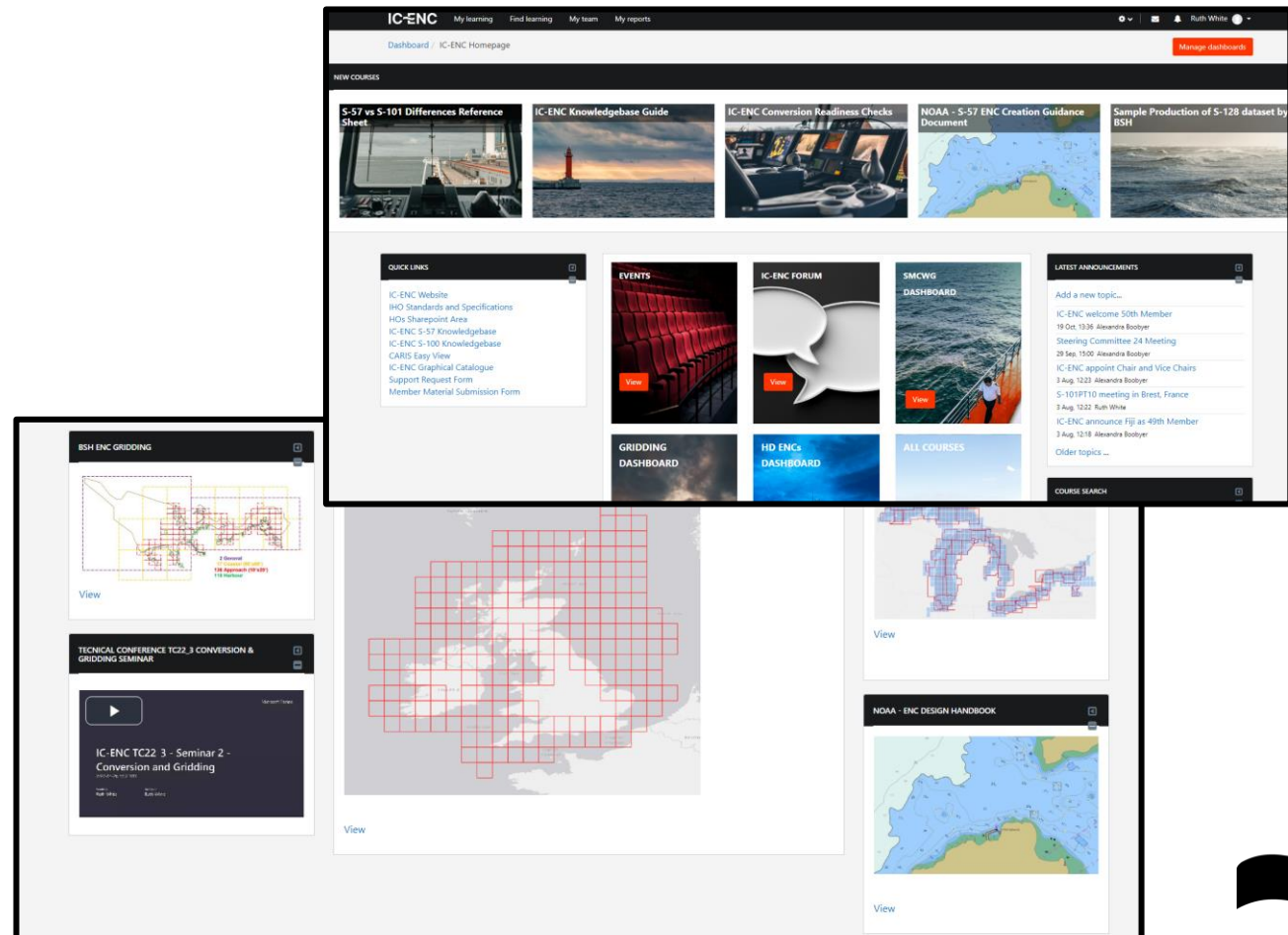


# Learning Management System (LMS)

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 500 users.





# Member Material on the LMS

As part of Member collaboration and information sharing, Members can submit material to the LMS.

Examples of Submissions are:

- An **S-57 ENC Creation Guidance** document from NOAA
- A Sample Production of S-128 Datasets from BSH
- IC-ENC Knowledgebase Guide

The screenshot displays a grid of four submission thumbnails at the top, each with a red circle highlighting a specific element: a map for the NOAA document, a sunset for the Knowledgebase Guide, ocean waves for the BSH dataset, and a ship's bridge for the conversion checks. Below these are two detailed preview cards. The first card, titled 'NOAA - S-57 ENC Creation Guidance Document', includes a 'Course Description' section with authors 'NOAA Hydrographic Office' and a link to the 'NOAA S-57 ENC Design handbook'. The second card, titled 'IC-ENC Knowledgebase Guide', features a 'General' section describing the database of over 2,400 error messages and a link to the 'IC-ENC Knowledgebase Guide' with a red 'View' button. To the right, a sidebar contains 'IC-ENC WEBSITE' and 'LATEST ANNOUNCEMENTS' with a 'Add a new top' link.



# 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](https://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.

**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](#) [Learn more](#)

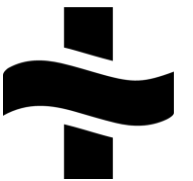
*"The instructors were very kind and very clear. It was a very useful course."*

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



## Technical Conference

- Annual event (face to face conference, hybrid), with online sessions throughout year.
- Community ethos
- Opportunity for IC-ENC to update members on Work Plan progress
- Opportunity for members to share their own S-57 or S-1XX production experiences to help others
- Updates from Industry – ENC conversion, S-1XX production and validation tool developments



## Member-to-Member secondments

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

### Hydrographic Service of the Royal Netherlands Navy (NLHO) - S-100 Overview & CARIS Conference

Monday, 30 September 2024, 09:00 –  
Thursday, 3 October 2024, 17:00

**Purpose of secondment:** Feedback on our S-100 strengths and weaknesses. Recommendations on what and how to share our insights/tools with the wider IC-ENC community.

**Desired outcomes / benefits:** Opportunities for us, other MS, and/or IC-ENC to improve

**Structure:**

- Interview the members of our internal S-100 team
- Experiment with our S-100 tooling (S-104, S-111), possibly using your own data; and/or
- Experiment with CARIS tooling (S-101, S-102)
- Give us written feedback on our strengths and weaknesses
- Make written recommendations to us on what and how to share our insights/tools with the wider IC-ENC community

The secondment will take place at NLHO from Monday 30th - Tuesday 1st October. The successful secondee will then have the opportunity to attend the CARIS user conference, taking place in the Netherlands on Wednesday 2nd- Thursday 3rd October. Please note, attendance at the conference will be at the secondee's / HO's expense.

**Secondee requirements:** Experience with IC-ENC. Good communication skills in Dutch or English. Qualifications in Nautical Cartography

**Pre-work:** Online initial conversation is appreciated and could be part of the approval process.

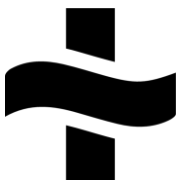
**Follow up work:** Online support if the secondee is implementing new methods in their home office. Secondee to provide a journal / article to IC-ENC sharing their experience. Secondee to share their learnings at IC-ENC Technical Conference. Any relevant information to be shared with Members via the IC-ENC LMS.

**Participation:** 1 delegate

**Language:** Dutch or English

**Deadline for applications:** 31st July 2024

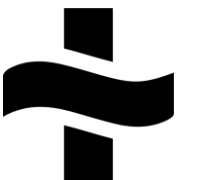
[Click here to apply](#)





## ENC Validation Service

- **Once your office is “up and running”** ...IC-ENC conducts independent validations on data it receives
- Ensure conformance to S-57 and S-58 standards and IC-ENC Policy
- 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



## Validation Checks

### Coverage Checks

- For new editions and new cells IC-ENC checks for gaps and overlap
  - Ensure **seamless non overlapping ENC coverage in line with WEND principles**
- Gaps and Overlaps are recorded and reported to the producer
- Reports are also provided to Regional Hydrographic Commissions and IHO Working Groups

### Consistency Checks

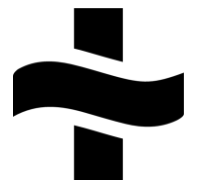
- Consistency checks cover the following;
  - Horizontal Consistency
  - Vertical Consistency
- Ensuring consistent data capture on adjoining and overlapping ENCS to ensure mariner always has a safe display
- Consideration of generalisation and the application of SCAMIN

### ECDIS Check

- As part of ENC validation an ECDIS check is included for New Editions and New Cells
- Separately all ENC data is loaded into 3 ECDIS systems to confirm it loads as expected
- This involves visual review of the cell in ECDIS
- Considerations include;
  - SCAMIN
  - Display
  - General usability

### S-57 – S-101 Conversion Readiness Checks

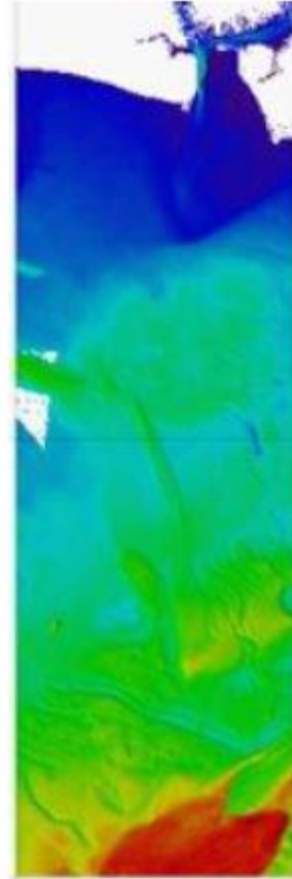
- As part of ENC validation IC-ENC performs S-101 Conversion Readiness Checks on all base cells
- There are currently 20 Checks identified and implemented by IC-ENC
- Checks highlight recommendations for S-57 encoding that can be amended to aid in the automated conversion to S-101 products





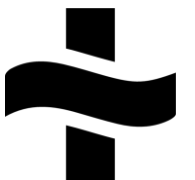
## A word about S-100....

- 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





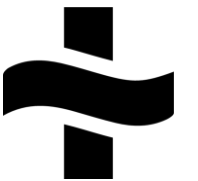
## Revenue Management – “Opt In” fund

IC-ENC Members are supporting an ‘opt in’ fund, whereby a portion of their national ENC revenue is set aside for other projects.

A growing number of Members have ‘opted in’ to this new scheme

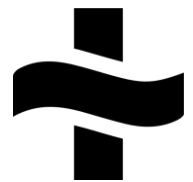
USD 450,000 generated for projects for 2024

Projects supported are for a range of activities including Standards development and **Capacity Building**



## Revenue Management – “Opt In” fund

Ref	From	Role	Member sponsor	Title of proposal	Amount, USD	Benefit areas	Recommendation	Conclusion	Conclusion	Conclusion	Conclusion	STATUS 8/1/23	
2023-01	Julia Powell	S100 WG Chair	US	Development and finalization of S-98	- 50,000	3	Support	Support	Support	Support	Support	Proceeding under the “Unanimous Support” conclusion. Tender is live for suppliers to respond, closing date 15th January.	
2023-02	Julia Powell	S100 WG Chair	US	S-164 – Test Data Sets for S100 ECDIS	- 40,000	3	Support	Support	Support	Support	Support	Proceeding under the “Unanimous Support” conclusion. Tender is live for suppliers to respond, closing date 15th January.	
2023-03	John Nyberg	IHO Director	TBC	IHO Operational S-100 Infrastructure Study	- 20,000		Pause	Pause	Pause	Pause	Pause	Unanimous agreement to PAUSE, further investigation to continue under Work Plan.	
2023-04	John Nyberg	IHO Director	DE	S-122 Marine Protected Area Product Specification Update	- 20,000	3	Support	Pause	Support - but it is not a priority	Support with reservations	Support	Proceeding under the majority view, and noted it is a lower priority than S100 Phase 1 items.	
2023-05	Michael Andrew	S100 Security Scheme PT	AU	S100 Security Scheme - legal advice and contract drafting	- 50,000	3	Support	Support	Support	Support	Support	Proceeding under the Unanimous Support conclusion. Awaiting further response from S100 Security Scheme PT Chair.	
2023-06	Tom Richardson	UKHO	UK	Development of S-101 2.0.0 Test Datasets	- 25,000	3, 4	Support	Pause	Support	Support	Support	Proceeding under the majority view conclusion. Supplier to be identified.	
2023-07	Burak Inan	SHODB	TR	Bespoke two-stage ENC conversion training (4 cohorts, regionally)	- 100,000	1, 2, 5	Support	Support	Support	Support	Support	Proceeding under the Unanimous Support conclusion. 4 regional workshops to be held in 2024. Calling notice for Member participation to be issued by end of January.	
2023-08	Burak Inan	MBSHC CBC	TR	MBSHC ENC QA and conversion workshop	- 20,000	1, 2, 5	Support, with notes	Support	Support	Support	Support agree comment/notes	Support	Proceeding under the Unanimous Support conclusion. Course to be delivered in Istanbul w/c 20th May 2024. Calling notice for Member/MBSHC MS participation to be issued by end of January.
2023-09	Burak Inan/IC-ENC	SHODB/IC-ENC	TR	S102 and S104 training	- 20,000	1, 2, 5	Support, with notes	Support	Support, with notes	Support	Support	Support	Proceeding under the Unanimous Support conclusion. Statement of Requirement is being finalised in order to identify supplier.



# IC-ENC

## Summary

IC-ENC is supporting its:

- **50 Members,**
- 4 Value Added Resellers and 3 Distribution Partners

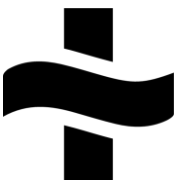
With their existing ENC requirements and their S-100 transition and future needs

We are a **community** and work together. Others are experiencing the same challenges as your office!

We regularly welcome **new members** into IC-ENC. All services are available immediately upon joining (i.e. no additional costs etc)

We look forward to further collaboration with MBSHC region for projects (e.g. training/capacity building) from the 'opt in' fund.

[www.ic-enc.org](http://www.ic-enc.org)





## Useful links on aspects covered in this presentation

[Production Support — IC-ENC](#)

[Learning Management System — IC-ENC](#)

[Secondments - IC-ENC](#)

[Our Members — IC-ENC](#)

[www.ic-enc.org](http://www.ic-enc.org)

