

# ic-enc

International Centre for Electronic  
Navigational Charts

# IC-ENC Update to NIOHC19

- ▶ IC-ENC Overview
- ▶ IC-ENC RENC Service
  - S-58 Standard
- ▶ IC-ENC Value Added Reseller Services
- ▶ Future look ahead – what next?

# IC-ENC Introduction

- ▶ IC-ENC is a RENC<sup>1</sup> as referenced in the IHO WEND principles
- ▶ IC-ENC was formed in 2002 with 6 members (participating HOs)
- ▶ Our focus is ENC Quality Assurance & Distribution

<sup>1</sup> Regional ENC Coordination Centre

# IC-ENC Members - 44

Argentina

Bangladesh

Chile

Denmark

Germany

Italy

Malta

Netherlands

Pakistan

Philippines

Russia

Solomon Islands

Suriname

United Kingdom

Venezuela

Australia

Belgium

Colombia

Ecuador

Greece

Israel

Mexico

New Zealand

Panama

Portugal

Saudi Arabia

South Africa

Tunisia

United States

Bahrain

Brazil

Cuba

Egypt

Iceland

Malaysia

Mozambique

Oman

Peru

Romania

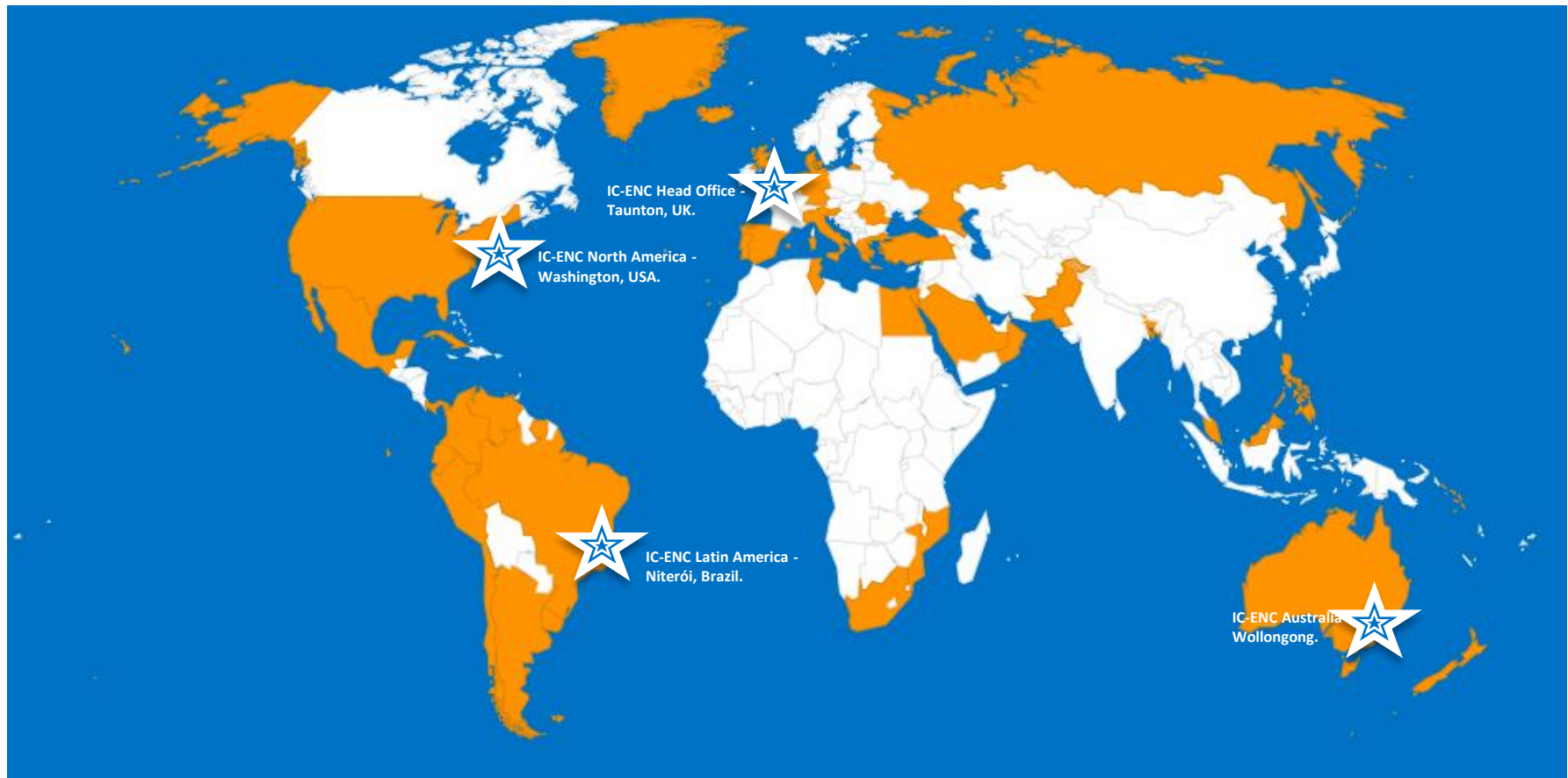
Slovenia

Spain

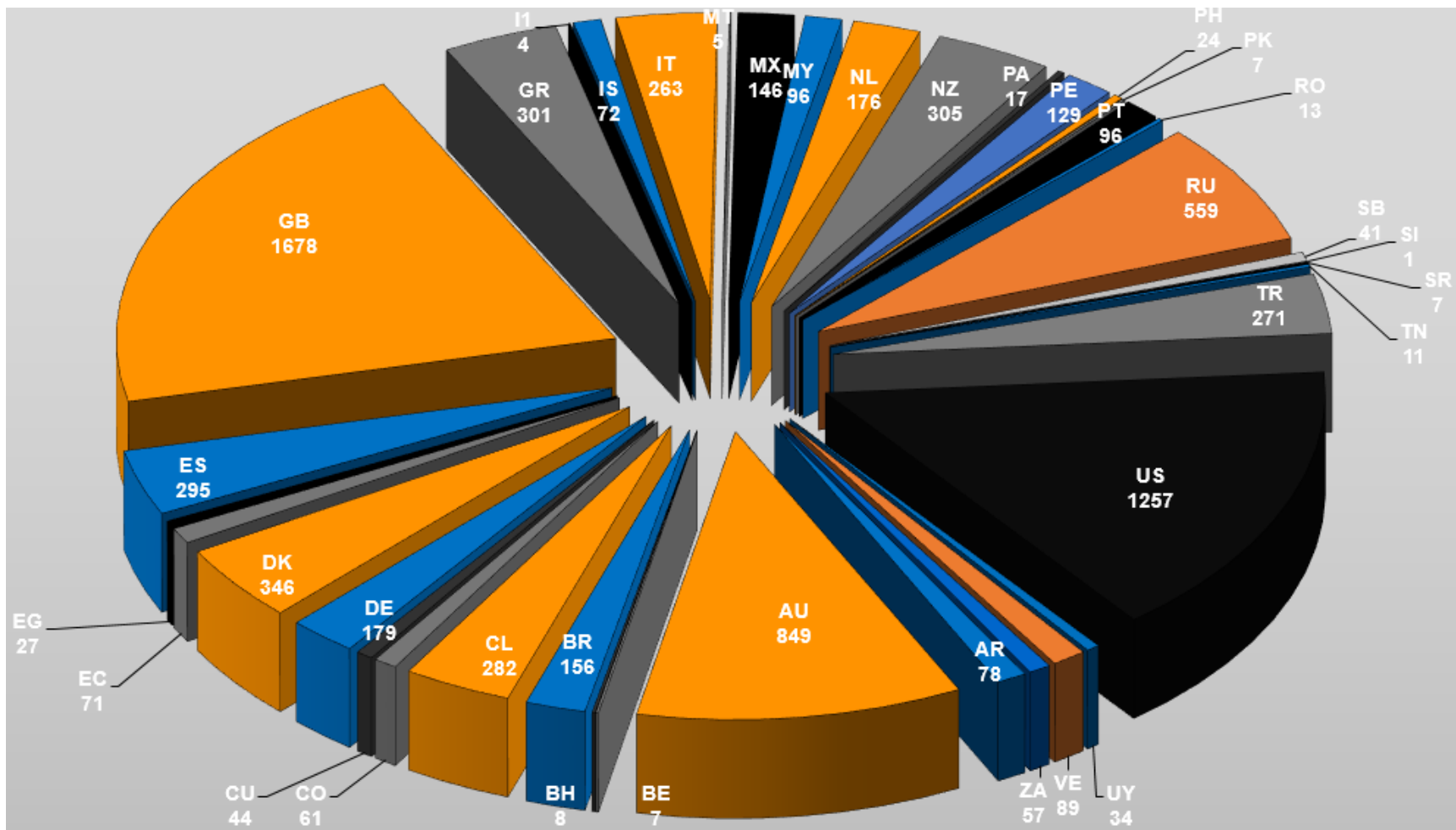
Turkey

Uruguay

# Membership & IC-ENC Offices

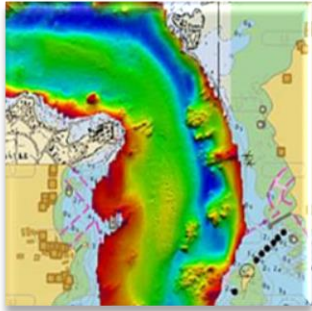


# IC-ENC ENC Folio

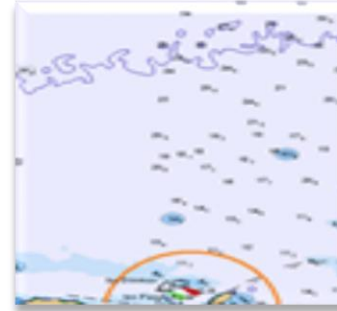




# IC-ENC Core Services



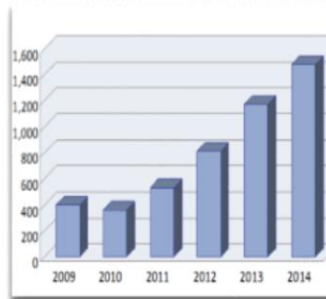
**ENC Production  
Support**



**ENC  
Validation**



**ENC  
Distribution**



**Revenue  
Management**

# ENC Production Support



- ▶ ENC Validation Training
- ▶ Technical Conferences
- ▶ Bespoke Support & Advice





# IC-ENC Errors Database

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Back to Site

ERRORS

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List

lights

Attribute 'COLOUR' must be...

Attribute 'LITCHR' must be g...

Attribute 'ORIENT'

Attribute 'SIGGRP' must be ...

Attribute 'SIGPER' must be ...

ERROR 95:

LG0022: (T1503)

LG0022: (T17

LG0022: (T1750)

LG0022: (T1755)

LG0033: (T1781)

LG0043: (T1778)

LG0044: (T1778)

LG0074: suspicious gap

LG0074: (T1845)

LG0080

LG0085

LG0086: (T0542)

LG0087: (T0065)

LG0100: (T0507) mandatory...

LG0100: (T0507) mandatory...

LG0100: (T0507) mandatory...

List

Filter the list...

ERR\_SPEDGE]

ERR\_WRONG\_USAGE]

Error ( 3, 2)

Error ( 3, 9)

Error ( 5, 2)

Error ( 5, 4)

Error ( 5, 5)

Error ( 5, 6)

Error ( 5, 9)

Error ( 5, 10)

Error ( 6, 2)

Error ( 6, 4)

Error ( 6, 6)

Error ( 6, 7)

Error ( 6, 8)

Error ( 6, 9)

Error ( 6, 10)

Error ( 6, 11)

Error ( 6, 13)

Error ( 6, 15)

ERROR

EXAMPLE

DESCRIPTION

Impact\_Assess...

User\_impact

Ref

Cross\_ref

Object\_Grouping

Last\_Updated

Error ( 5, 5)

Error ( 5, 5) in object FE0000001987 (class HULKES) at hex offset 00001663: Inadmissible attribute in object: CONDTN.

HO TO CORRECT:  
Any incorrect object/attribute value combination that has a detrimental affect on the product.

Variable impact depending on attribute, object and navigational importance of the actual object.

Variable, depending on the attribute in question. If the attribute is illegal or unreadable this may affect the ECDIS display / interrogation of the object.

UOC 4.6.8

VS57\_ERR\_RECFAIL

Attribution - all objects

source

TRANAS ECDIS

TYPE

HO MUST CORRECT / HO SHOULD C

Error\_explanat...

An apparently invalid attribute has been

DESCRIPTION...

HO MUST CORRECT:  
Any incorrect object/attribute value combination that may lead to a potentia dangerous situation. E.g unreadable DR

Validator\_Notes

The original classification was FAIL / ERRONEOUS  
  
SEE EDBCF\_08\_124.  
  
When reviewing this error, look at the re object in the ECDIS to confirm that the

Required\_action

If this error has been reported genuinely attribution of the object should be amen conform to the S-57 Standard. When assessing the error remember that there be other software test errors (both Dkart Analyzer) that refer more specifically to same problem. If so, use these other en

Cross\_referenc...

c\_list

ic-enc

DESCRIPTION

HO TO CORRECT:  
If the encoded object class does not exist in S57 Appendix A (Object Catalogue) Chapter 1 or its use is not permitted in S57 Appendix B:1 (ENC Product Specification)

Impact\_Assess...

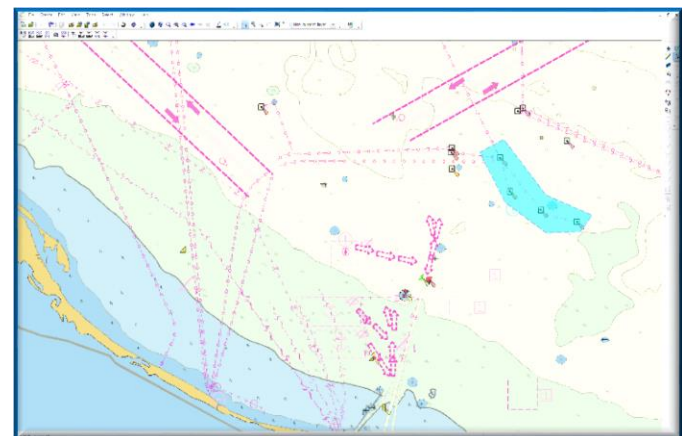
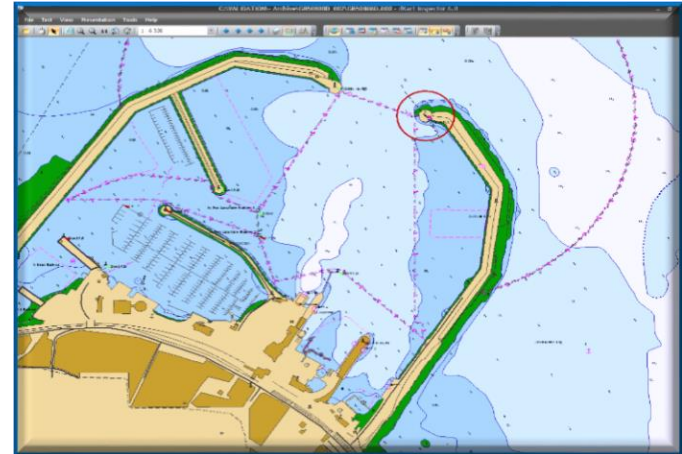
DESCRIPTION...

HO MUST CORRECT:  
If the encoded object class does not exist in S57 Appendix A (Object Catalogue) Chapter 1 or its use is not permitted in S57 Appendix B:1 (ENC Product Specification)

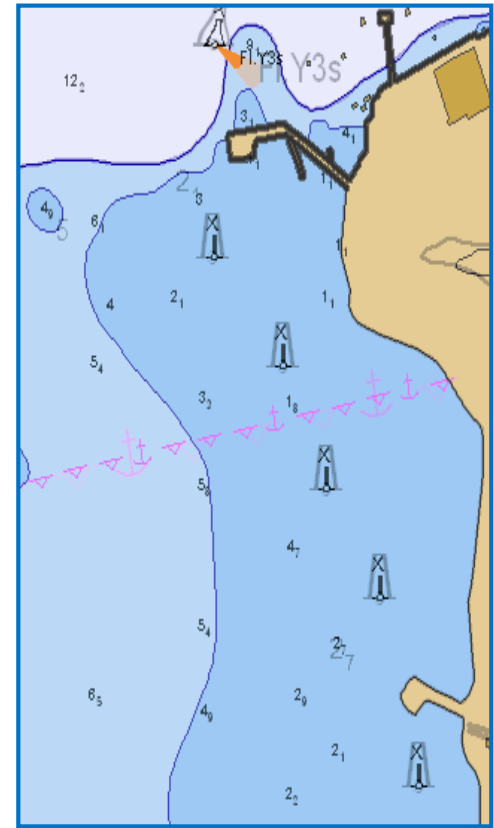
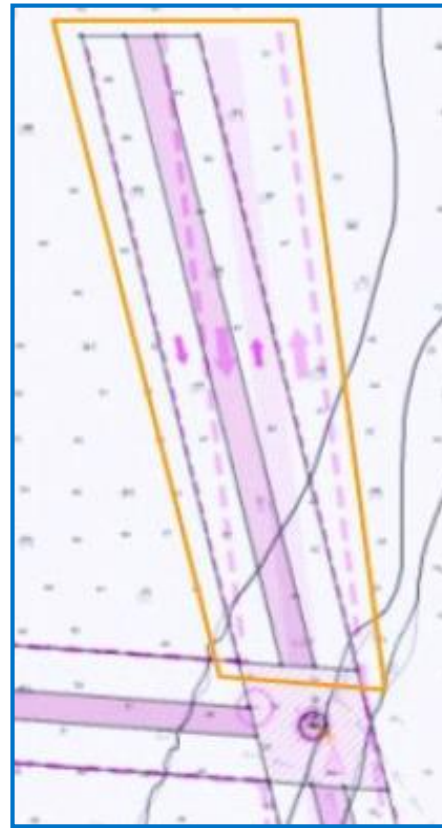
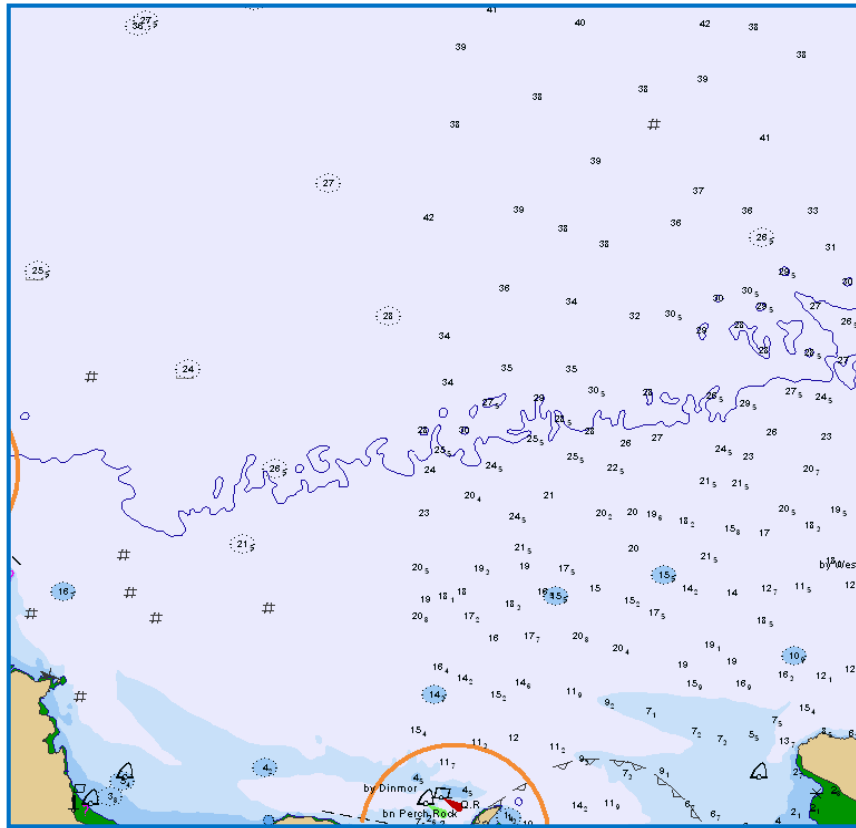
ERRONEOUS:  
If the encoded object class does exist in S57 Appendix A (Object Catalogue) Chapter 1 and its use is permitted in S57 Appendix B:1 (ENC Product Specification)

# IC-ENC Validation

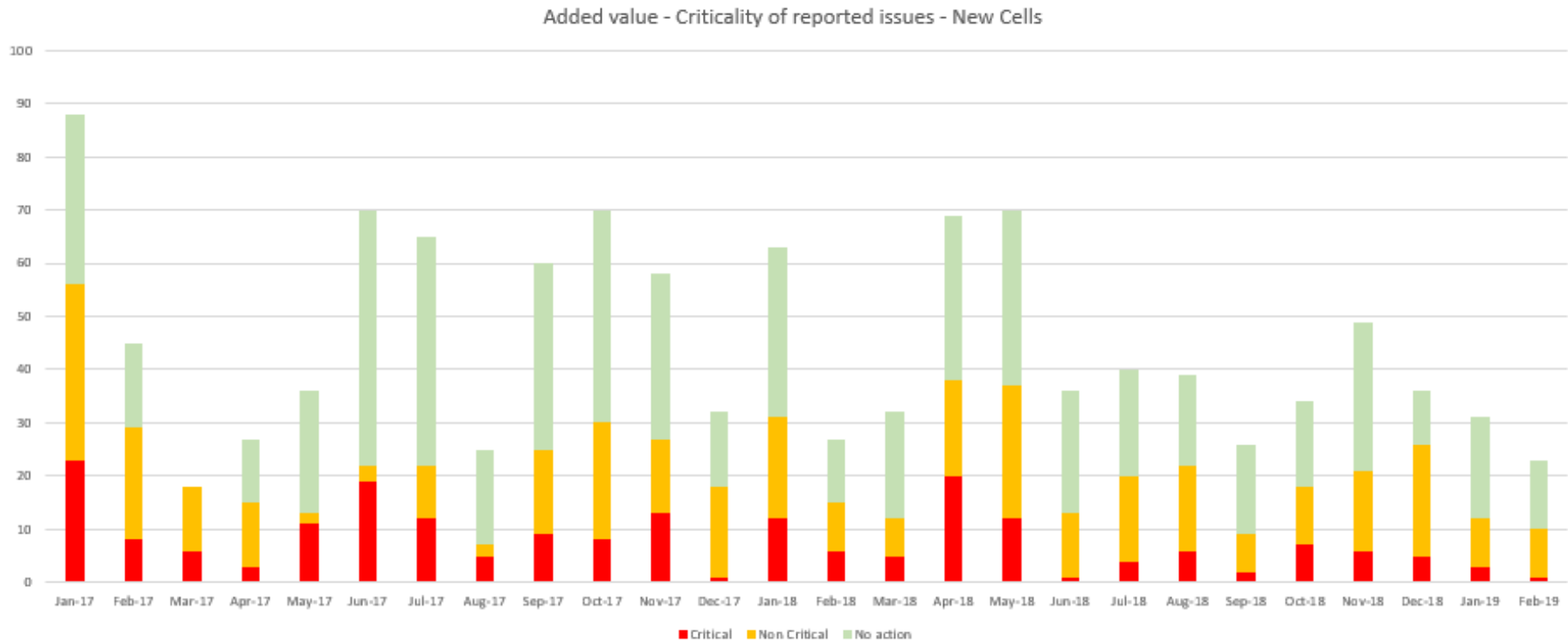
- ▶ Software analysis and testing
  - Assessment of S-58 errors
  - Exchange set checks
- ▶ IC-ENC validation team expertise
  - Consistency Checks
  - ECDIS Checks



# Validation: much more than just ic-enc technical compliance



# New Cell Validation – severity of issues identified



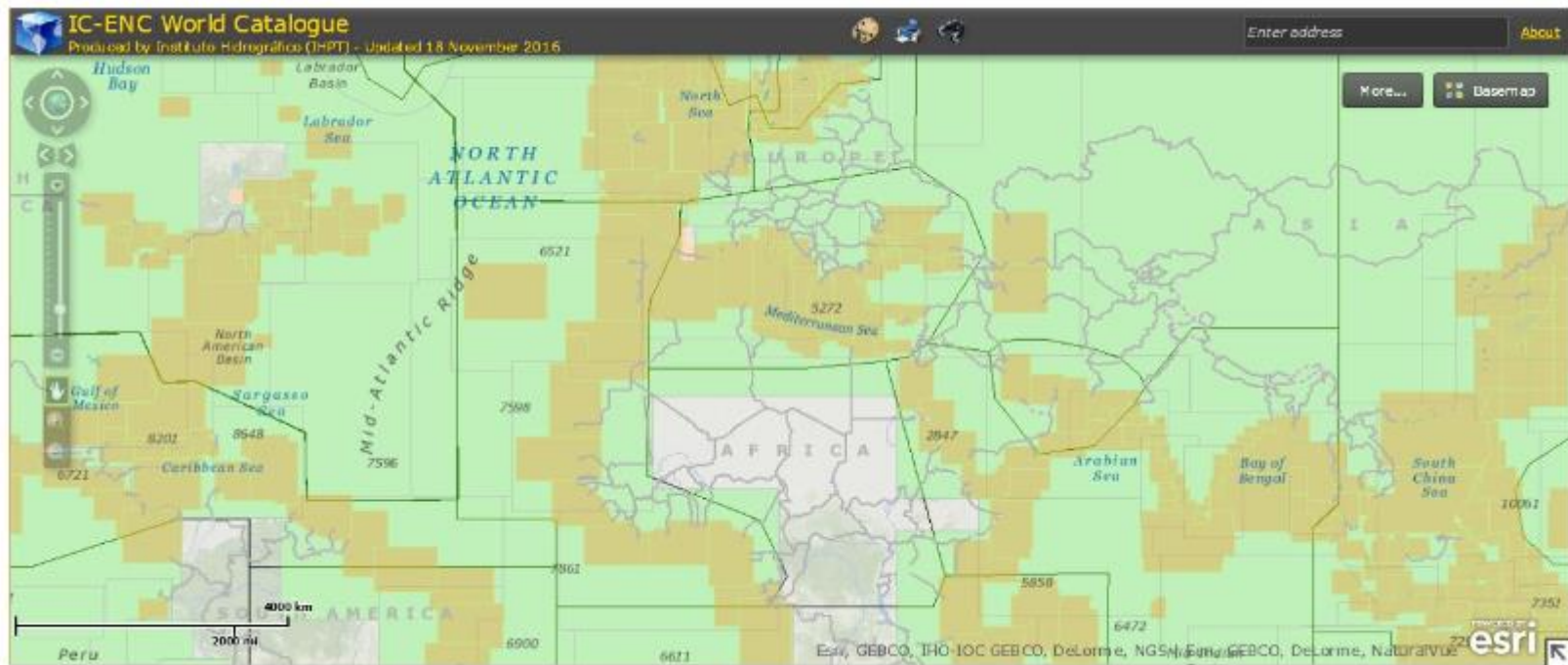
# S-58 (ENC Quality Assurance Standard)

- ▶ Aim is to ensure a 'minimum standard' of ENCs, with three categories of issue:
  - Critical, Error, Warning
- ▶ It is expected that Critical issues will need to be resolved before an ENC is issued...
- ▶ While the aim is admirable, the issues categorised as Critical are (in IC-ENC's opinion) *almost* correct
- ▶ Some HOs will be affected more than others
- ▶ IC-ENC Partnership Approach will be used.

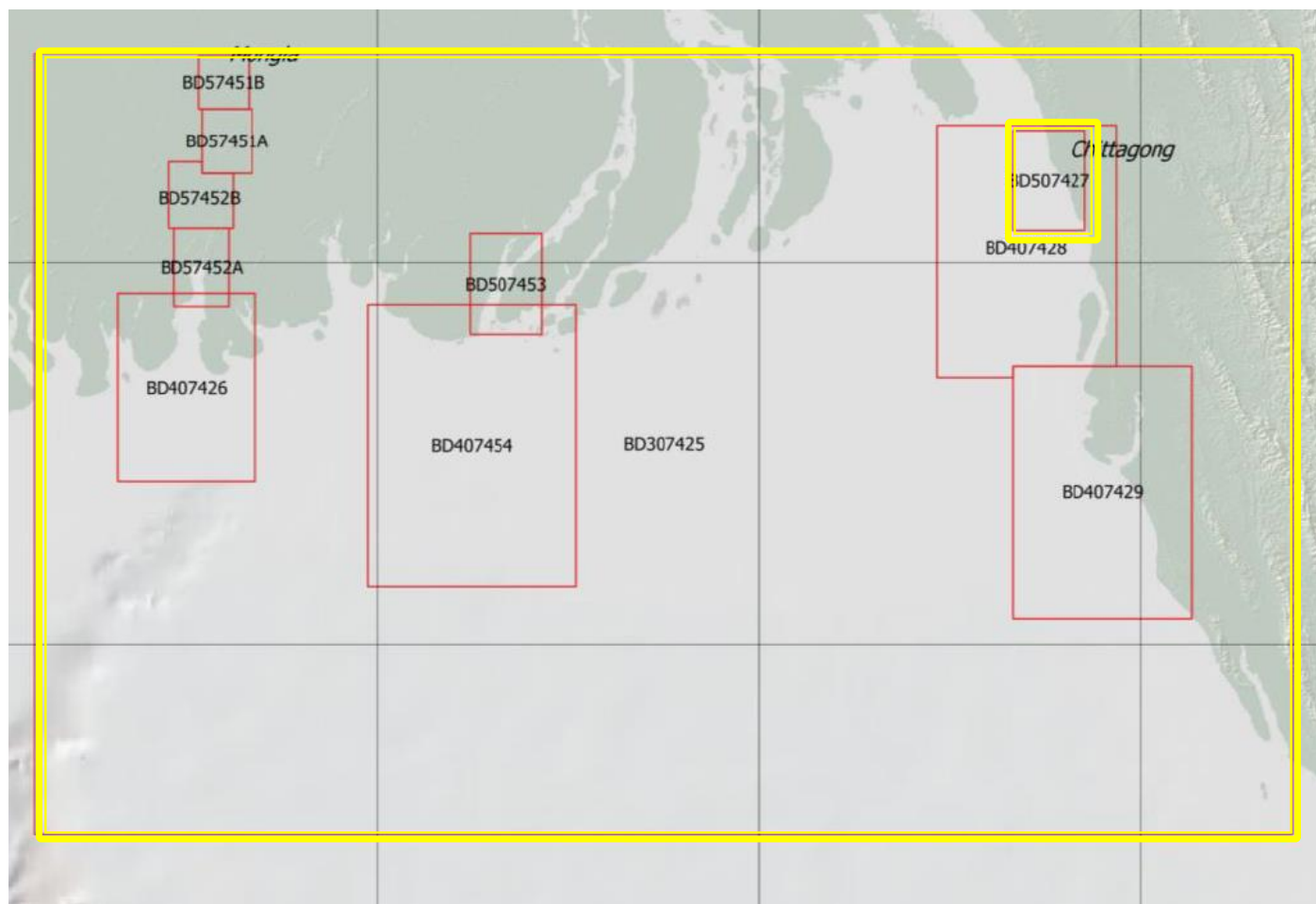


# Ensuring seamless coverage ic-enc

- ▶ IC-ENC act as coordinators for consistency between HOs in resolution of overlap and gaps
- ▶ Coordinate cancellation and replacement coverage on behalf of new and developing producers



# March 2019: BD replacing GB



# ENC Distribution - VARs



## Value Added Resellers

# Examples of VAR services

- ▶ VARs invest and develop their own services regarding ENC's
- ▶ The advantage of this is that it gives choice and drives innovation and high quality customer service
- ▶ The following examples illustrate this principle...

# Chartworld

[ECDIS Solutions](#)[OnBoard](#)[OnRoute](#)[OnShore](#)

## Electronic Navigational Charts

Our range of electronic navigational chart offerings and services.

**Official ENCs**



**ENC Distribution**

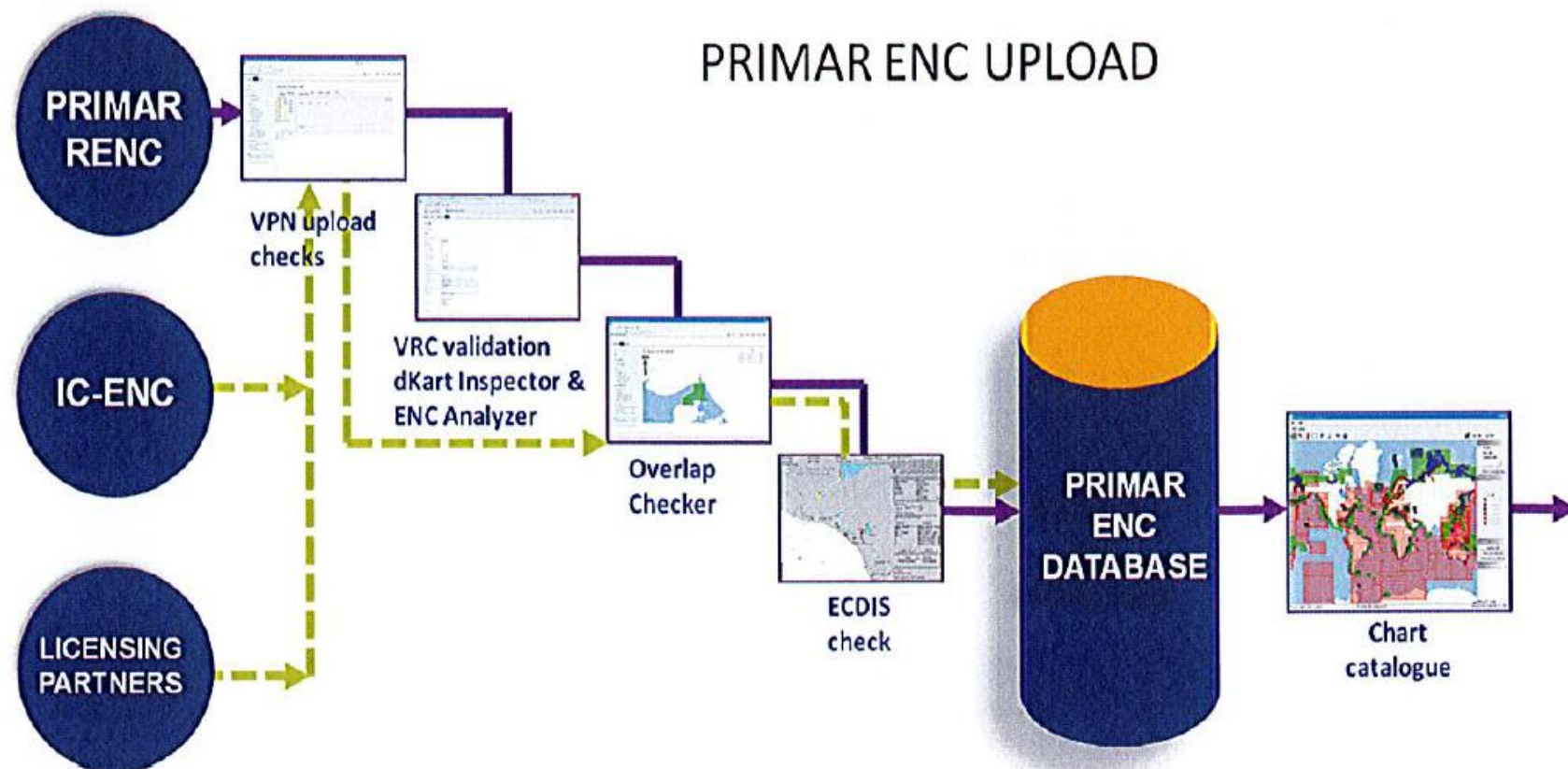




# Datema



# PRIMAR



# Admiralty

**ADMIRALTY**  
Maritime Data Solutions

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**AVCS**

**ADMIRALTY**  
Vector Chart Service

The world's most chosen ENC  
service for ECDIS

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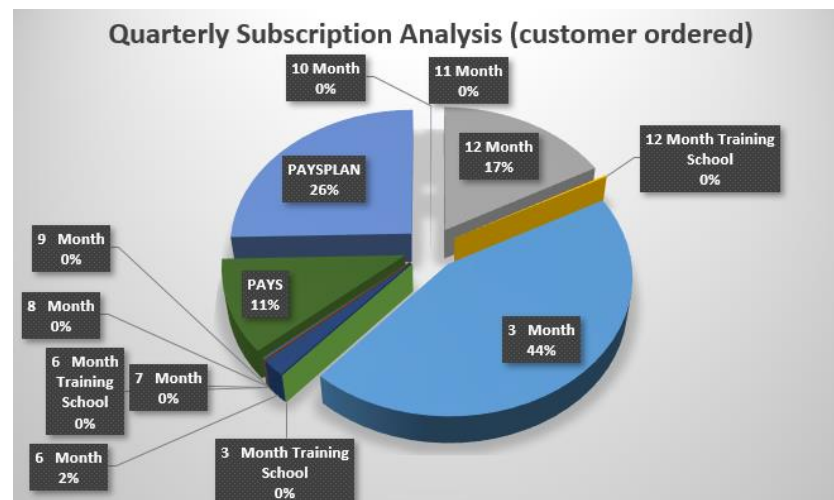
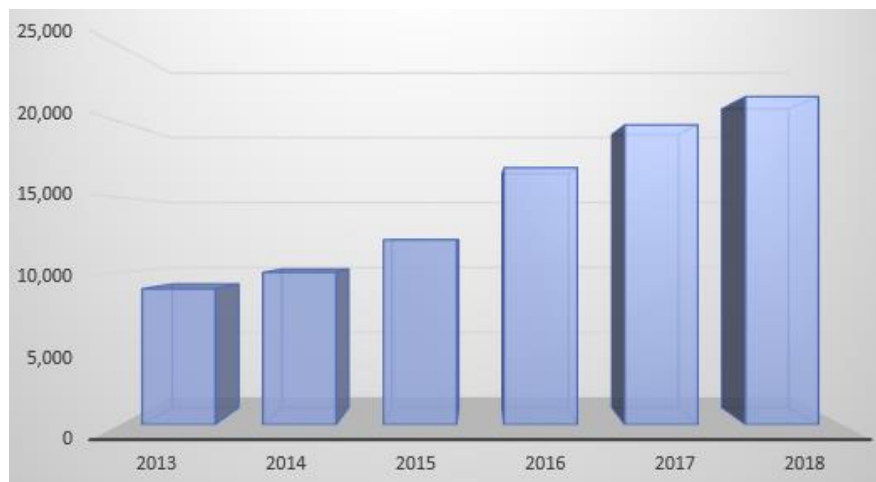
# IC-ENC and the VARs

- ▶ Monitor & audit VAR activity according to the contractual terms & the licensing permissions
- ▶ Every ENC sale must be recorded within 24 hours of being made
- ▶ IC-ENC manages the collection and settlements of ENC revenue generated.



# Sales report information

	Vessel Nm	IMO Number	Non IMO	Cell Name	Cell Title	Subscription Type	Description	Contract start	Contract end	Total IC-ENC Fee	Total HO Fee	Sales Volume
0	The Prospector	IMO9492323		PAYSPBE	IC-ENC PP Belgium	7	PAYSPLAN	17.12.2018	31.03.2019	\$0.15	\$0.75	0.25
1	Thetagas	IMO9368792		BE5ANTWN	Antwerpen Noord	7	3 Month	13.12.2018	31.03.2019	\$0.15	\$3.60	0.30
2	Thetagas	IMO9368792		BE3VLBNK	Flemish Banks	7	3 Month	13.12.2018	31.03.2019	\$0.15	\$3.60	0.30
3	Thetagas	IMO9368792		BE4VLBNK	Approach to Zeebrugge and Oostende	7	3 Month	13.12.2018	31.03.2019	\$0.15	\$3.60	0.30
4	STI LA BOCA	IMO9785718		BE4VLBNK	Approach to Zeebrugge and Oostende	7	3 Month	14.12.2018	31.03.2019	\$0.15	\$3.60	0.30
5	CONTI BENGUELA	IMO9391373		BE3VLBNK	Flemish Banks	7	PAYS	14.12.2018	13.03.2019	\$0.15	\$3.60	0.30
6	CONTI BENGUELA	IMO9391373		BE4VLBNK	Approach to Zeebrugge and Oostende	7	PAYS	14.12.2018	13.03.2019	\$0.15	\$3.60	0.30
7	RCC Passion	IMO9453107		BE4VLBNK	Approach to Zeebrugge and Oostende	7	PAYS	10.12.2018	09.03.2019	\$0.15	\$3.60	0.30
8	RCC Passion	IMO9453107		BE3VLBNK	Flemish Banks	7	PAYS	10.12.2018	09.03.2019	\$0.15	\$3.60	0.30
9	FURE VINGA	IMO9739800		BE3VLBNK	Flemish Banks	7	PAYS	14.12.2018	13.03.2019	\$0.15	\$3.60	0.30
0	FURE VINGA	IMO9739800		BE4VLBNK	Approach to Zeebrugge and Oostende	7	PAYS	14.12.2018	13.03.2019	\$0.15	\$3.60	0.30
1	FEDERAL DELTA	IMO9805271		BE3VLBNK	Flemish Banks	7	3 Month	14.12.2018	31.03.2019	\$0.15	\$3.60	0.30





# What next for ENC*s* & RENC*s*?

- ▶ S-101 ENC Standard
  - Interoperability with other S-10x data standards
- ▶ S-10x new data types
- ▶ Using ENC*s* more widely
  - Licensing service to support safe navigation of non-ECDIS equipped craft

# Non-ECDIS navigation management service

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- ▶ Proposal for consideration by IC-ENC members is in development.
- ▶ Challenge is to replicate the benefits of ECDIS distribution, but without the 'backing' of such strong regulation, nor the Standards

# Non-ECDIS navigation management service

- ▶ Data Coverage, Data Supply & Updating,
- ▶ System – Display and functionality
- ▶ Data Protection / Integrity,
- ▶ Licensing terms (duration etc)
- ▶ Costs & Revenue

# IC-ENC Steering Committee

- ▶ Agrees IC-ENC services, budget, provides support and guidance. Next convenes in July to consider future opportunities.



# Summary

- ▶ IC-ENC's services support HOs with their ENC requirements.
- ▶ The VAR network is a key concept in the ENC distribution chain.
- ▶ We have 44 Member HOs with over 8000 ENCs
- ▶ S-57 WEND is established, and successful
  - S-101 WEND is coming
  - S-10x is coming too
  - Quality Assured, Official, data to as many users as possible – safe navigation!



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