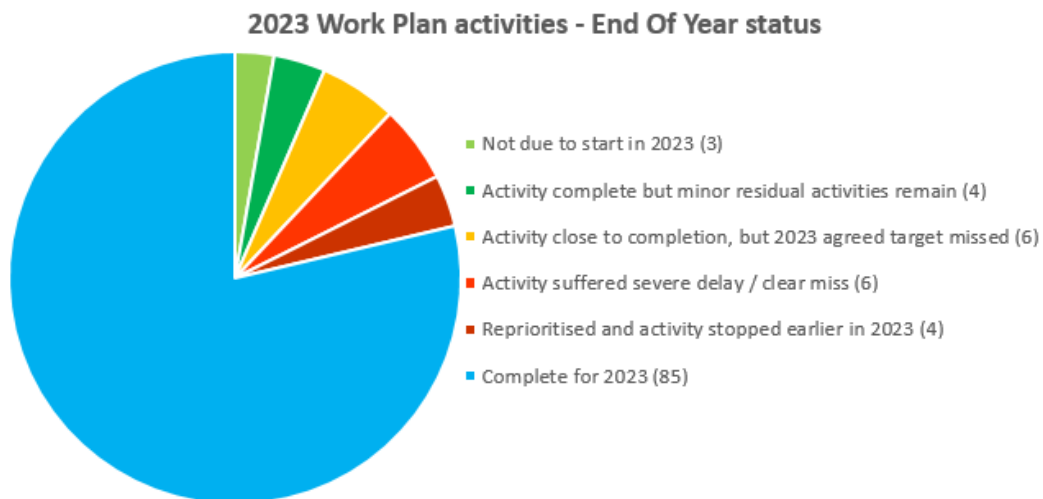


## IC-ENC End Of Year Report: 2023 Summary

IC-ENC has made good progress across the breadth of an ambitious 2023 Work Plan which contained 108 activity lines. Full details on the status of each activity is provided in the Excel file. The following provides the Steering Committee with a high-level overview of the progress made and the challenges faced.



The large majority of these are assessed as either Complete for 2023 (85) or “Activity complete with minor residual activities remaining” (4). The IC-ENC team provide a highlight summary/narrative in the final section of this report.

Over 2023, we have completed 16,448 ENC validations, and **461 ENC files that had ‘safety critical errors’ were identified by IC-ENC and stopped from entering user services**. The ENC folio has grown by 19% from 9,916 to 11,832 over the year. The 2023 ENC service success measures are detailed in Annex A.

6 activities are assessed as “Close to completion but 2023 agreed target missed”. Most notable are the staffing gaps carried by the team, integration of the S100 Exchange Set Tool with the Data Management Database, and technology improvements to the ENC gaps/overlaps process.

6 activities are either severely delayed/suffered a ‘clear-miss’ and 4 were reprioritised earlier in the year and either stopped or postponed. Most notable are the cloud environment for practical training (now due for completion Feb 2024), developing the Type 2 design of the ECD Service, Inland ENC assessment.

Finally, a further 3 activities in the Plan have not yet begun (by design, these were activities for later in the 2023-25 range).

For the detailed status of each 2023 Work Plan activities, see the Excel file.

## Summary of the 2023 successes from the IC-ENC team

# IC-ENC

## 2023 Round Up



16,448 ENCs Validated



2 new Members onboarded



13 seminars delivered with 423 attendees



6 Member folio's added to the ECD service



3 successful conferences delivered with a combined attendance of 238



19% ENC folio growth

### ENC services

#### IC-ENC Folio Growth

During 2023, IC-ENCs folio has grown significantly. In March we celebrated reaching 10,000 ENCs in the folio which was celebrated at the TC23\_1 with a Danish ENC being the 10,000<sup>th</sup> cell. By the end of 2023, IC-ENCs folio has continued to grow, validating a total of 16,448 ENCs and completing the year with a folio in excess of 11,800 ENCs.

#### Daily Release of ENC Updates

Daily Releases were made available for IC-ENC VARs early 2023. This enabled the rapid release of validated S-57 ENC Updates to VARs, therefore reducing the release process time whilst maintaining data integrity and release checks. It is now possible for Priority S-57 Updates to be provided to IC-ENC, registered, validated, and released to VARs within 24 hours.

## International Validation Team collaboration

During November the IC-ENC regional office validation team visited IC-ENC HQ. This enabled the team to build a strong team bond as well as enable training and sharing of knowledge. Training included S-57 validation best practice along with introducing the validation team to S-101 activities being conducted by IC-ENC.

## ENC Conversion Support Service Launched

Following extensive research with UKHO/CARIS and membership engagement through a number of TCs, SC24 agreed the way forward for IC-ENC to support Members through the IC-ENC Conversion Readiness service.

## ENC Audit Tool

During its first 12 months the ENC Audit Tool has highlighted areas for attention in the reporting processes of the distribution channel (immediately recovering over \$1m of Members revenue, see IC-ENC 2022 EOY Financial Report for details). Through working extremely quickly to act on findings and further issues, we now plan to implement automation of reports and more preventative controls to provide early alerts.

## VAR Audit

An inaugural VAR Audit was conducted. This highlighted a number of areas where we rely on control-based measures to monitor compliance, rather than a preventative approach to support our VARs in performing within the terms of our agreement. A key point highlighted was the lack of assurance around PAYS certification. We were able to act on the observation of the audit to propose and publish a change to our Joint-RENC specification, which ensures VARs are supported in the monitoring of their PAYS solution providers.

## S-100 Services

### S-1XX Service Developments

IC-ENC has continued to develop the first generation of S-1XX services and S-128 generation during 2023 as the standards continue to change. We look forward to receiving more trial S-1XX datasets in 2024 and conducting trial services, beginning with the S-101 trial service with NL in Q1 2024. We will continue to iterate these services as the standards begin to stabilize towards the end of the year. IC-ENC has also developed the S-104 Registration Checks and draft S-101, S-102, S-104 and S-111 Metadata templates have been developed for Member review, to standardise the CATALOG.XML for minimum content.

### S-104 & S-111 Batch Processing

IC-ENC have updated the DMD workflow tool to be able to ingest, register, validate and release S-104 and S-111 datasets whilst maintaining data group integrity and employing logic to maintain data



Figure 1. IC-ENC Regional Offices visit HQ

throughput. Any set of S-104 or S-111 data can now be passed through IC-ENC systems, registration and integrity checks applied and released with minimal human intervention.

### S-100 Product Development & Testing (PDT) License

IC-ENC has now released over 1,000 S-1XX trial datasets into the PDT scheme and has set up a recurring feedback loop to gain feedback on these datasets. The scheme has also recently been extended to include Members as signatories to share their data with each other.

## Membership and community

### Two New Members

In 2023, we welcomed two new Members to IC-ENC. Fiji joined as the 49<sup>th</sup> Member in July and Indonesia as the 50<sup>th</sup> Member in October.



Figure 2. 49th Member, Fiji, visit UKHO



Figure 3. 50th Member celebrations with Indonesia

### Technical Conferences

In March, the first ever hybrid Technical Conference, was well received by delegates (52 in the room and 59 online). Content included the full package of the Conversion Readiness service and S-57 and S-1XX service developments, with BE, ID and UK sharing their production experiences of S-101. In October, 65 delegates attended the second TC of the year virtually to discuss Dual Fuel production, Industry updates and our Empowering Women in Hydrography secondee presented on her IC-ENC Knowledgebase project and the recommendations for improvements.



Figure 4. IC-ENC Technical Conference (TC23\_1) in Antwerp, Belgium



## Steering Committee 24

In July, we held another successful Steering Committee meeting in Bristol, UK, where a total of 82 attendees joined. 46 in person and 36 online. The agenda was packed, covering topics such as ENC & S-10x services, Distribution, S-57 to S-101 Conversion and Production Support plans. At the end of the meeting, IC-ENC were thrilled to appoint Burak Inan as IC-ENC Chair, and Leendert Dorst as third Vice Chair alongside Michael Andrew and Pia Højgaard.



Figure 5. IC-ENC Chair Team at SC25



Figure 6. Group photo at SC25 in Bristol

## Help and support

### Training

IC-ENC delivered a wide range of successful training courses in 2023 to meet the needs of Members. In June, 206 learners attended the Introduction to S-100 Seminar. Later in the year 143 learners signed up for the S-57 to S-101 Conversion Training Course. Other training events include Industry partners holding bespoke seminars as requested by our Members and the IHO ENC Singapore Innovation lab conversion workshop.

We held our first face to face S-57 Validation training course since the Covid pandemic. This was held in December and was attended by 8 Members. Learners were shown how to assess S-57 ENCs and the validation process that IC-ENC undertake. S-101 learning and conversion readiness checks were also incorporated into the course.



Figure 7. Face to face Validation training with 8 Member delegates

## Learning Management System

We currently have 404 active accounts on the LMS. There are now dedicated dashboards for Gridding and HD ENCs, with additional dashboards for S-10x being developed. Members are also submitting their own material to enrich the LMS whilst sharing their knowledge and experience with others.

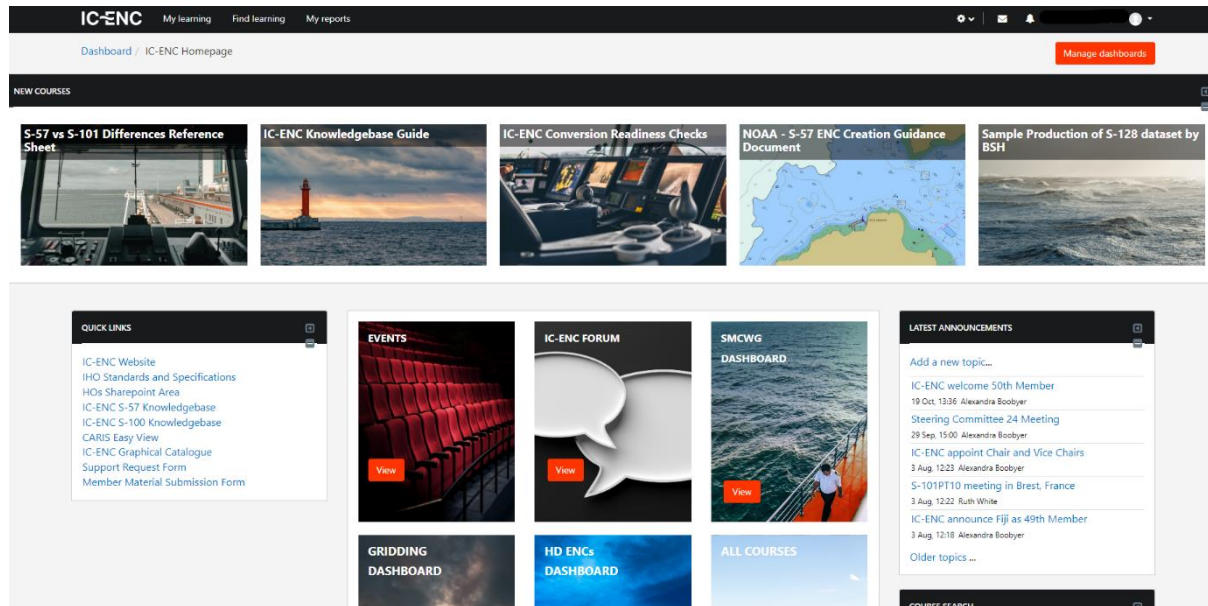


Figure 8. Screenshot showing the Learning Management System homepage

## Knowledgebases

The **S-57 Knowledgebase** remains up-to-date with the latest versions of 7Cs Analyzer and dKart Inspector. In October, we launched the **S-100 Knowledgebase** which contains the S-1XX ingest & registration. The **ENC Conversion Knowledgebase** has also just been launched, which includes conversion log messages from CARIS HPD software to help Members when they are converting from S-57 to S-101.

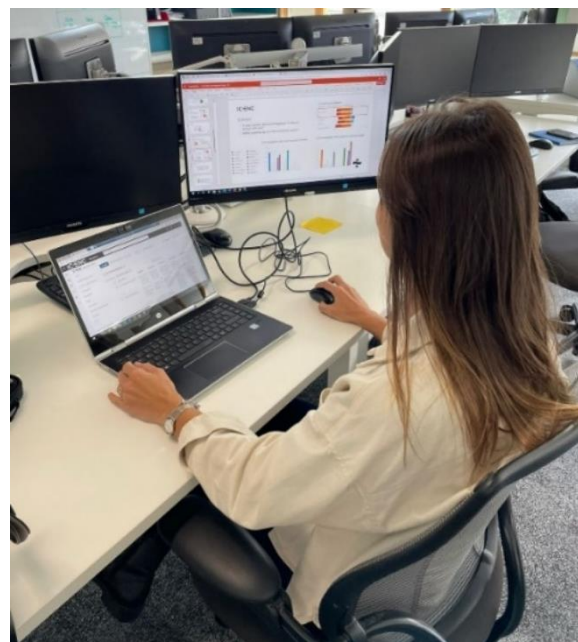


Figure 9. EWH candidate, Juliane Affonso, working on the IC-ENC Knowledgebase.

Annex A – ENC Service success measure results for 2023

Ref	Measure	Purpose	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	
T1	IC-ENC Validation time: Updates; 2 working days. Target >95%.	A measure of our timeliness of service performance	88.67*	95.68*	94.33*	97.20*	99.30*	99.76	96.58	98.5	96.07	99.76	99.89	98.27	98.40	
	IC-ENC Validation time: Cancellation Updates; 3 working days. Target >95%.		95.45*	100*	100*	100*	92.31*	96.43	100	100	96.97	100	100	100	99.06	
	IC-ENC Validation time: New Editions; 5 working days. Target >95%.		100*	99.20*	99.24*	98.67*	98.03*	94.13	96.52	98.8	94.6	95.72	98.58	99.12	96.78	
	IC-ENC Validation time: New Cells; 10 working days. Target >95%.		98.75	96.43	70.92	93.22	81.07	96.79	84.57	94.09	100	99.55	98.89	97.55	92.65	
	Total number of ENC files validated:		1130	1260	1476	1098	1532	1454	1357	1495	1277	1517	1401	1451	16448	
	Total number of ENC files with Safety Critical errors prevented from being released:		42	39	35	52	39	45	55	29	21	32	37	35	461	
T2	IC-ENC Release; % ENCs that have passed validation are released by IC-ENC within (an average of) 2 working days	A measure of our timeliness of service performance.	59.7	61.27	70.53	75.81	71.99	76.15	71.2	77.8	78	74.89	79.73	78.33	73%	
T3	(UKHO) Verification; 30 working days	A measure of our timeliness of service performance.	4 x 71 4 x 34	4 x 35	0	8 x 25	0	0	0	0	0	0	0	20	n/a	
Q1	ENC Integrity: 100% of ENCs released to IC-ENC VARs have their integrity maintained.	A measure of our accuracy and safety of service	100	100	100	100	100	100	100	100	100	100	100	100	100	
Q2	ENC Quality: "Urgent" ENC improvements identified by users are reviewed by IC-ENC within 2 working day, and IC-ENC re-validates/releases any resulting ENC changes within 2 working days.	A measure of our timeliness, accuracy and safety of our service	1	0	0	0	0	0	0	0	0	0	1	0	2	
Q3	Metafile Quality: (At least) 95% of exchange sets issued by IC-ENC have accurate & complete metafiles	Metafile Quality: (At least) 95% of exchange sets issued by IC-ENC have accurate & complete metafiles	75	100	100	100	100	100	75	100	100	100	100	80	96.40	