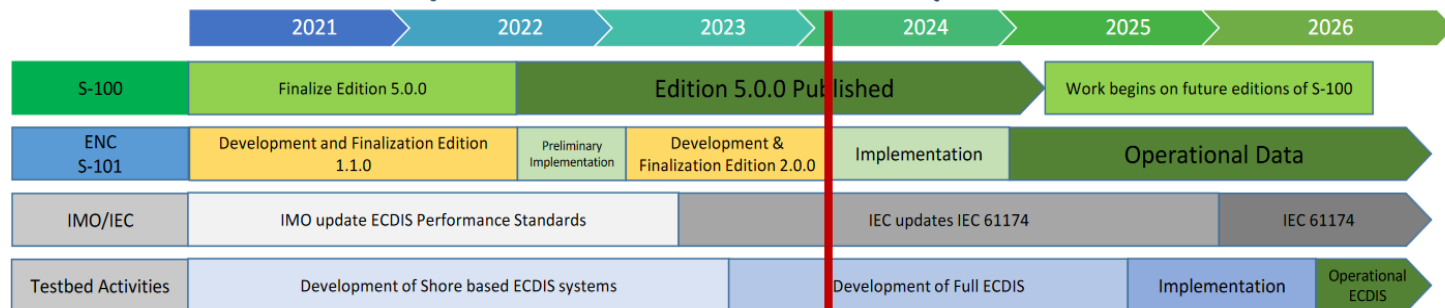


IMPLEMENTATION OF S-100 AT SHOM

S-57 TO S-101 TRANSITION

IHO – IMO S-100 Timeline

S-100 Product Specifications developments and Timeline



- **Operational data S-101 : 01/01/2025**
- **Operational ECDIS : 2026**

**HOs to Produce
Operational
S-101 ENC's**

Current situation and goals

Shom goals for 2025 (IHO schedule) are :

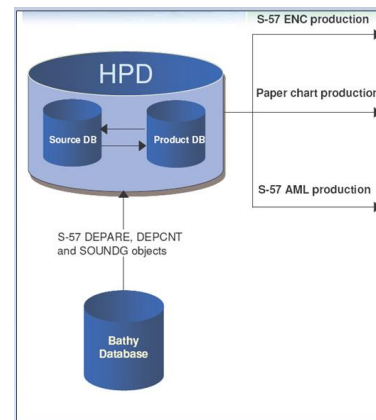
- **To convert Shom ENC portfolio (Around 850 ENC cells) in S-57 to S-101**
- **To produce data directly in S-101 and convert ENC cells to S-57 during the “Dual fuel” period**

Current situation:

- Cartographic and hydrographic data are stored in a S-57 database (Caris) :

All cartographic products are derived from this database:

- ENC : ER and new edition
- Paper Charts: publication , new edition , block correction and Ntm
- Nautical product : List of Lights and fog Signals



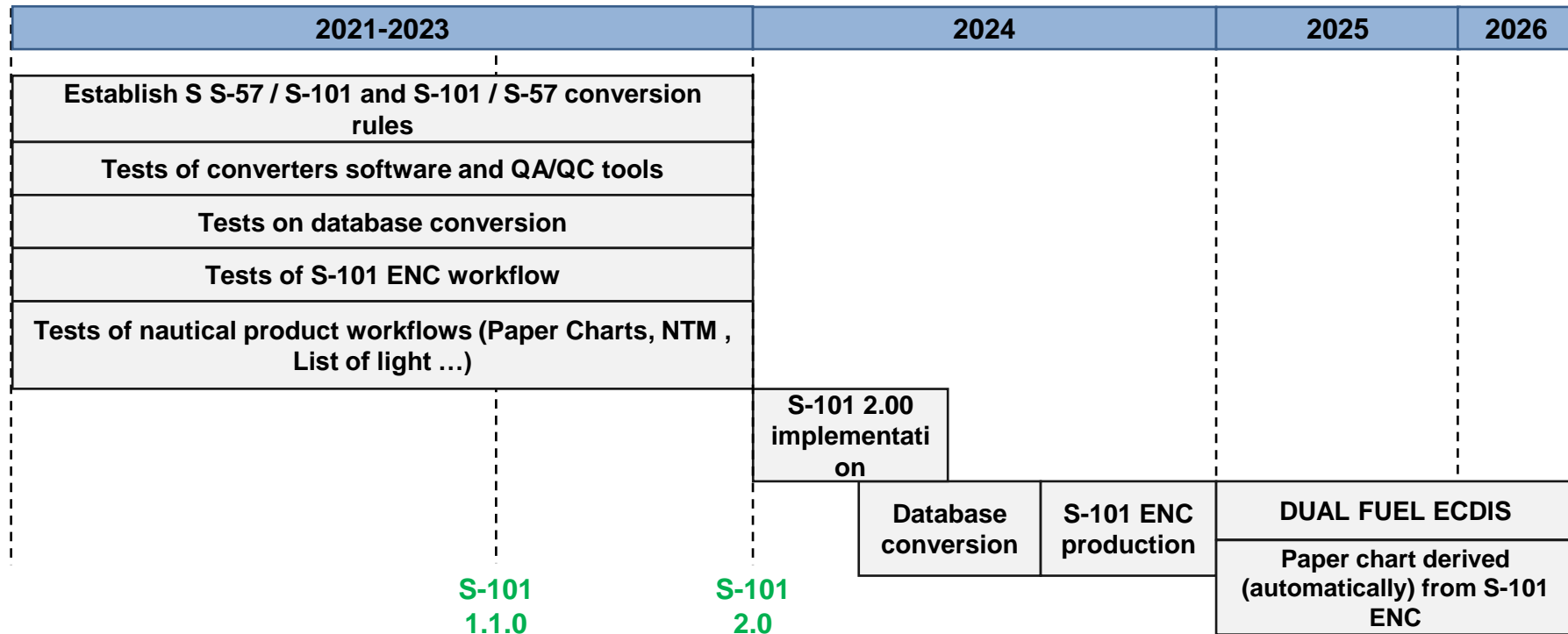
Issues of S-57 to S-101 conversion (1/2)

- **Decide conversion rules for objects and attributes that do not have a direct equivalent in both norms**
 - principal issue in conversion between S-57 and S-101
- **Prepare a Roadmap detailing the transition process:**
 - Develop a scenario to go from databases and products in S-57 to databases and products in S-101
 - List steps and milestones required to follow this scenario
- **Establish procedure for databases conversion**

Issues of S-57 to S-101 conversion (2/2)

- **Set up Production line of S-101 ENC**
 - Define production workflow for new cells and ER
 - Detail tests and validation process
 - Establish process for transmission to PRIMAR (datasets transmission, signature, encryption process)
- **Adapt the production process for paper charts to produce the charts from the S-101 database**
- **Establish organization during and after « dual fuel period »**

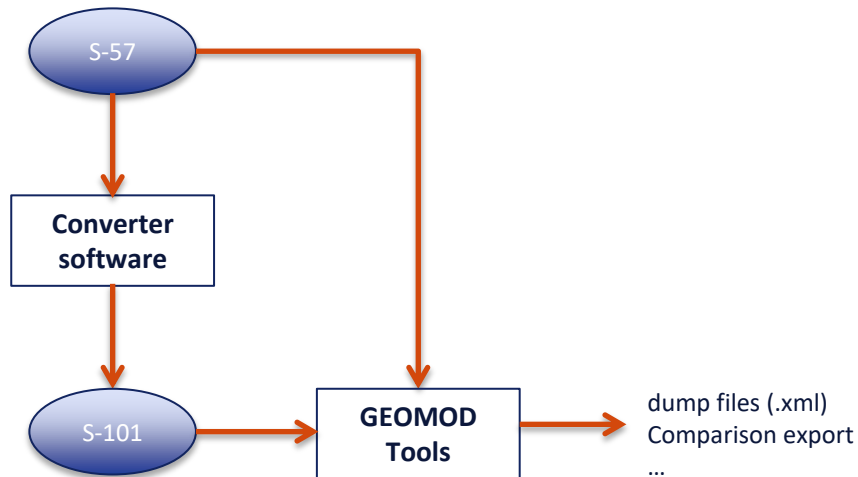
Shom roadmap for the transition to S-101



Converters testing

Benchmark of 5 converters:

- ↓ CARIS
- ↓ ESRI
- ↓ Dkart
- ↓ 7Cs
- ↓ GEOMOD



Resulting S-101 products visualized with the converters and in the NIWC S100Viewer

Comparison between conversion results made using the tools developed by GEOMOD

Converters testing > first results



- Objects or attributes with a direct equivalent in S-101 are in most cases correctly converted
- Some converters allow rules to be customized (rules in a xml file)
- Some converters also allow back conversion from S-101 to S-57



- Some converted cells cannot be opened by the S100viewer, maybe due to topological or S-101 encoding issues
- At the current stage of converter software development, manual input are still needed to populate some of the attributes or metadata
- ER conversion is not possible right now

Converters testing > ongoing actions

Work in progress until 2022 :

- Improvement of test software
- Test of converters software new versions
- Work on customized conversion rules

After 2025

- **Dual Fuel (Shom's approach)**

- Shom only produces S-101 ENC (and ER)
- PRIMAR converts S-101 ENC (and ER) to S-57 ENC (and release S-57 ENC without HO interaction – **ie Shom delegates this task to Primar**)
- => Shom contributes to the international efforts to develop automatic converters (PRIMAR, IHO working group, etc.)

- **Paper chart production**

- Use of tools from S-101 ENC (choice to place toponymy, etc)
- Simplify paper chart (use of symbols, rules, mapping, etc)
- => Automatization of paper chart production from S-101 ENC

Shom innovation laboratory

The « lab »

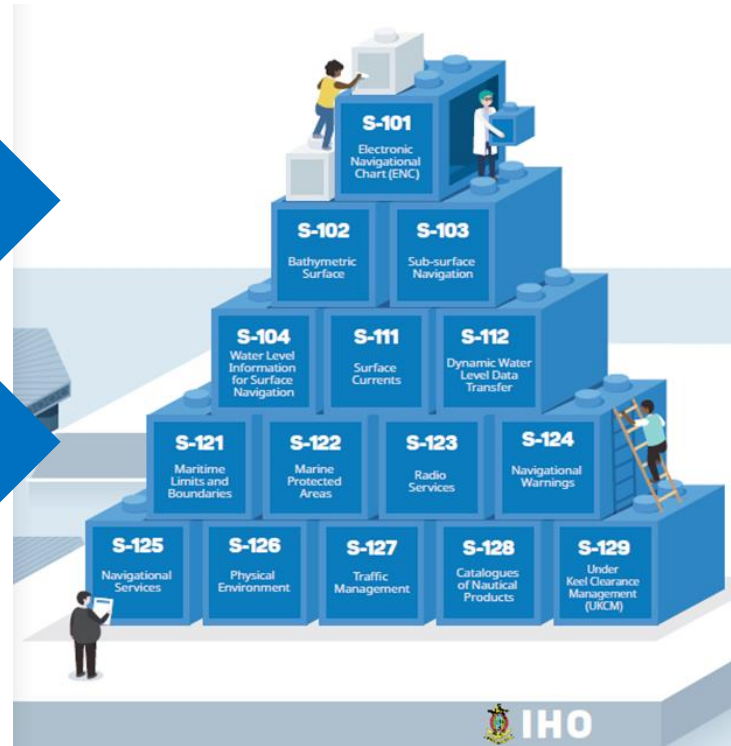
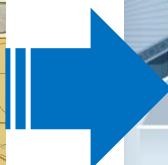
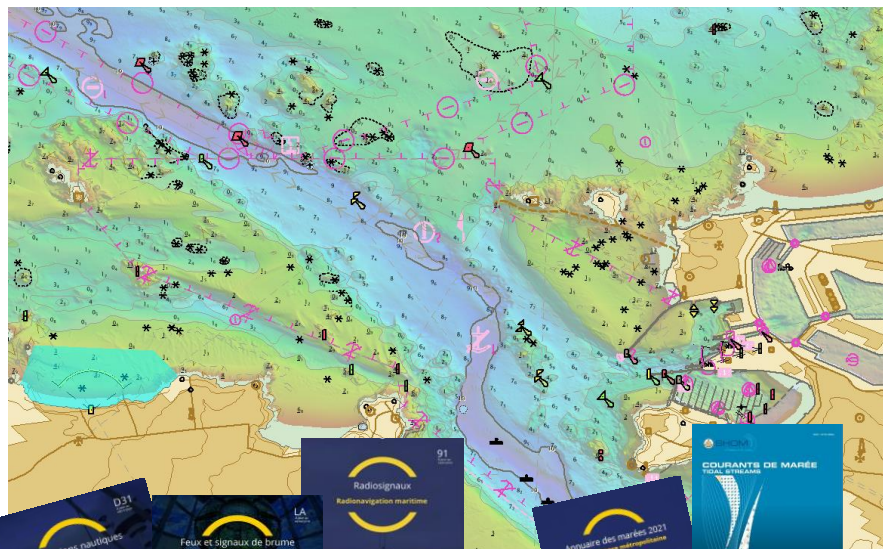
- Monitoring and prospective of civil and military needs
- New digital technologies
- public-private-defence ecosystem
- project development & support

Goals

- ➔ improving the efficiency of data processing using new approaches (AI, Big data)
- ➔ renewing the range of products and services to increase the Shom users panel (in particular within the S-100 framework)



S-100 will renew and widen Shom products & services



Cooperation on S-100 issues

- **Capacity building**

- At RHC level (or inter RHCs) : organisation of S-100 seminars with participation of RENCs
- Training courses set up by the RENCs specific to the subject S-100/S-101(eg Primar tasked by its members)
- Opportunity to develop distant training on S-100 issues via the establishment of IHO E-learning platform by the ROK (to be operational in 2022)

Prop. A-2 3.3 endorsed by Decision 42 of A-2

Cooperation on S-100 issues

- **Joint IHO-Singapore Innovation and Technology Laboratory**
 - Establishment of Joint IHO-Singapore Innovation and Technology Laboratory approved by Assembly (*Decision 8 of A-2*)
 - Proposed topics for the Governing Board of the Lab (*Decision C4/06 of C-4*):
 - *"Dual Fuel" Concept*
 - *Conversion S-57 to S-101 and vice-versa*

THANK YOU !

