



# 5th Meeting of the IHO Council

## Report and Proposals from HSSC

### Agenda Item C5-04.1A

C-5, VTC, 19 – 21 October 2021



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## ITEMS TO BE REPORTED

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Hydrographic  
Organization

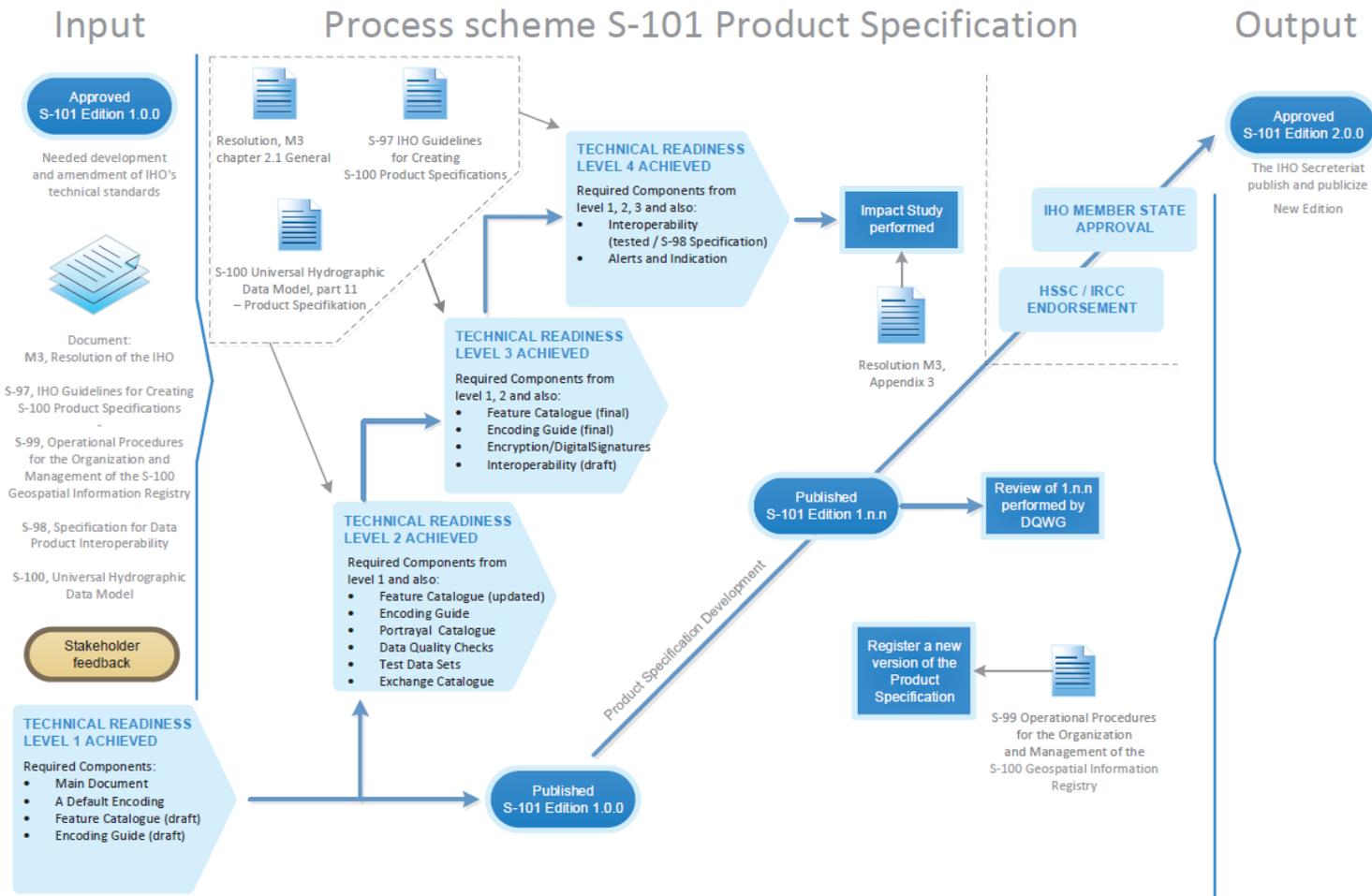
- The implementation of the revised IHO Strategic Plan
  - Proposed SPI metrics for SPIs allocated to HSSC – **Session 3**
  - ISO 9001 principles experimented on the development of the Product Specification for ENC S-101 ed. 2.0.0
- The implementation of the Roadmap for the S-100 Implementation Decade (2020 – 2030)
  - Proposed amendments to the S-100 Roadmap and the additional Annex – **Session 2**
  - Dual Fuel Concept and parallel production of S-57 and S-101 ENCs
- Update on the implementation of the recommendations on the Future of the Paper Nautical Chart
- Establishment of Working Group and Project Teams
- Highlights in the ongoing HSSC Work Plan



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# ISO 9001 PRINCIPLES WILL BE EXPERIMENTED ON THE DEVELOPMENT OF S-101 ENC, ED. 2.0.0

International Hydrographic Organization



- **HSSC invites the Council to endorse that the ISO 9001 principles will be experimented on the development of the PS for ENCs S-101 ed. 2.0.0.**

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# S-100 IMPLEMENTATION PRIORITIES

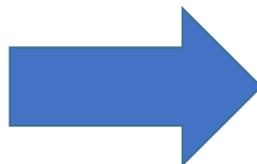
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## First step

### Navigational Route Monitoring Mode

S-98 Edition 1.0.0

- S-101 ENC
- S-102 Bathymetry
- S-104 Water Level
- S-111 Surface Currents
- S-124 Navigational Warnings
- S-129 UKC Management



## Next step

### Navigational Route Planning Mode

Future S-98 Editions

- S-122 Marine Protected Areas
- S-123 Marine Radio Services
- S-125 Marine Navigational Services
- S-126 Marine Physical Environment
- S-127 Marine Traffic Management
- S-131 Marine Harbour Infrastructure

+ S-100 Products used in  
Monitoring Mode

S-128 Catalogue of Catalogues

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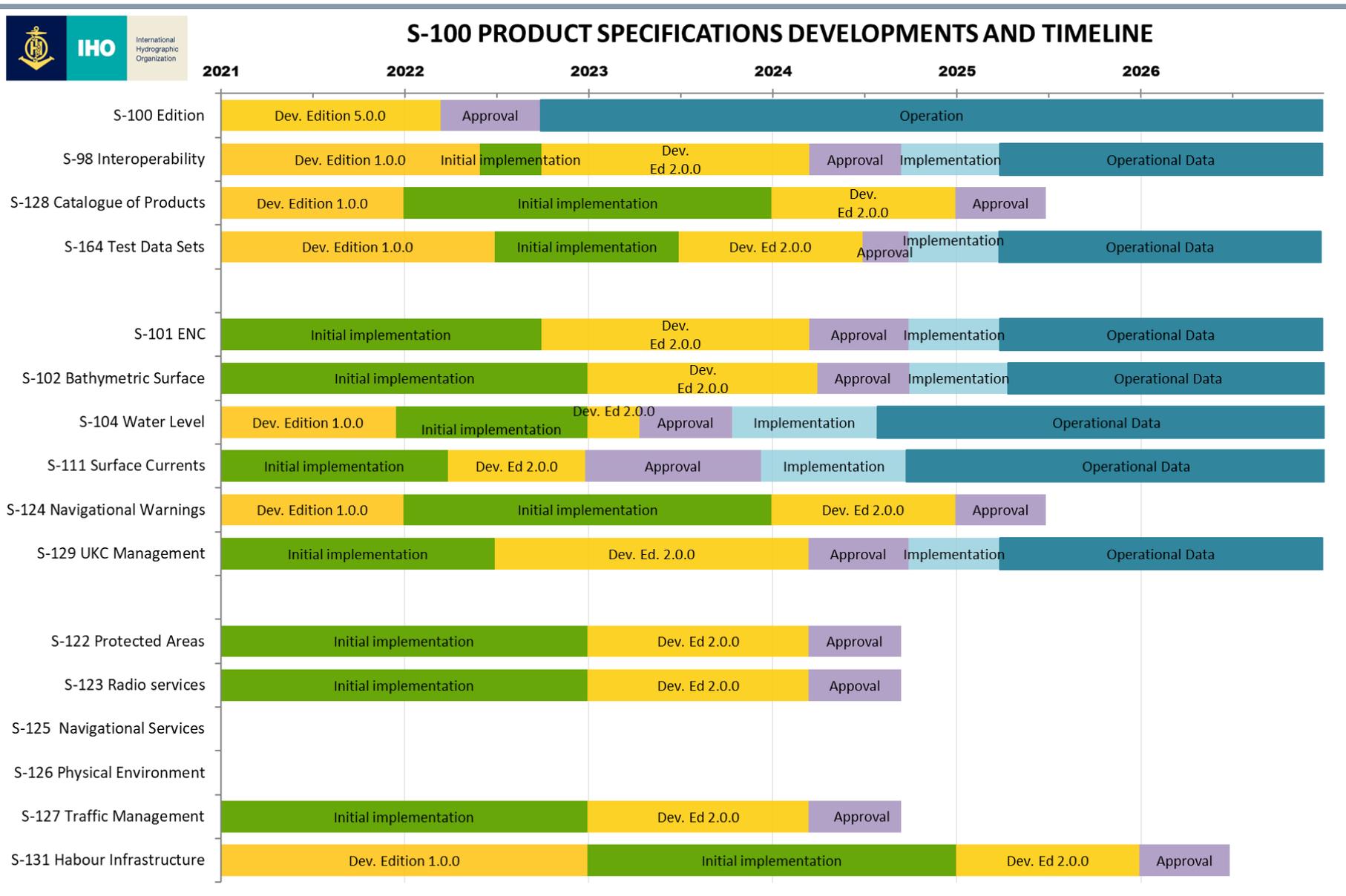


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# S-100 IMPLEMENTATION ROADMAP, ANNEX 2

## S-100 TIMELINE FOR THE PRIORITIZED PS

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The S-100 timeline;

- to be maintained by the IHO Secretariat,
- version controlled Gantt Diagram,
- updated and reported annually to the IHO Council.

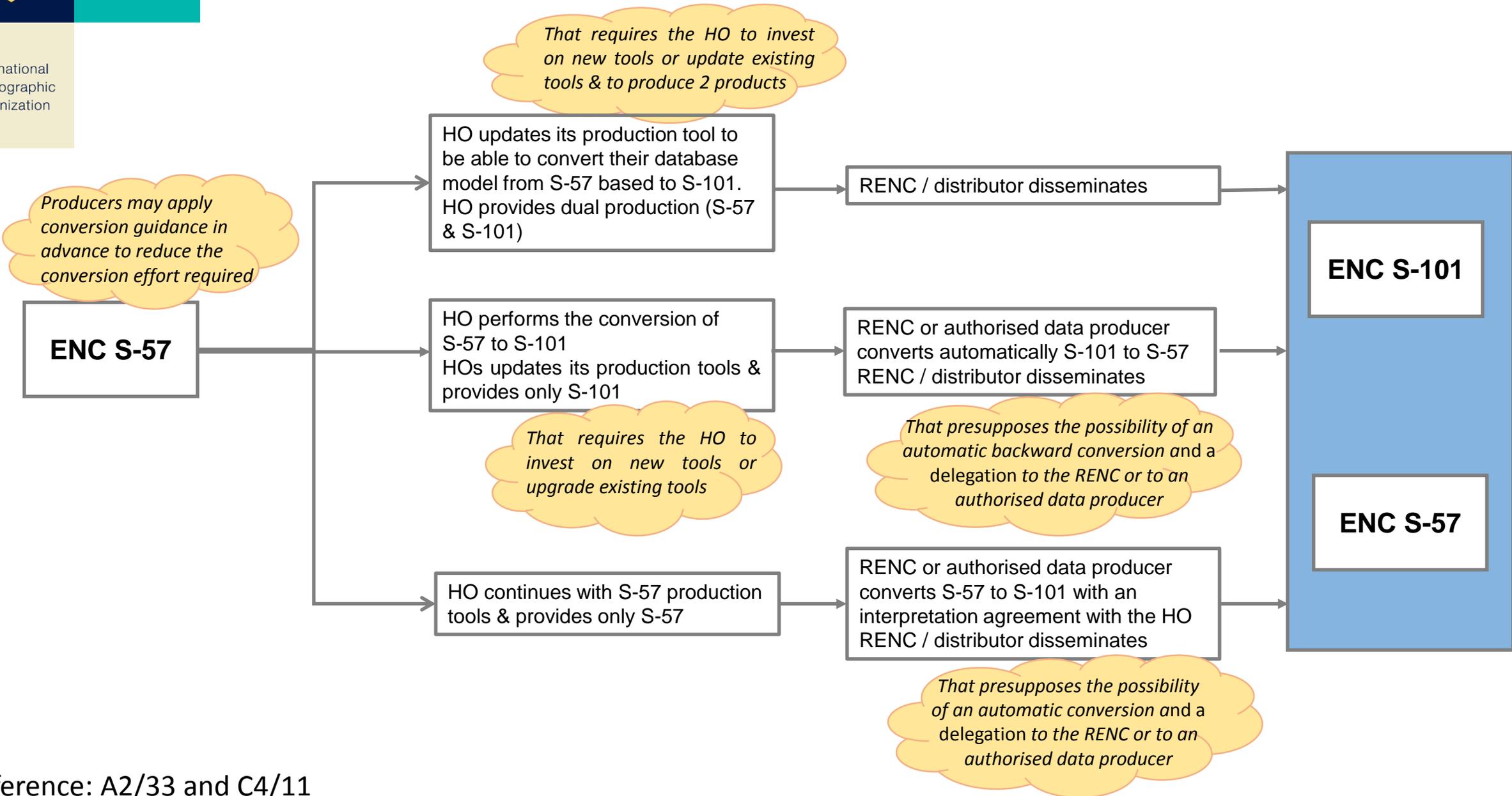
Reference: C4/18, 20 and 22



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# S-100 IMPLEMENTATION ROADMAP, ANNEX 2 OPTIONS FOR HOs ON PARALLELL PROD. S-57 AND S-101

International Hydrographic Organization





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# GOVERNANCE DOCUMENT ON THE DUAL FUEL CONCEPT

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- S-100 ECDIS must be capable to read S-57 ENC layers in addition to S-101 and other S-xxx layers. S-xxx will only work interoperable with S-101 ENC layers, not S-57 ENC layers.
- Governance Document on the Dual Fuel Concept to be presented by S-100 WG to HSSC 14 in May 2022. Subsequently to C-6.
- Series of ongoing Workshops. Includes discussions on SENC Delivery.
- ENCWG guidance document for HOs on how ENC features can be enhanced to support automated conversion to S-101
- Expected collaboration between ENCWG and the IHO-Singapore Tech Lab.
- Ongoing activities has been started on S-57 to S-101 by IC-ENC and PRIMAR

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# **REVISION OF IMO ECDIS DOCUMENTS ON S-100 ECDIS**

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- Revision of ECDIS Guidance for Good Practice (MSC.1/Circ.1503/Rev.1) and ECDIS Performance Standards (resolution MSC.232(82)) in the agenda for NCSR 9 (21 – 30 June 2022), approved by MSC 104.
- Drafting group: HSSC Chair Group, CIRM, IEC, Intertanko to submit drafted documents to NCSR 9.
- A first draft have already been provided to the drafting group and it is planned to have an online workshop to finalize the draft documents.
- To be noted; a proposal to MSC 104 from EU MS to revise ECDIS Performance Standards to include Route Plans. Postponed to MSC 105.
- IEC progress on updating IEC 61174 ECDIS Operational and Performance Requirements to include S-100. New edition 5 published 2024 (best case) – 2026 (worst case).



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# UPDATE ON THE IMPLEMENTATION OF THE RECOMMENDATIONS ON THE FUTURE OF THE PAPER NAUTICAL CHART

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- The NCWG has continued to work on the implementation of the recommendations given in the Future of the Paper Nautical Chart report.
- A sub-WG to develop a Baseline Symbology to support automated production of paper charts from S-101 data.
- Regional Hydrographic ICCWGs, to focus on ENC schemes. Agreed upon at IRCC 13 in June 2021.

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# ESTABLISHMENT OF WORKING GROUP AND PROJECT TEAMS

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- The **Hydrographic Surveys WG (HSWG)** has been established. First ordinary HSWG 1 meeting 29 June – 1 July.
- Following the A2/24 & 25 decision and the C4/07 decision, HSSC 13 agreed upon the establishment of a **Project Team** to develop a new **S-130** Polygonal Demarcations of Global Sea Areas Product Specification.
- HSSC 13 agreed to establish a **Project Team on Maritime Autonomous Surface Ship (MASS)** Navigation in order to address MASS requirements on navigation data and services.
  - to identify and prioritize MASS navigation requirements;
  - to analyse their impacts on current hydrographic standards and services;
  - to develop a set of recommendations/issues to be addressed by existing working groups.

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# HIGHLIGHTS IN THE ONGOING HSSC WORK PLAN

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- The HSSC WGs/PTs are continuously monitoring the needs for amendments to the IHO Resolutions. No amended resolutions have been agreed upon by IHO MS since Council 4
- A proposal from S-102 PT and S-100 WG to prioritize S-102, Bathymetric Surface, to navigation systems was discussed at HSSC 13. The impact of such a priority must be studied further by the PT/WG and will be reported to HSSC 14.
- NIPWG is progressing well with the development of S-131 – Marine Harbour Infrastructure. The PS is developed in liaison with the International Harbour Masters Association (IHMA) and the International Port CDM Council.
- HSSC has proposed two projects to the IHO-Singapore Tech Lab:
  - automated conversion of S-57 to S-101 ENCs
  - possible establishment of a technical infrastructure within the IHO GIS Infrastructure to include a S-131 database for harbour's information registration

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## **ACTIONS REQUESTED FROM C-5**

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- Note the Report
- To endorse that the ISO 9001 principles will be experimented on the development of the Product Specification for ENC's S-101 ed. 2.0.0.
- Take any other action as it may consider appropriate.



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## HSSC SLIDES FOR SESSION 2

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- Proposal for Amendment to Roadmap S-100
- Annex B - Report and proposals from HSSC:  
Proposed Annex 2 (version 1.0 Rev 1, 7 July 2021) to the Roadmap for the S-100 Implementation Decade (2020-2030)



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# PROPOSED AMENDMENTS TO THE ROADMAP FOR THE S-100 IMPLEMENTATION DECADE (2020 – 2030), 1(2)

## Paragraph 2; Technical standardization

Standardization within the S-100 hydrographic domain should put special focus on the following products.

### Proposed amended table

### Current table

S-101	Electronic Navigational Chart (ENC)
S-102	Bathymetric Surface
S-104	Water Level Information for Surface Navigation
S-111	Surface Currents
S-122	Marine Protected Areas
S-123	Radio Services
S-124	Navigational warnings
S-129	Under Keel Clearance Management



Table A – IHO list of S-100 products with special focus	
First step – Route monitoring mode	
S-101	Electronic Navigational Chart (ENC)
S-102	Bathymetric Surface
S-104	Water Level Information for Surface Navigation
S-111	Surface Currents
S-124	Navigational Warnings
S-128	Catalogue of Nautical Products
S-129	Under Keel Clearance Management
Second step – Route planning mode	
S-122	Marine Protected Areas
S-123	Marine Radio Services
S-125	Marine Navigational Services
S-126	Marine Physical Environment
S-127	Marine Traffic Management
S-131	Marine Harbour Infrastructure

- **HSSC invites the Council to agree upon the amendment of the list of products as presented in table A**



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# PROPOSED AMENDMENTS TO THE ROADMAP FOR THE S-100 IMPLEMENTATION DECADE (2020 – 2030), 2(2)

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## Paragraph 2; Technical standardization

S-101 ENC:

- According to the HSSC road map, the S-101 PS will be technically ready for regular production of S-101 ENCs by end of 2022. (HSSC)

HSSC propose to change this sentence to read:

- In the beginning of 2024 the Standard will be operational and ready for production and implementation. HOs can prepare their production systems and experiment with S-101 ed. 1.1.0 already 2022.
- **HSSC invites the Council to agree on the proposed amendment to the S-100 Implementation Roadmap to clarify the progress with S-101.**

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# S-100 IMPLEMENTATION ROADMAP, ANNEX 2

International Hydrographic Organization

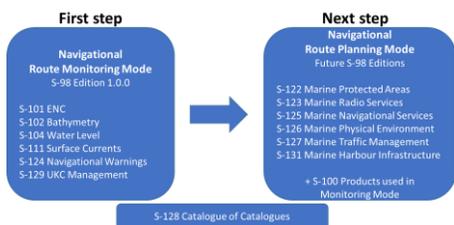
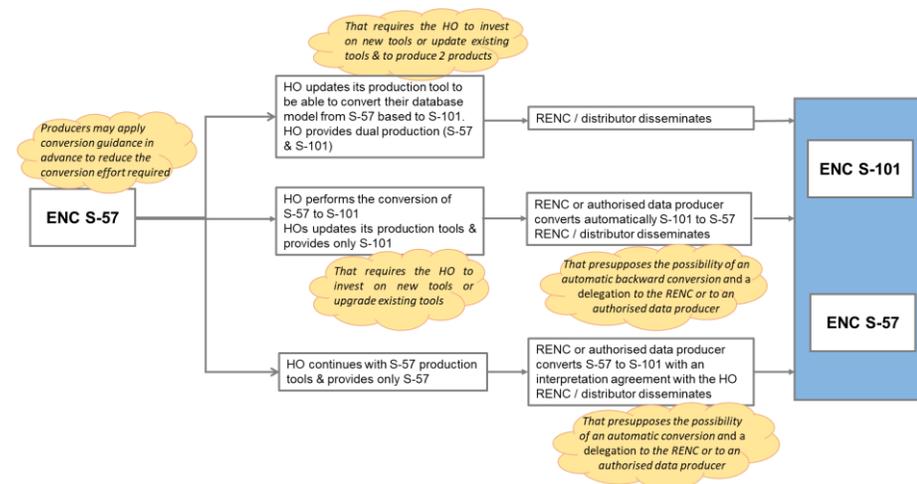
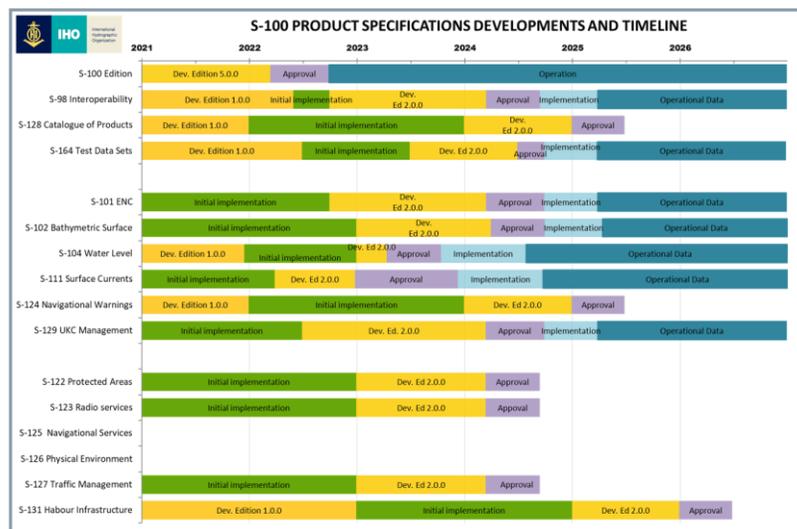


Table A – IHO list of S-100 products with special focus	
<b>First step – Route monitoring mode</b>	
S-101	Electronic Navigational Chart (ENC)
S-102	Bathymetric Surface
S-104	Water Level Information for Surface Navigation
S-111	Surface Currents
S-124	Navigational Warnings
S-128	Catalogue of Nautical Products
S-129	Under Keel Clearance Management
<b>Second step – Route planning mode</b>	
S-122	Marine Protected Areas
S-123	Marine Radio Services
S-125	Marine Navigational Services
S-126	Marine Physical Environment
S-127	Marine Traffic Management
S-131	Marine Harbour Infrastructure



- **HSSC invites the Council to approve the proposed annex 2 to the Roadmap for the S-100 Implementation Decade (2020 – 2030).**



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## ACTIONS REQUESTED FROM C-5

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- To agree upon the following amendments to the Roadmap for the S-100 Implementation Decade (2020 – 2030):
  - amending the list of products as presented in table A in the HSSC report; and
  - agree on the proposed amendment to clarify the progress with S-101, as presented in paragraph 8 in the HSSC report.
- To approve the proposed annex 2 to the Roadmap for the S-100 Implementation Decade (2020 – 2030). Attached as Annex B to the HSSC report.



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# **HSSC SLIDES FOR SESSION 3**

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- Annex A: Strategic Performance Indicators allocated to HSSC and proposed metrics (Work Programme 2).



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# PROPOSED HSSC SPI METRICS, 1(3)

Initial, January 2021

Target, January 2026

International Hydrographic Organization

Targets	Strategic Performance Indicator (SPI)-measurement for success	Lead and Metric
<b>Goal 1: Evolving the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformation</b>		
<b>1.1 Deliver standards for hydrographic data and specifications of hydrographic products; support their regular production; and coordinate regional and global services for their provision.</b>	1.1.1 Percentage of Member States having operationalized production and distribution of hydrographic data products and services based on IHO Universal Hydrographic Data Model (S-100), under an implementation framework of coordination and agreed timelines (2026: 100%).	<b>HSSC</b> 0 % of MS distribute at least one product based on S-100 <b>60 % * of MS distribute at least one product based on S-100.</b>
	1.1.2 Number of hydrographic data products and services based on Universal Hydrographic Data Model that cater for the new requirements: autonomous shipping, reduction of emission.	<b>HSSC</b> 0 Product Specification operational <b>10** Product Specifications should be operational (ed 2.0.0.)</b>

\* Based on that 62 of 94 IHO MS produce S-57 ENC's (March 2021)

\*\* S-101, S-102, S-104, S-111, S-122, S-124, S-127, S-128, S-129, S-131

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# PROPOSED HSSC SPI METRICS, 2(3)

Initial, January 2021

Target, January 2026

International Hydrographic Organization

Targets	Strategic Performance Indicator (SPI)-measurement for success	Lead and Metric
<b>Goal 1: Evolving the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformation</b>		
<p><b>1.2 Develop standards, specifications and guidelines in the areas of data assurance, including cyber security and data quality assessment.</b></p>	<p>1.2.1 Percentage of hydrographic data products and services based on S-100 model that are covered by IHO standards, specifications and guidelines on cyber security (2026: 100%).</p> <p>1.2.2 Percentage of navigationally significant areas (e.g. charted traffic separation schemes, anchorages, channels) for which the adequacy of the hydrographic knowledge is assessed through the use of appropriate quality indicators (2026:100%).</p>	<p><b>HSSC</b>  0** Product Specifications (same as in SPI 1.1.2) includes cyber security and data quality assessment  10** Product Specifications (same as in SPI 1.1.2) includes cyber security and data quality assessment</p> <p><b>IRCC</b>  Supported by HSSC</p>

\*\* S-101, S-102, S-104, S-111, S-122, S-124, S-127, S-128, S-129, S-131

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# PROPOSED HSSC SPI METRICS, 3(3)

Initial, January 2021  
Target, January 2026

International Hydrographic Organization

Targets	Strategic Performance Indicator (SPI)-measurement for success	Lead and Metric
<b>Goal 2: Increasing the use of hydrographic data for the benefit of society</b>		
<b>2.2 Promote new tools and methods to accelerate and increase coverage, consistency, quality of surveys in poorly surveyed areas.</b>	2.2.1 Percentage of adequately surveyed area per coastal state.	<b>IRCC</b>
	2.2.2 Number of new applications of the new version of Standards for Hydrographic Surveys (S-44).	<b>HSSC</b> Number of downloads of S-44 (Unknown - 2021) Number of downloads of S-44 – (to be determined)

- **The proposed SPI metrics are attached in Annex A to the C-5 HSSC report and HSSC invites the Council to agree upon these metrics.**

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## **ACTIONS REQUESTED FROM C-5**

International  
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- To agree upon the proposed SPI metrics as attached in Annex A to the HSSC report.