Seamless transition from ENCs S-57 to ENCs S-101

8th Worldwide ENC Database Working Group Meeting

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Buenos Aires, Argentina

Presented by Juan Carballini – Teledyne CARIS' Account Manager

Content

- Introduction
- Migration from ENC S-57 to ENC S-101
- S-102 Bathymetric Surface Overview
- S-100 resources
- Summary

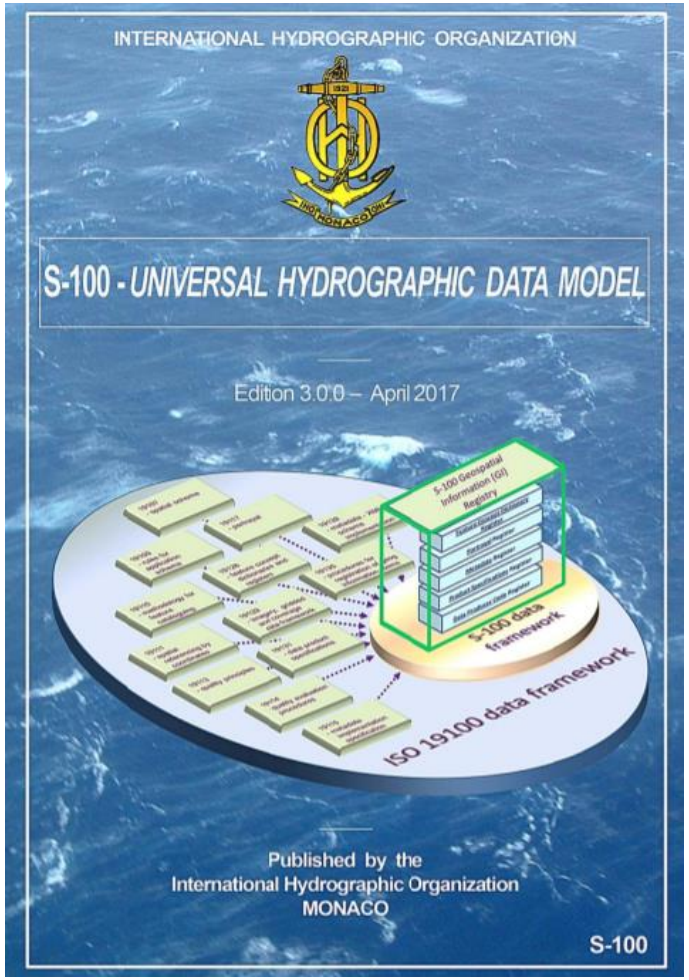
Introduction

S-100 Overview

International Hydrographic Organization (IHO)

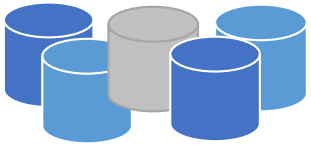
S-100

Universal Hydrographic Data Model



S-100

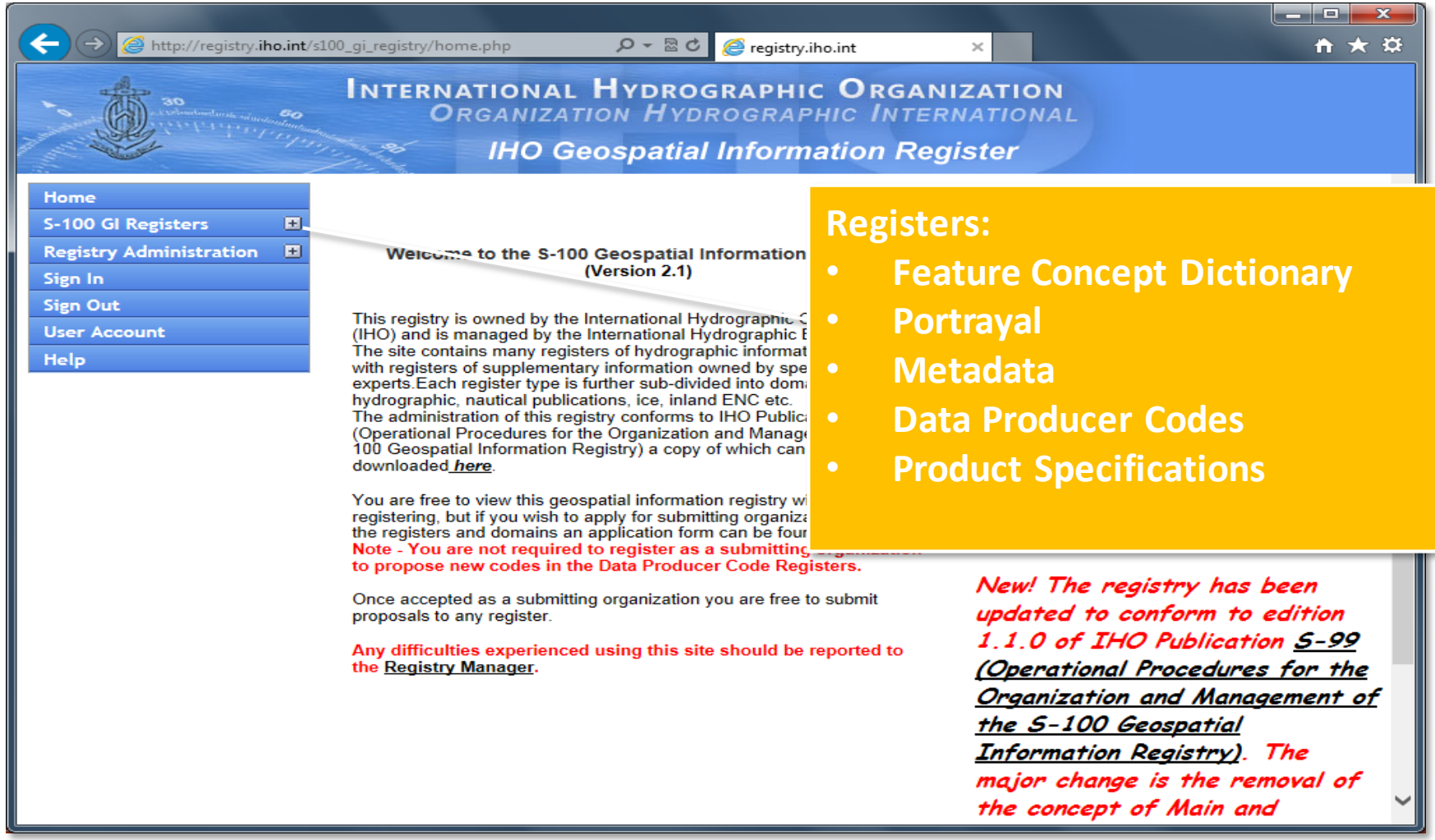
Aims to support a greater range of hydrographic related digital data sources, products and customers



A framework for development of the next generation products

Not a product specification

IHO Geospatial Information Registry

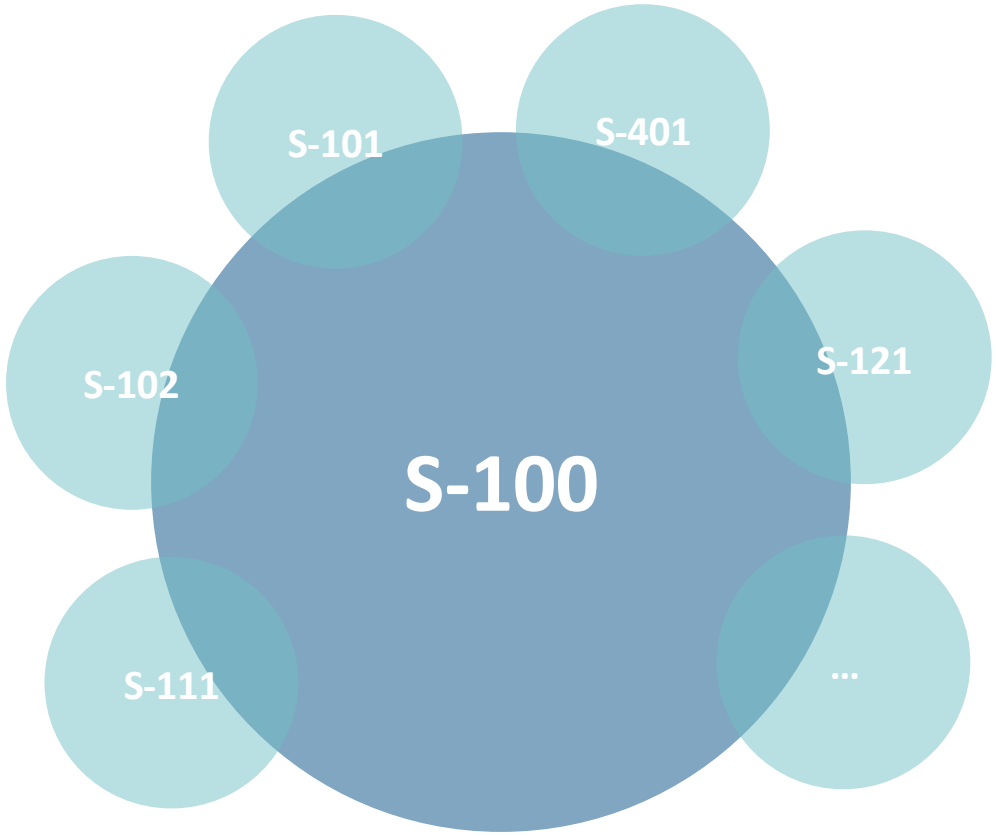


Registers:

- Feature Concept Dictionary
- Portrayal
- Metadata
- Data Producer Codes
- Product Specifications

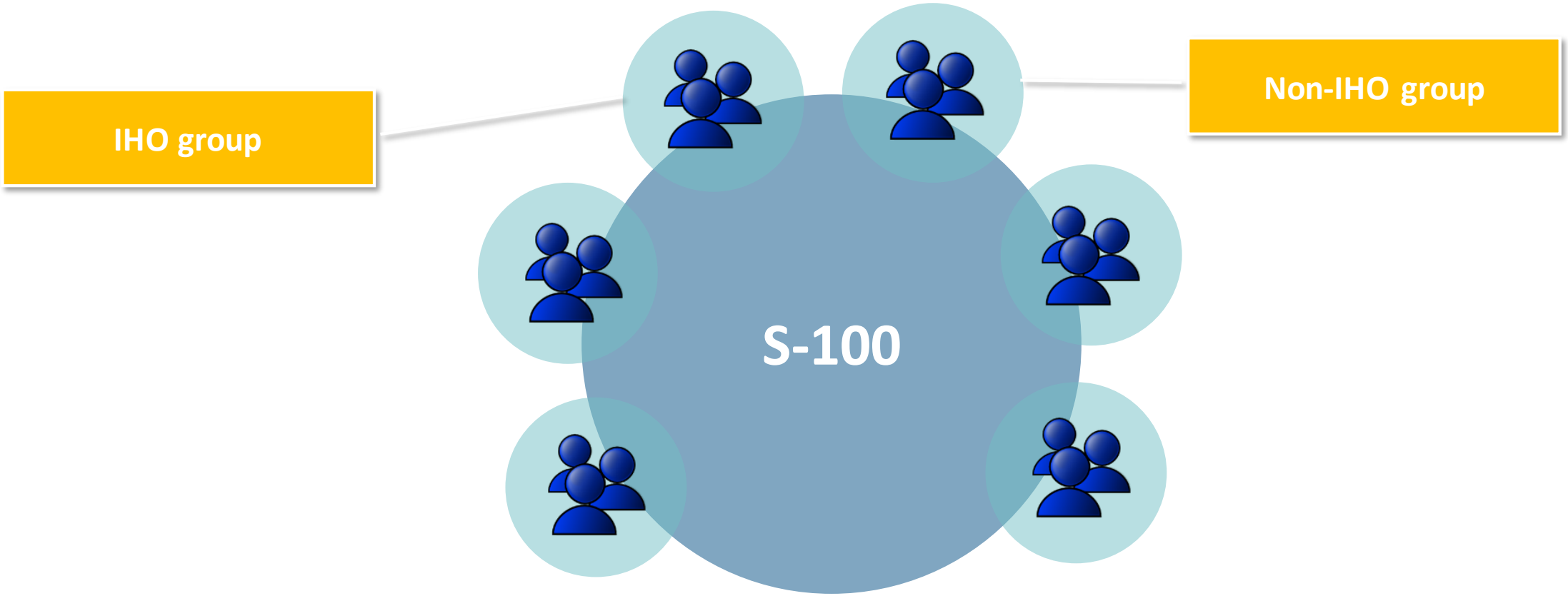
S-100 Product Specifications

S-100 is intended for multiple product specifications



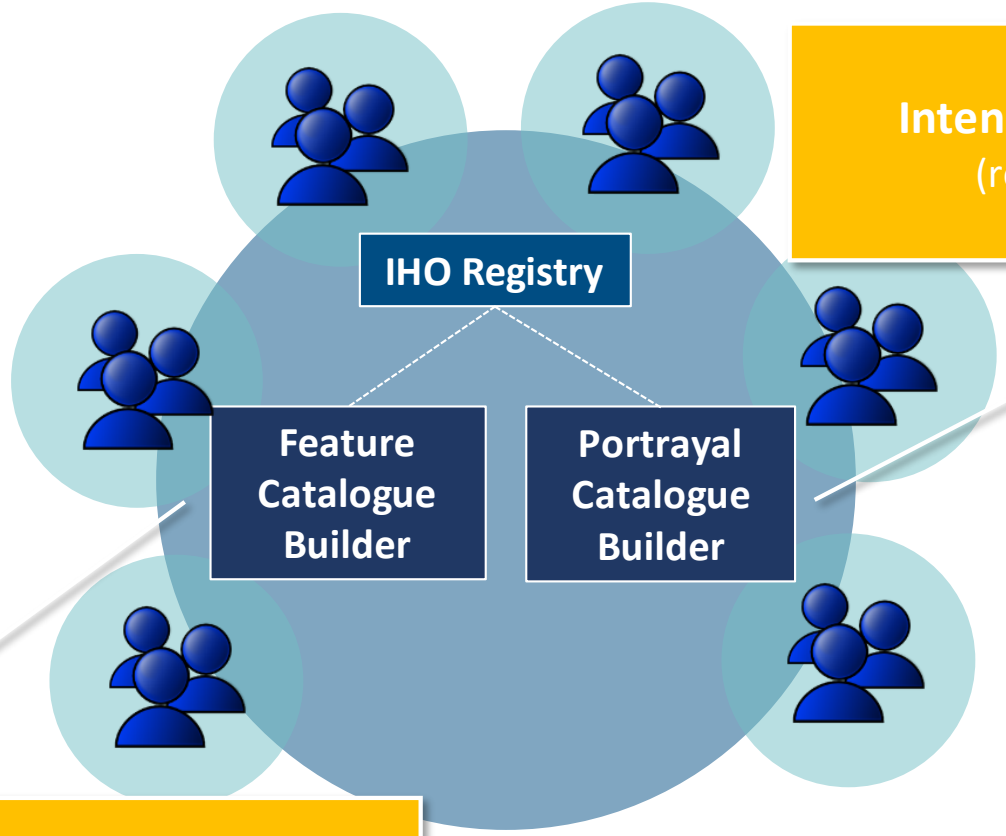
S-100 Product Specifications

Each product specifications is created/maintained by a domain group



S-100 Product Specifications

IHO provides tools to maintain the information



Intended to build portrayal catalogues
(registered in the Portrayal Register)

Intended to build feature catalogues
(registered in the Feature Concept Dictionary Register)

S-100 product specifications

IHO: S-101 to S-199

IHO S-101 ENC
IHO S-102 Bathymetric Surface
IHO S-103 Sub-surface Navigation
IHO S-111 Surface currents
IHO S-112 Dynamic Water Level Data
IHO S-121 Maritime limits and boundaries
IHO S-122 Marine Protected Areas
IHO S-123 Radio Services
IHO S-124 Navigational warnings
IHO S-125 Navigational services
IHO S-126 Physical Environment
IHO S-127 Traffic Management
IHO S-128 Catalogues of Nautical Products
IHO S-1xx Marine Services
IHO S-1xx Digital Mariner Routeing Guide
IHO S-1xx Harbour Infrastructure
IHO S-1xx (Social/Political)

S-102 ed. 1.0 (Published 2012)

Work on ed. 2 is ongoing

IALA S-201 Aids to Navigation Information
IALA S-210 Inter-VTS Exchange Format
IALA S-230 Application Specific Messages
IALA S-240 DGNSS Sta
IALA S-245 eLoran ASF
IALA S-246 eLoran Sta

Draft versions exists

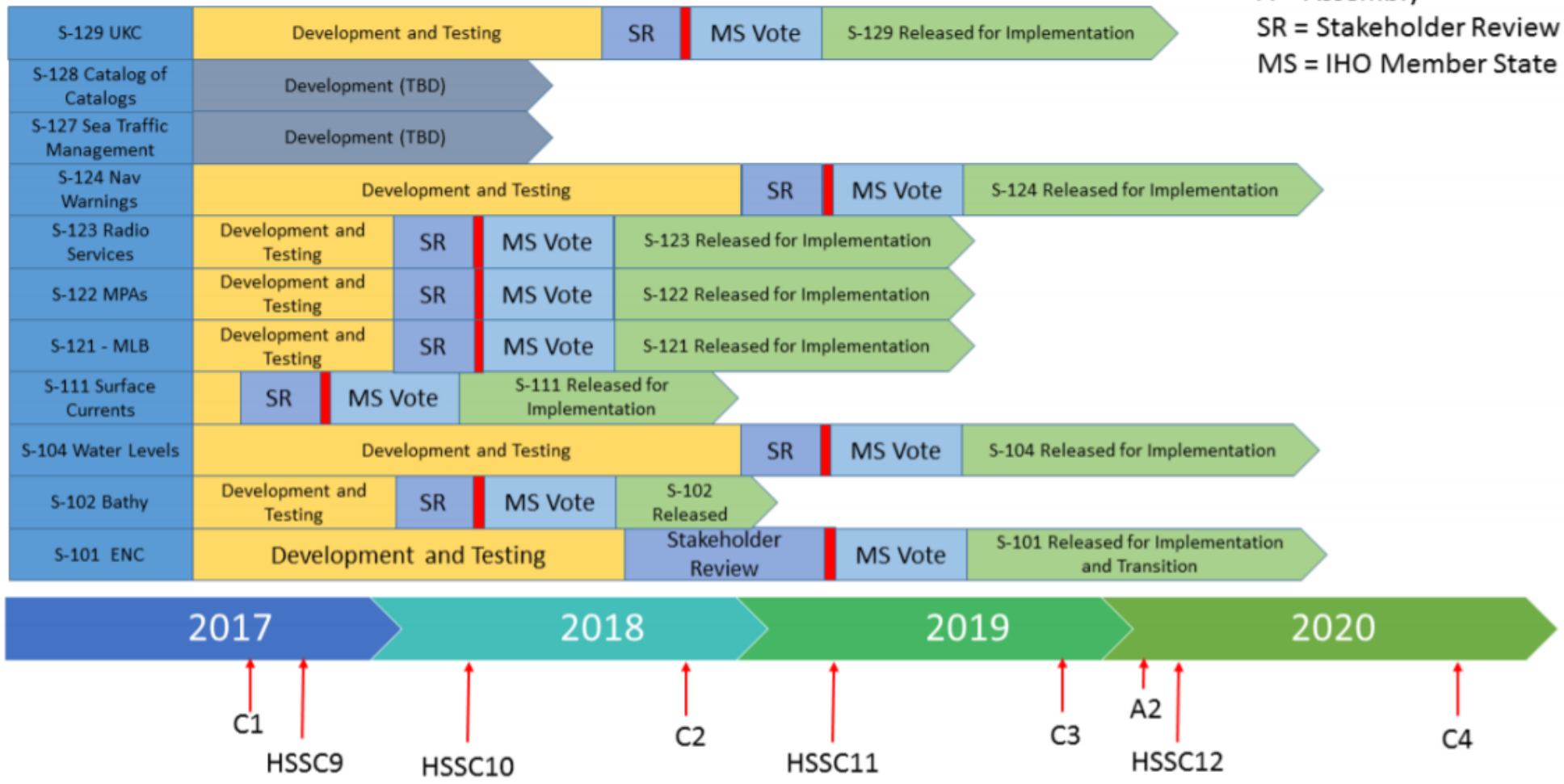
IOC: S-301 to S-399

Various: S-401 to …

IEHG S-401 Inland ENC
JCOMM S-411 Ice Information
JCOMM S-412 Weather Overlay

S-100 Based Products Roadmap

C=Council
A = Assembly
SR = Stakeholder Review
MS = IHO Member State

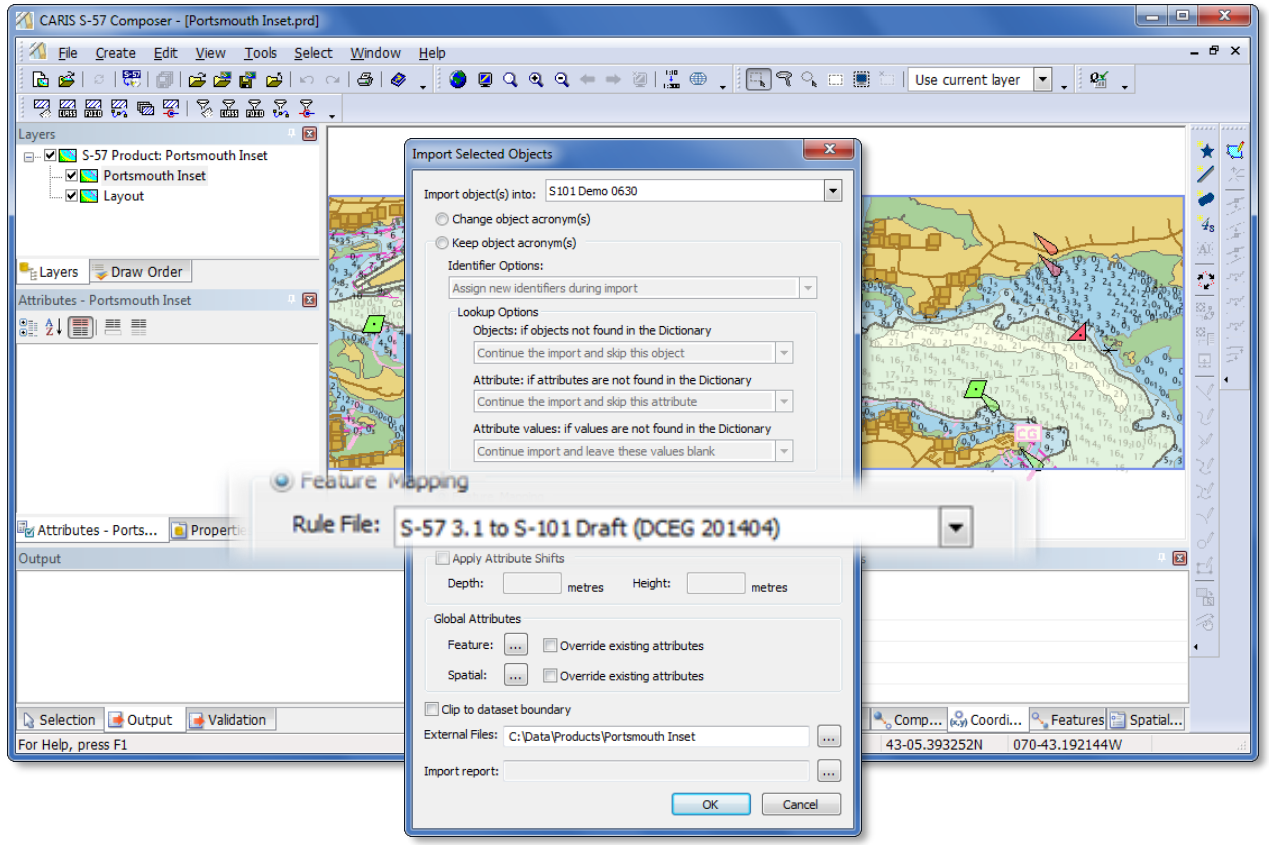


Source: 9th HSSC Meeting, 2017

Migration from ENC S-57 to ENC S-101

S-101 Production

Convert S-57 features to S-101 features



IHO S-101 is currently having draft status (February 2017)

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Automatic Conversion from S-57 to S-101

Conversion is useful for:

- (some) testing purposes
- faster migration of existing products/source

However will not fully utilize S-100/S-101 possibilities

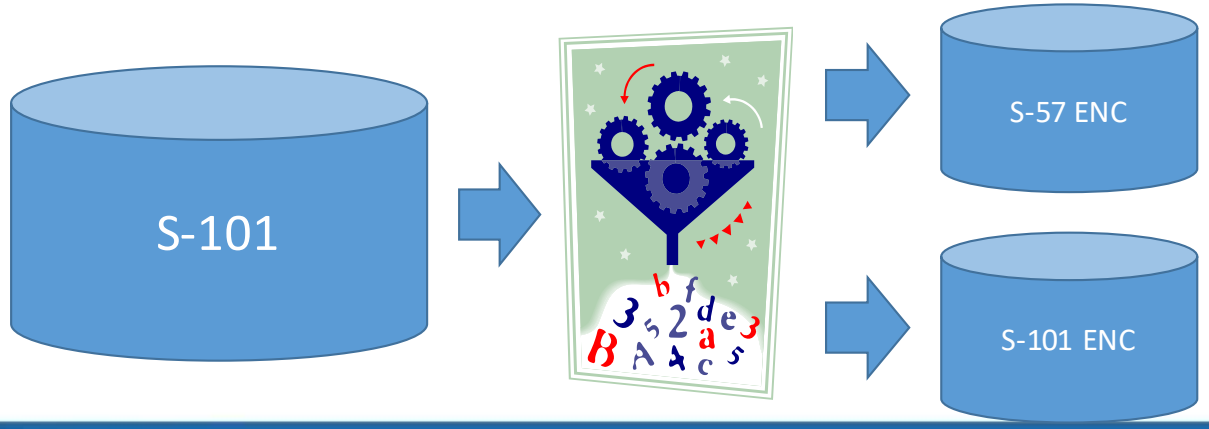
- just one first step in S-100 production

CARIS tools includes both *conversion* and *production* capabilities

S-101 Migration from S-57 ENC in CARIS HPD

- Conversion of existing S-57 ENC into S-101 ENC is first migration step
- Additional steps needed
  - Populate new information for S-101 ENCs that cannot be converted from the S-57 ENCs
    - New features, attributes, metadata, scales of use, etc.

- Support for S-100 based products in HPD 4.0 in 2018

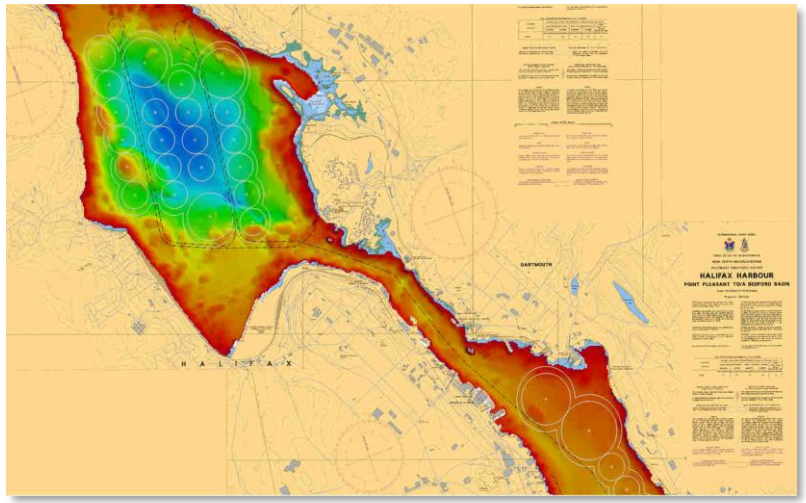


S-102 Bathymetric Surface Overview

S-102 Bathymetric Surface Product

Growing interest for enhanced navigation e.g. in

- High risk areas
- Environmentally sensitive areas
- High traffic areas



Includes raster bathymetric overlays

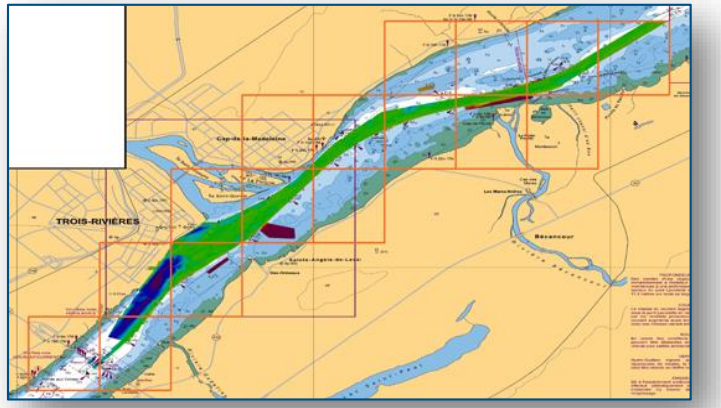
- S-102 Bathymetric Surfaces
- BAG surfaces
- Other/informal products

Purpose of S-102

- Need for high resolution bathymetric data
  - in the form of a bathymetric model
- Enables fusion of temporal data
  - E.g. tidal heights
- Overlay for S-101 ENCs
  - To compliment/enhance ENC information
- Potentially allows dynamic contouring
  - Maybe even in ECS and future ECDIS

Use Case

- CHS High Definition Bathymetry Trials
  - Permit the management of gridded bathymetric data in high definition
  - Test in collaboration with software manufactures, mariners and other users
  - 18 HD bathymetry cells
  - Level 1 (approx. 2m) and Level 2 (approx. 8m)
  - Files have a resolution of 1000 x 1000 pixels
  - Datasets available for tests and trials



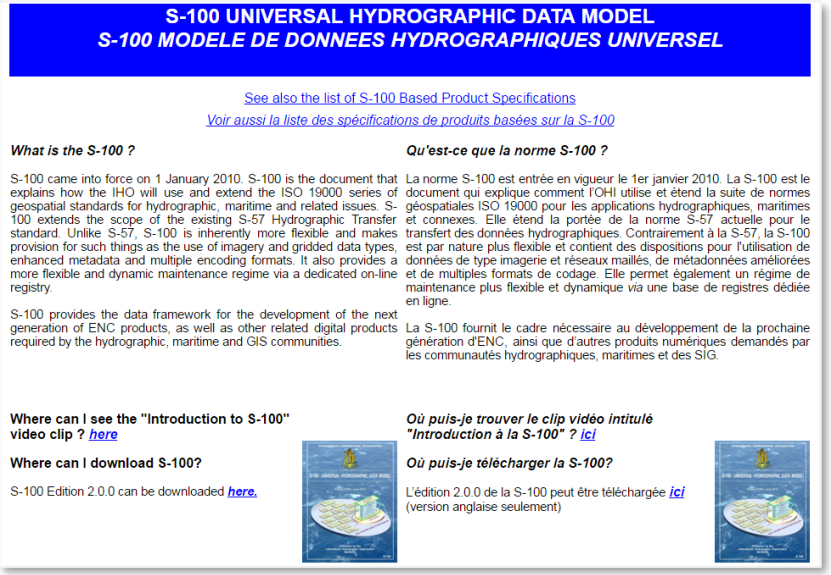
Source: http://charts.gc.ca/data-gestion/bathy-trials-developpment/index-eng.asp

S-100 resources

IHO S-100 Resources

IHO webpage with

- Introductory video about S-100 and S-101
- Power Point Presentation on S-100
- Download link to latest S-100 edition
- List of product specifications
- Master plan
- Etc.



S-100 UNIVERSAL HYDROGRAPHIC DATA MODEL
S-100 MODELE DE DONNEES HYDROGRAPHIQUES UNIVERSEL

See also the list of S-100 Based Product Specifications

Voir aussi la liste des spécifications de produits basées sur la S-100

What is the S-100 ?

S-100 came into force on 1 January 2010. S-100 is the document that explains how the IHO will use and extend the ISO 19000 series of geospatial standards for hydrographic, maritime and related issues. S-100 extends the scope of the existing S-57 Hydrographic Transfer standard. Unlike S-57, S-100 is inherently more flexible and makes provision for such things as the use of imagery and gridded data types, enhanced metadata and multiple encoding formats. It also provides a more flexible and dynamic maintenance regime via a dedicated on-line registry.

S-100 provides the data framework for the development of the next generation of ENC products, as well as other related digital products required by the hydrographic, maritime and GIS communities.

Qu'est-ce que la norme S-100 ?

La norme S-100 est entrée en vigueur le 1er janvier 2010. La S-100 est le document qui explique comment l'OHI utilise et étend la suite de normes géospatiales ISO 19000 pour les applications hydrographiques, maritimes et connexes. Elle étend la portée de la norme S-57 actuelle pour le transfert des données hydrographiques. Contrairement à la S-57, la S-100 est par nature plus flexible et contient des dispositions pour l'utilisation de données de type imagerie et réseaux maillés, de métadonnées améliorées et de multiples formats de codage. Elle permet également un régime de maintenance plus flexible et dynamique *via* une base de registres dédiée en ligne.

La S-100 fournit le cadre nécessaire au développement de la prochaine génération d'ENC, ainsi que d'autres produits numériques demandés par les communautés hydrographiques, maritimes et des SIG.

Where can I see the "Introduction to S-100" video clip ? ***here***

Where can I download S-100?

S-100 Edition 2.0.0 can be downloaded ***here.***

Où puis-je trouver le clip vidéo intitulé "Introduction à la S-100" ? ici

Où puis-je télécharger la S-100?

L'édition 2.0.0 de la S-100 peut être téléchargée ***ici*** (version anglaise seulement)

http://www.iho.int/iho_pubs/standard/S-100_Index.htm

CARIS Resources

Experienced CARIS staff

- Actively participating in the IHO development
- Assisting organizations on S-100 product development
- Have released multiple S-100 supporting applications
- Provides workshops and training on S-100 to the Member States

S-100 utilized in CARIS software for years

CARIS' Juan Carballini with S-100 workshop participants and SOHMA Authorities.

Teledyne CARIS E-Learning

S-100 Online workshop

- S-100 standard overview
- S-101 Electronic Navigational Chart (ENC) Product Specification
- Examples of creating and processing S-100 products
- no software is required in order to participate

Summary

- S-102 product services being established
- S-101 products expected in 2019
- The transition from ENC S-57 to S-101 should be seamless
- Many other S-100 products are being developed
- CARIS software has S-100 capabilities
- Different resources available for the Hydrographic Offices to learn more and practice with the new S-100 standard and the new product specifications.

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