

# Transition to S-100 with CARIS

# Content

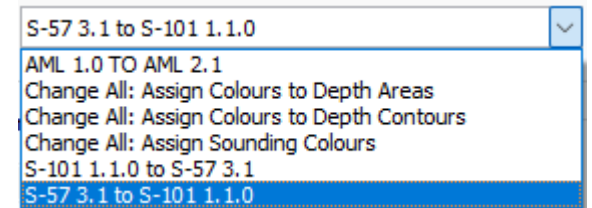
- Migration to S-100
- Key functionality
  - Mapping
  - Validation
- Other S-100 based product support
- Automated paper chart production
  - AutoChart

# S-100 migration and production

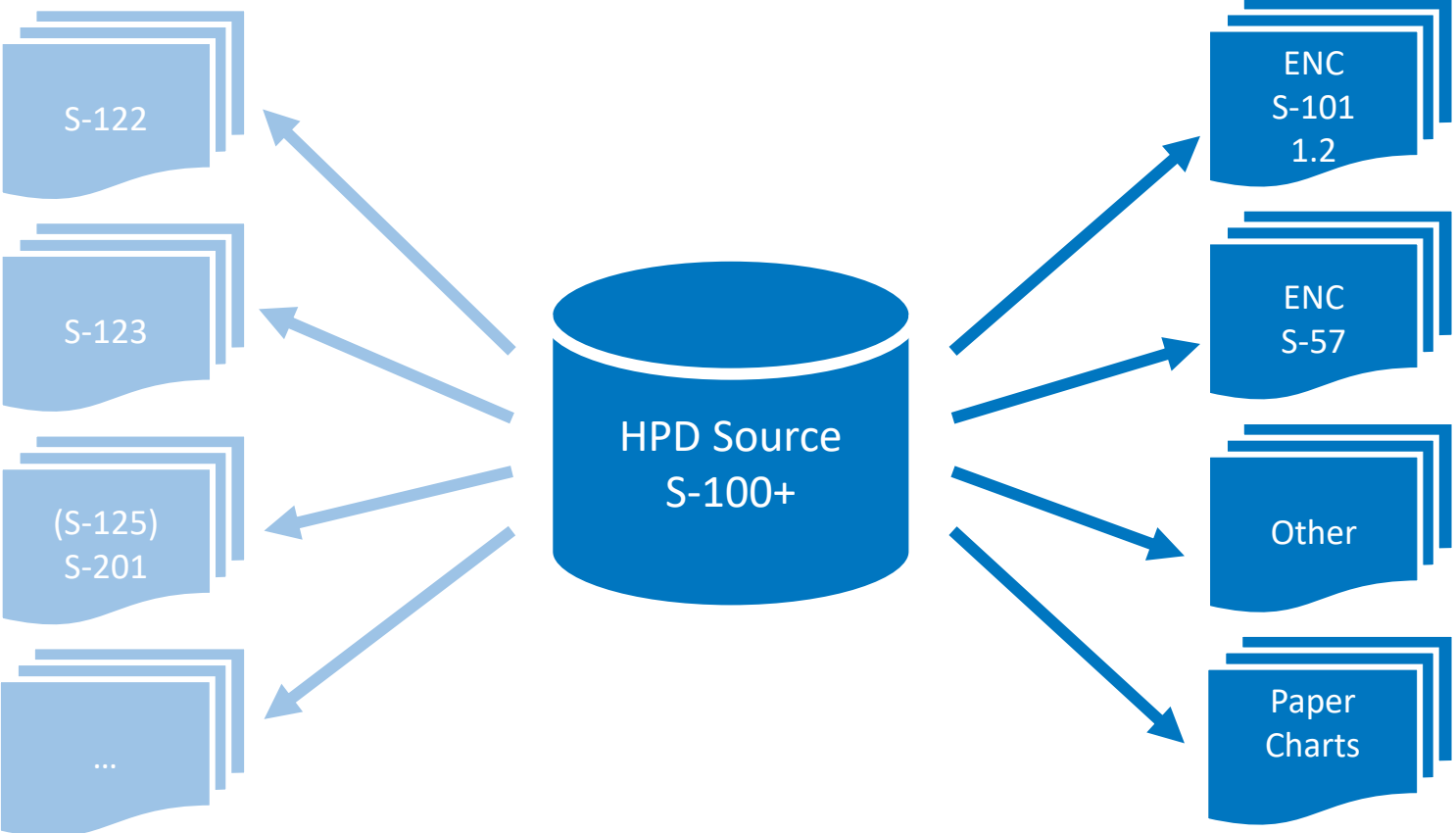
1. Create S-101 from existing data and products
  - Quick and easy using S-100 Composer or HPD
  - Good for testing and to get familiar with S-100/S-101
    - Also since S-101 specification still is under development



2. Migrate source database to S-100/S-101
  - Convert HPD Source database from S-57
  - Supporting existing products plus new S-100 products
  - Maintain history
    - S-57 features remain as historic data – with link from new S-100 features



# Available Now – Multifuel production



**Source data based on S-100 ed.5 (S-101 v2.0)**

**Supporting production of existing and new products**

# Migration steps

Step 0 - Current/old Situation – S-57 based

Step 1 - Add S-100 Feature Catalogue

HPD can now contain both S-57 and S-100 features

Step 2 - Migrate Source data from S-57+ to S-100+

Maintaining S-57 source as historical data

Step 3 - Add mapping/conversion for S-57 based products

Maintain/update existing S-57 based products

Including paper charts based on S-57

Step 4 - Add S-100 Product Definitions

HPD can now produce S-100 products (e.g. S-101)

Step 5 - Add more S-100 product definitions

HPD can now create and maintain more S-100 products

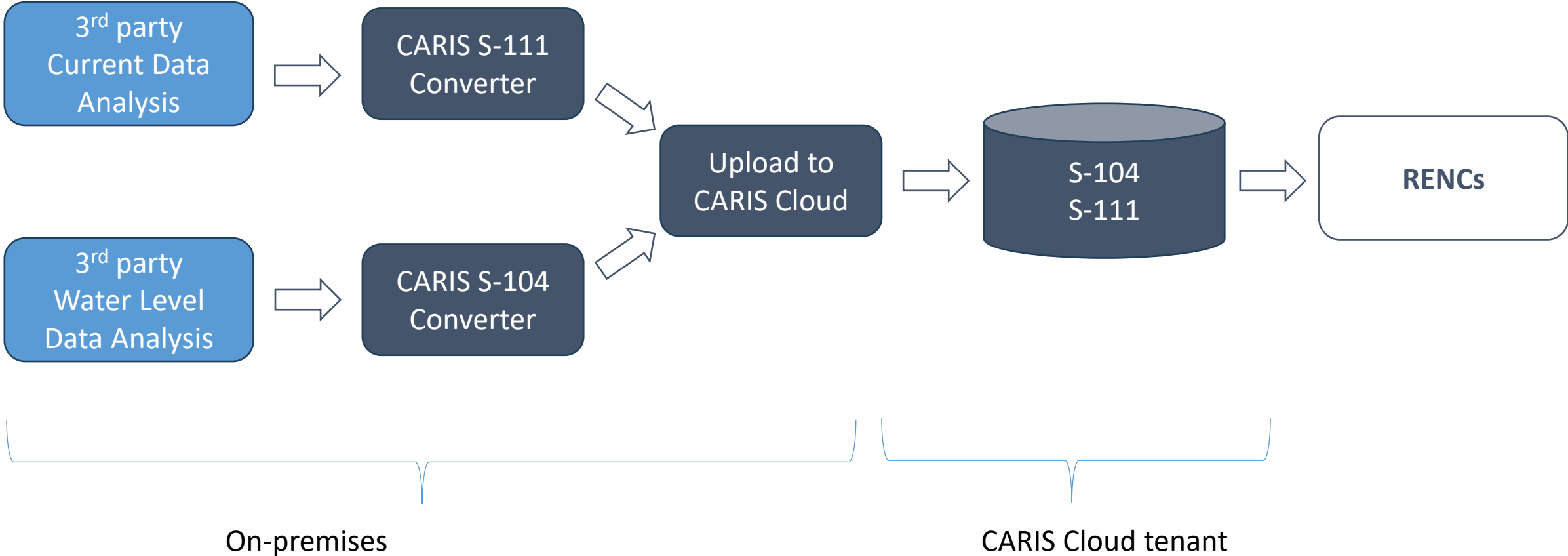
# Gridded S-100 production tool

- CARIS BASE Editor / BDB Manager with S-100 module
  - Maintain gridded **S-100** products (S-102) encoded in hdf5 format
  - Include S-100 Exchange Set Editor to create & edit **S-100 exchange sets**
  - Process to export to S-102 v3.0
  - Open S-104 & S-111 coming soon

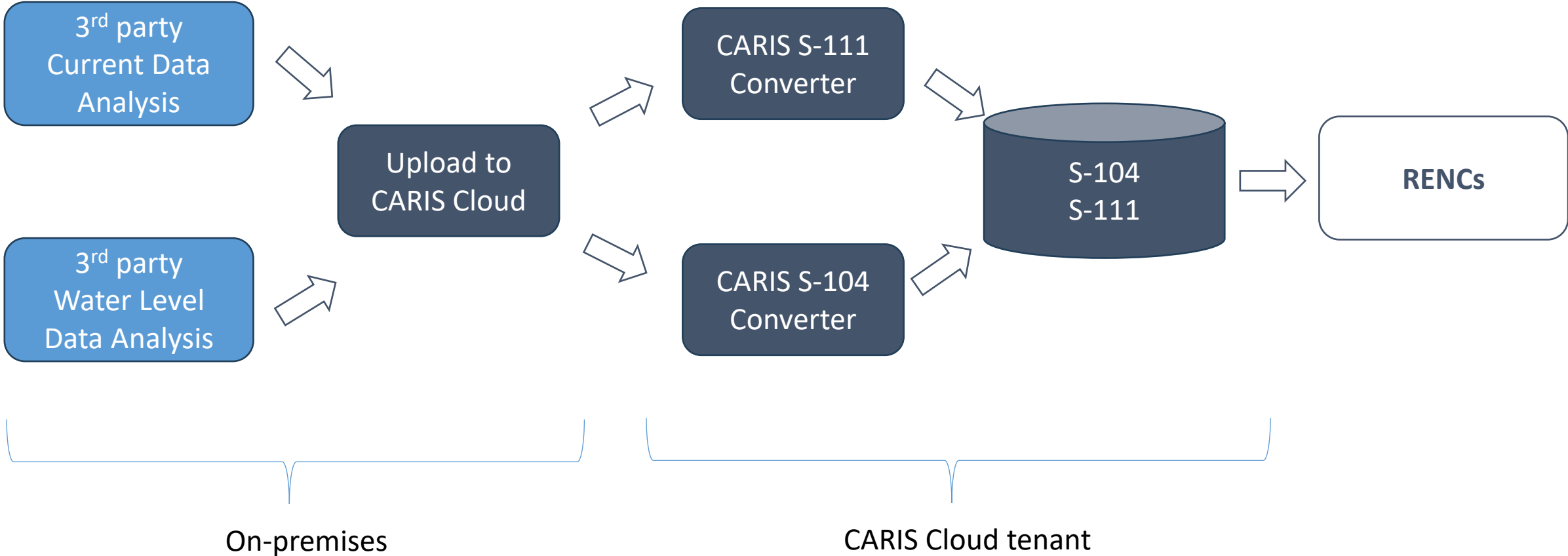


# BASE Editor

# S-104 & S-111 in CARIS Cloud



# S-104 & S-111 in CARIS Cloud



# S-104 & S-111

## S-104 & S-111 Converter

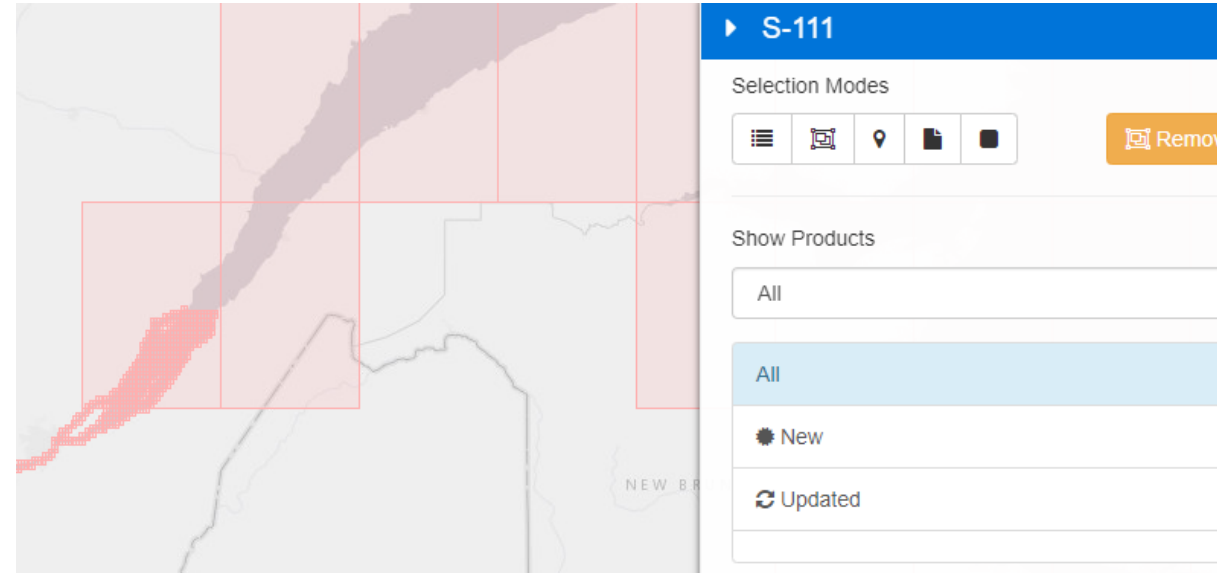
- COTS functionality to export to HDF5
- Tailored code to import Current and water level data
- On-premises or in CARIS Cloud tenant

## Dissemination

- COTS function included in **CARIS Cloud Bathy Data Service**

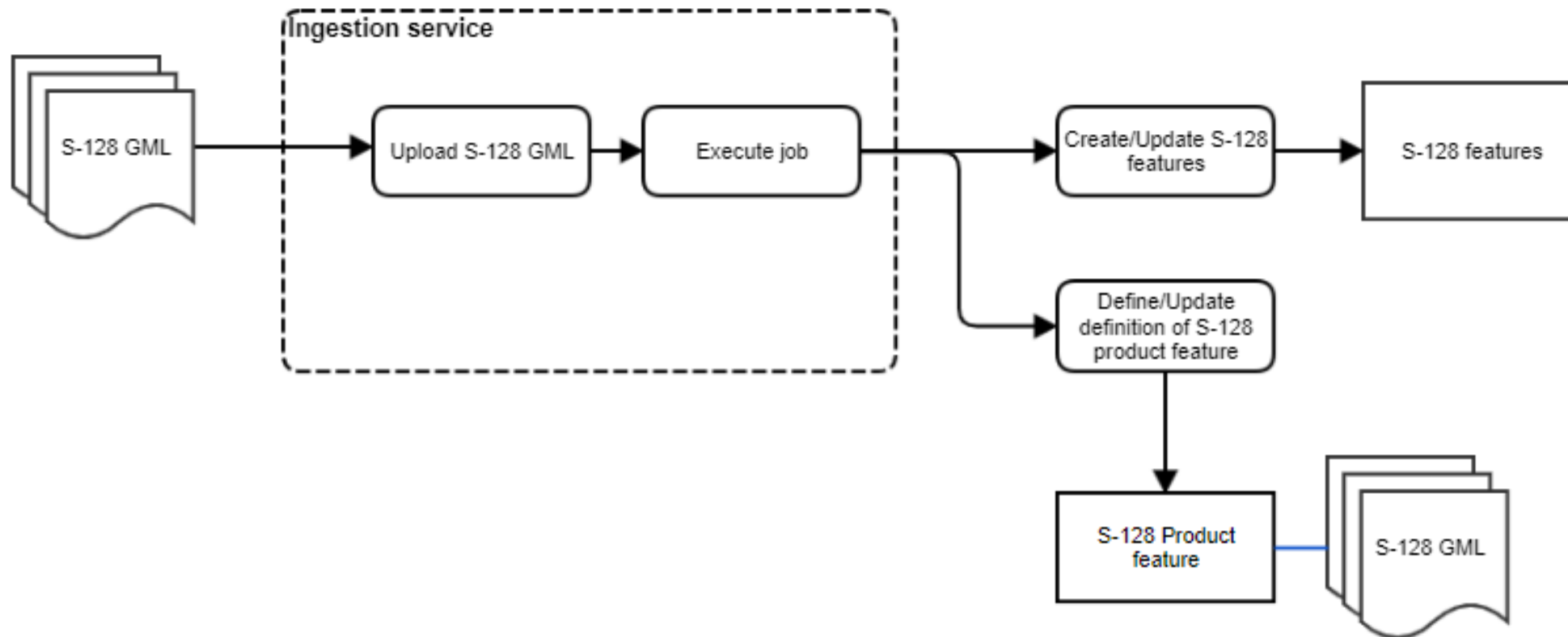
## Viewer

- Desktop CARIS tools (EasyView, BASE Editor, HPD Editors)



# S-128 Catalogue of Products in CARIS Cloud

- In development: Functionality to import S-128 products in a CARIS Cloud tenant
  - Extract ElectronicProduct, PhysicalProduct, S100Service



# S-128 in HPD & S-100 Composer

The screenshot displays the CARIS ENC and Vector software interface. The main map shows a geographic area with a cyan selection box highlighting a specific region. The Object Catalogue Browser on the left lists various object types, with 'CatalogueSectionHeader' selected. The Attributes panel on the right shows details for an 'ElectronicProduct'.

**Object Catalogue Browser**

Object Acronym Filter: CatalogueSectionHeader

Class Type Filter: All

Spatial Type Filter: All

Keyword Filter:  Case

Object Acronym: CatalogueSectionHeader, CatalogueSectionHeader, ContactDetails, Contact Details, DistributorInformation, Distributor Information, ElectronicProduct, Electronic Product, IndicationOfCarriageRequirement, Indication Of Carriage Requirement, PhysicalProduct, Physical Product, PriceInformation, Price Information, ProducerInformation, Producer Information, ProductMapping, Product Mapping, S100Service, S100 Service

Dictionary Info:

Description: catalogue section header.

Spatial Types: None

Attributes: catalogueSectionNumber catalogueSectionTitle information

**Attributes - ElectronicProduct**

S100_Encoding Format	ISO/IEC 8211
Issue Date	2021-11-08
Type Of Product Format	ISO/IEC 8211
Edition Number	7
Catalogue Element Classification 1	ENC
Not For Navigation	<input type="checkbox"/> False
Compression Flag	<input type="checkbox"/> False
Dataset Name	CA576002
Issue Time	
Product Specification	
Approximate Grid Resolution	
Compilation Scale 1	5000
Distribution Status	production
Maximum Display Scale	
Minimum Display Scale	
S100_Navigation Purpose 1	
Optimum Display Scale	
Original Product Number	
Producer Nation	CANADA
Product Number	CA576002
Specific Usage	harbour
Update Date	
Update Number	6
Agency Responsible For Production	CHS
Classification	UNCLASSIFIED
IMO Maritime Service 1	
Keywords	
Catalogue Element Identifier	
Feature Name 1	English, Halifax Harbour - Black Point to
Name	Halifax Harbour - Black Point to Point Pl
Display Name	

**Components (1 components)**

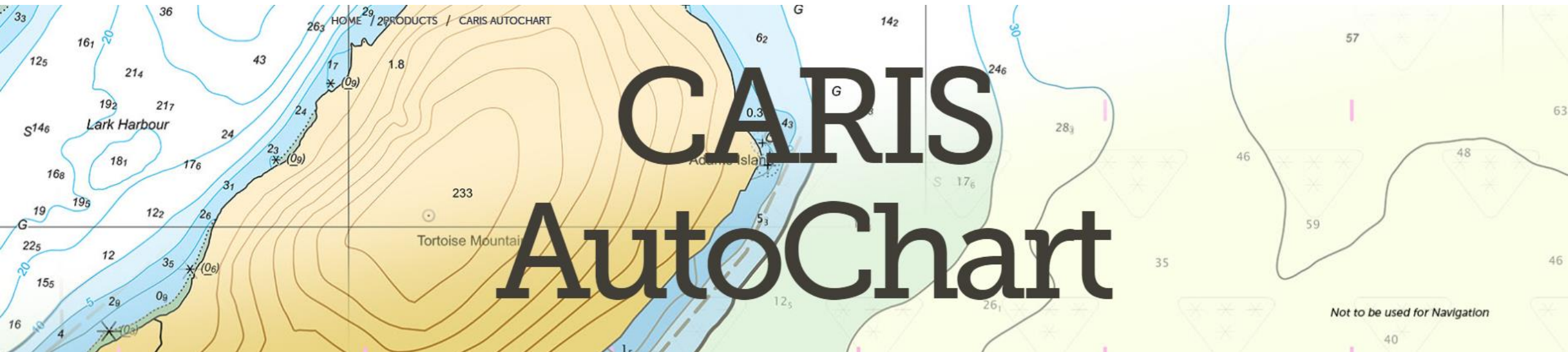
- Outer Ring
- Edge Forward

**Coordinates**

Latitude	Longitude	Z (m)

**Object Type**

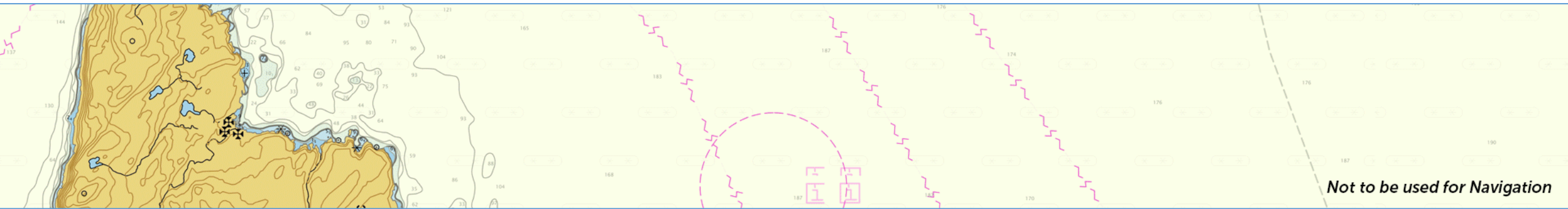
Object Type	Dataset ...	S100_En...	Issue Date	Issue Ti...	Type Of ...	Product...	Approxi...	Compil...	Distribu...
graphic	CA576002	ISO/IEC ...	2021-11-08		ISO/IEC ...			5000	production



# CARIS AutoChart

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# CARIS AutoChart

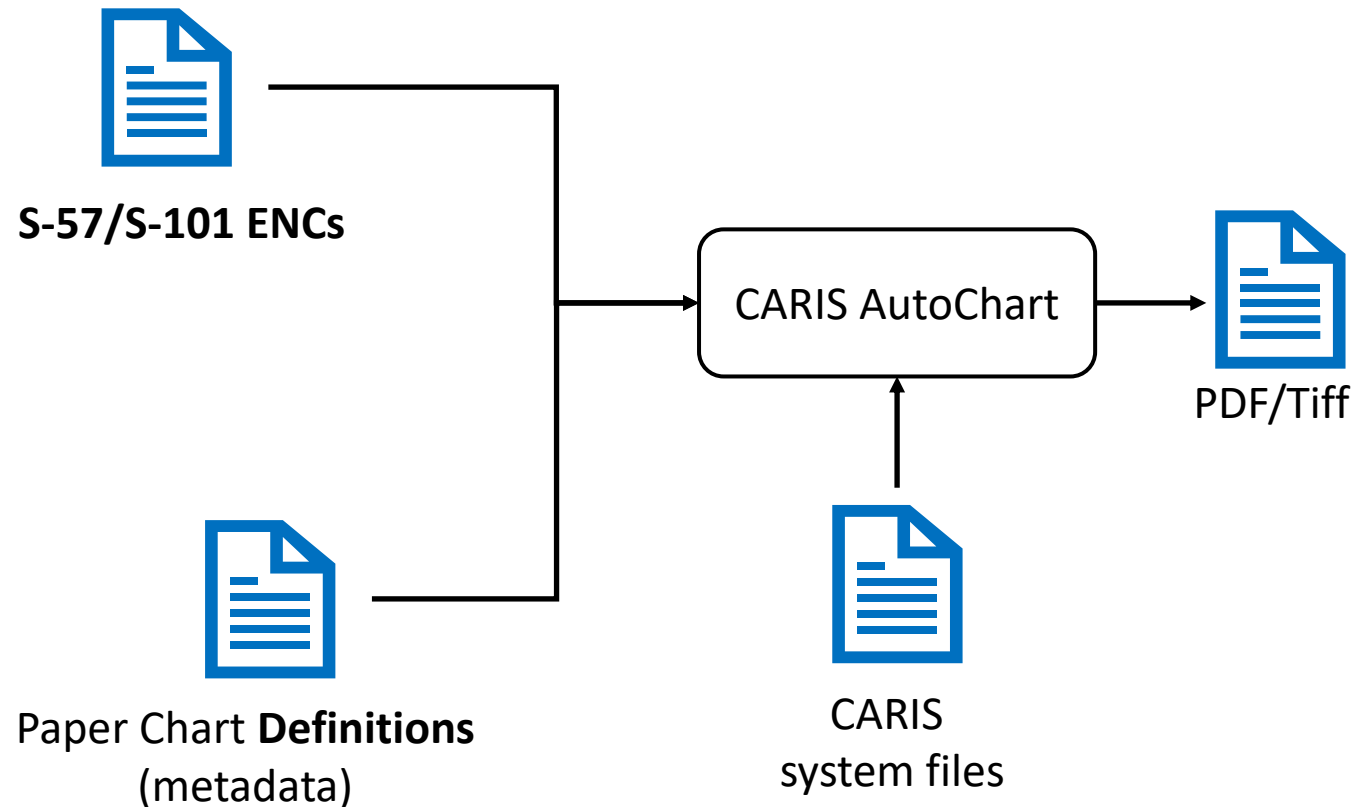


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- Automate and streamline the nautical paper chart production workflow
  - Reduce Nautical Paper Chart Production Turnaround Time
  - Free up resources
  - Maintain Your Paper Chart Look and Feel

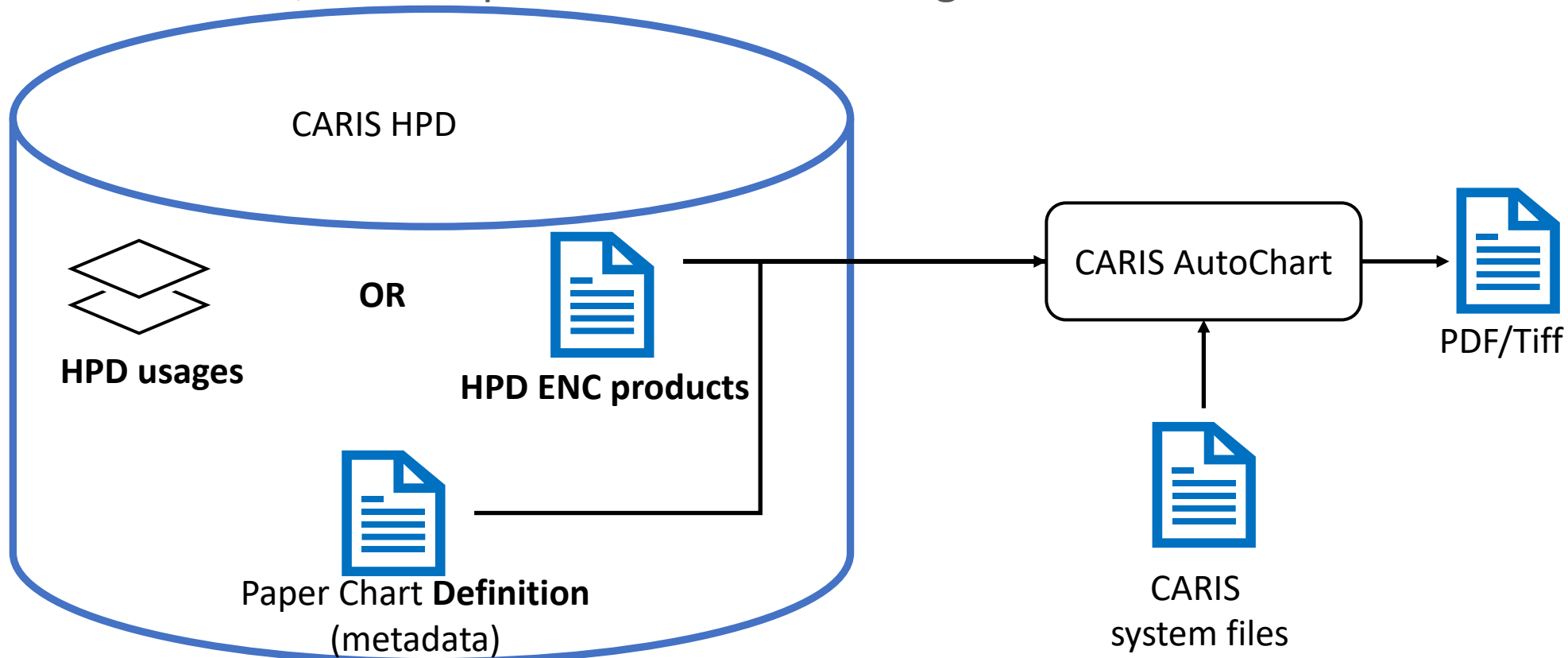
# What is CARIS Automated Chart Production?

- Automated production of paper charts
  - Several possible **Inputs**: **S-57/S-101 ENC**s, HPD Source or HPD Products
  - PDF/TIFF output disseminated using CARIS Cloud Chart Data Service



# What is CARIS Automated Chart Production?

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  - Several possible **Inputs**: S-57/S-101 ENC's, **HPD Source or HPD Products**
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# From ENC data to IHO S-4 standard paper chart

## Sequence of **mapping rules**

- Filter features not desired in the paper chart
- Add attribute information used by the symbolization
  - Extract information from collection attributes
  - Indicate an obstruction point is inside an obstruction area
  - Etc

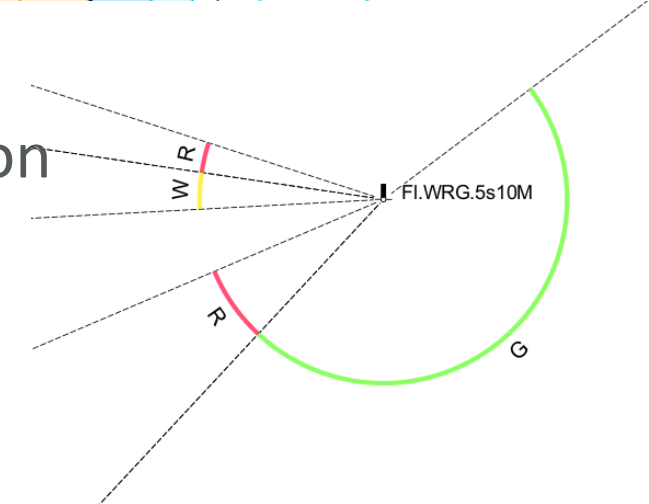
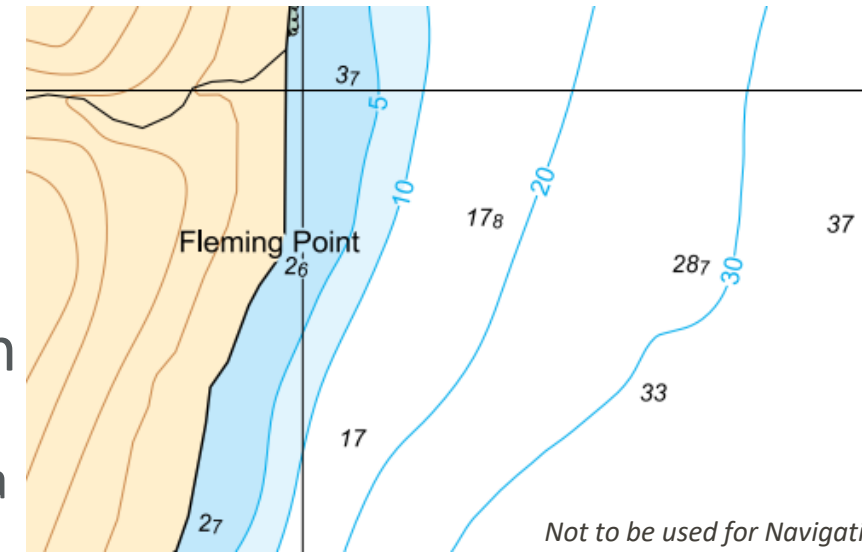
## Annotation

- Create placeholder or text features for the symbolization
  - Depth contour labels, light characteristics, ...

## Symbolization library

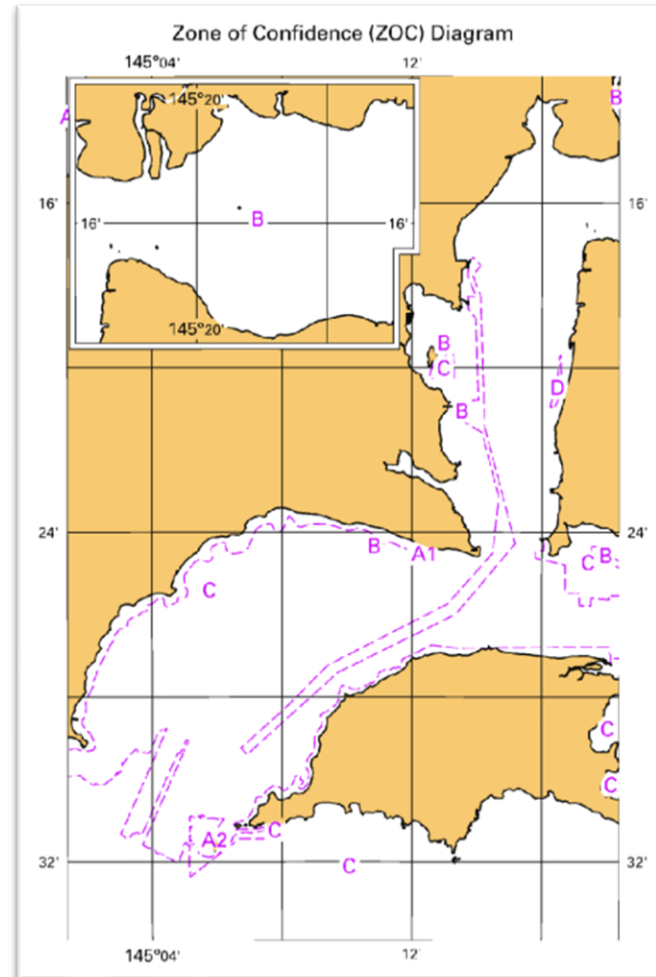
- Rules to symbolize S-57 data according to IHO S-4
  - S-52 based rules and CARIS dynamic cartography rules

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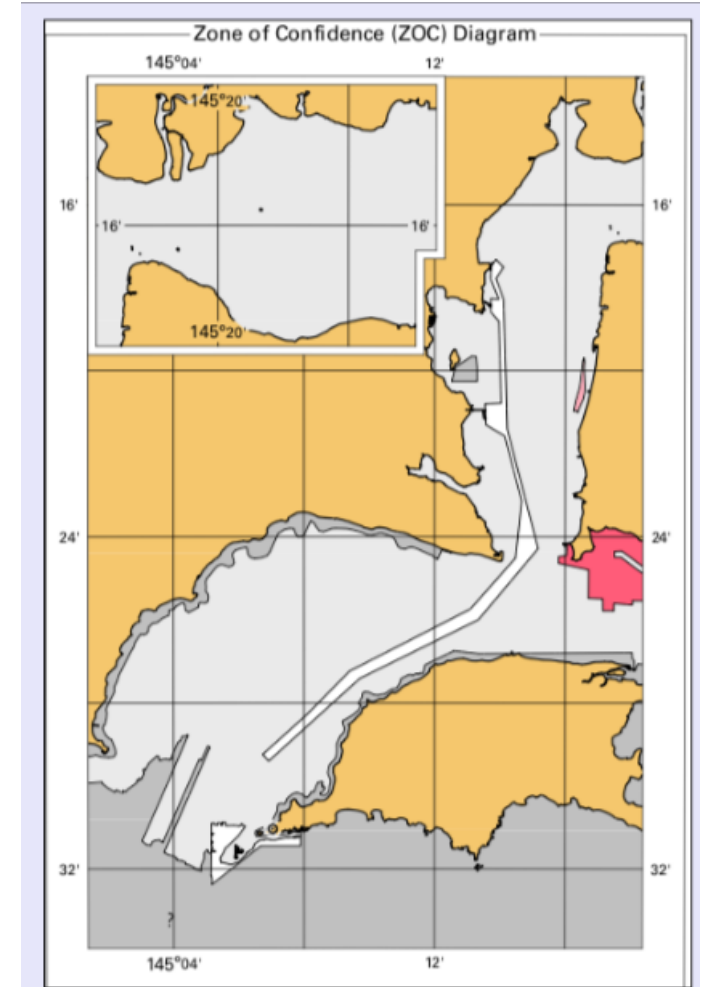


# Automated ZOC diagrams Creation

- ZOC diagram position specified in chart definition
- Customizable ZOC diagram configuration files
  - Feature catalogue, annotation, symbolization library, colours, marginalia style, border styles
- CARIS AutoChart generates automatically the ZOC diagram



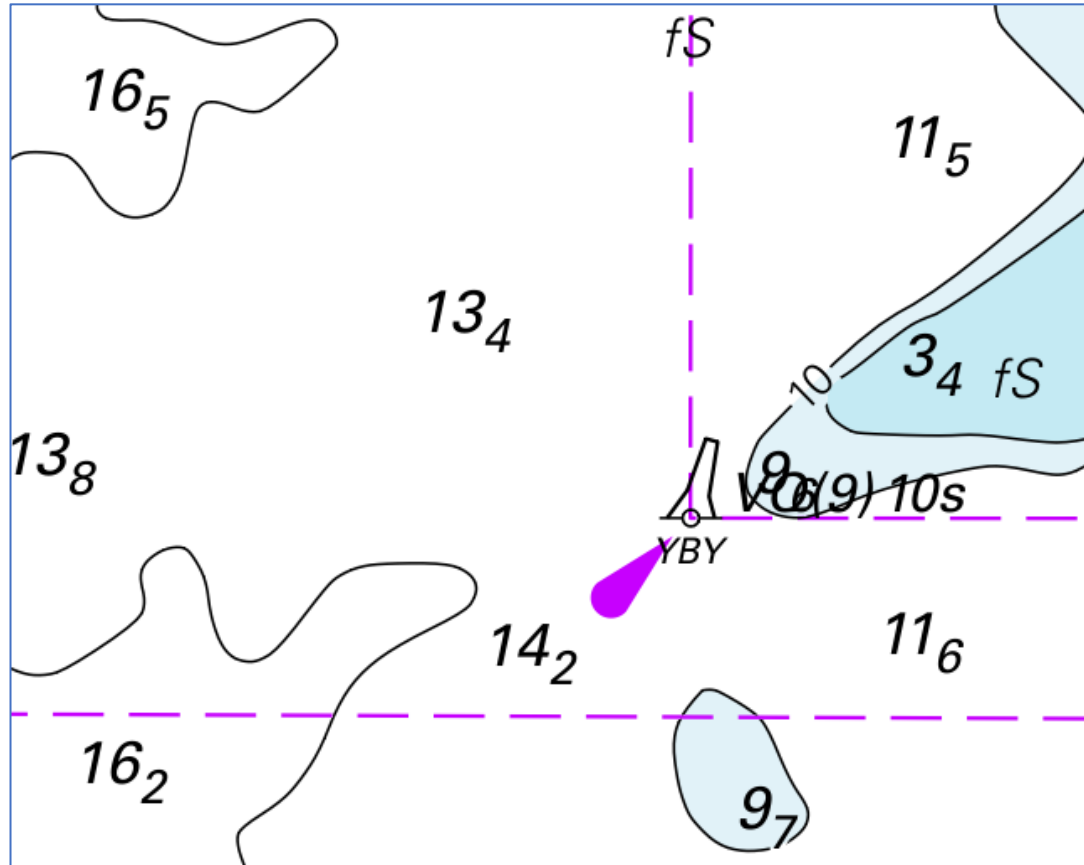
ZOC diagram with labels



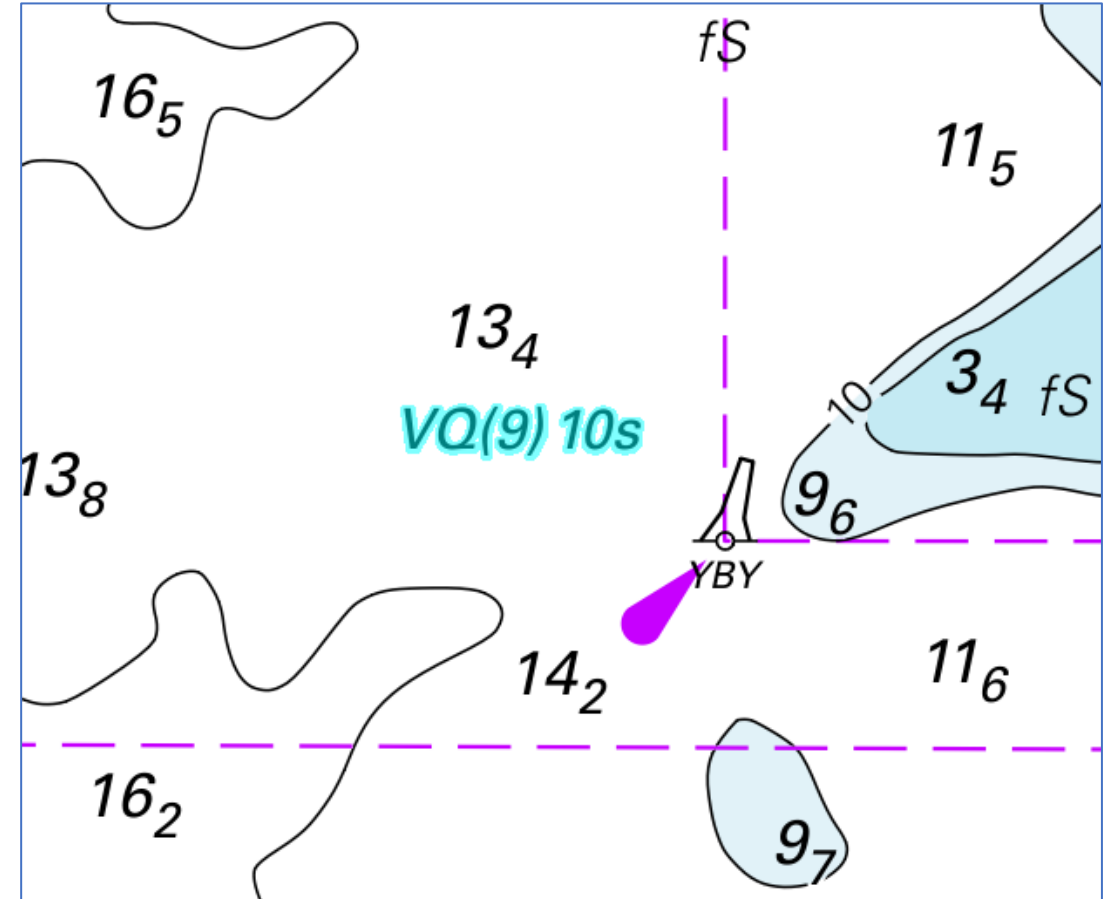
ZOC diagram with colours

# Label placement - example

Before



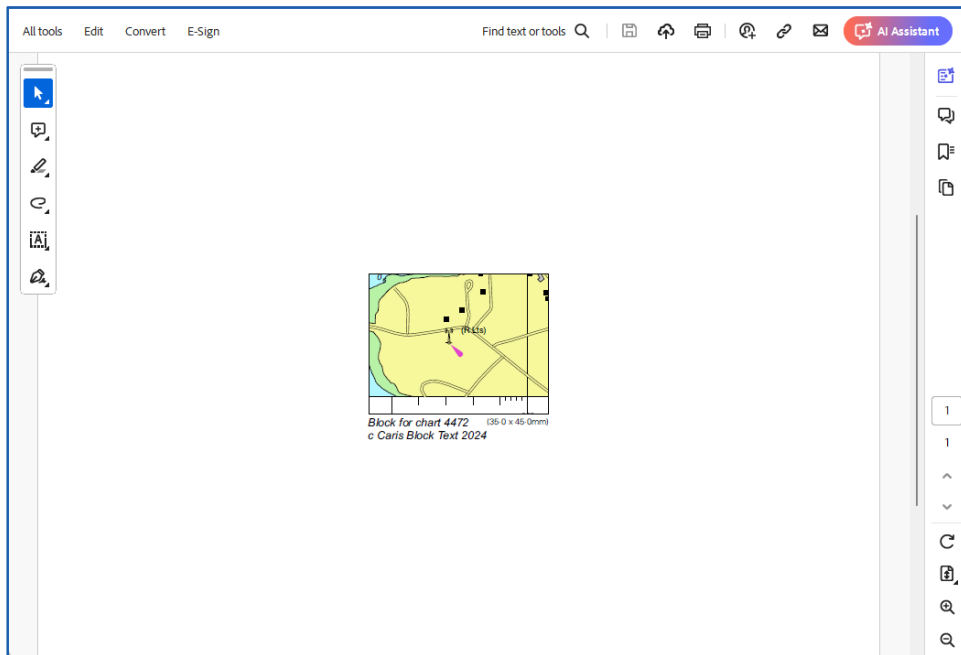
After



- Available in the fully automated CARIS AutoChart workflow
- Also available as an AutoChart command line process to execute independently on usages or products

# AutoChart – User Interface: Export Updates

- Results – Block Corrections are created for the charts in PDF format



- Note
  - If no changes are detected no new block will be created
  - If there are too many changes and their extent will not fit on the block correction (A4 page layout), no block will be created – instead, use the new updated full chart that is created too

Thank you!

[Juan.Carballini@Teledyne.com](mailto:Juan.Carballini@Teledyne.com)

