



# EAtHC-ICCWG S-100 Workshop (2023)

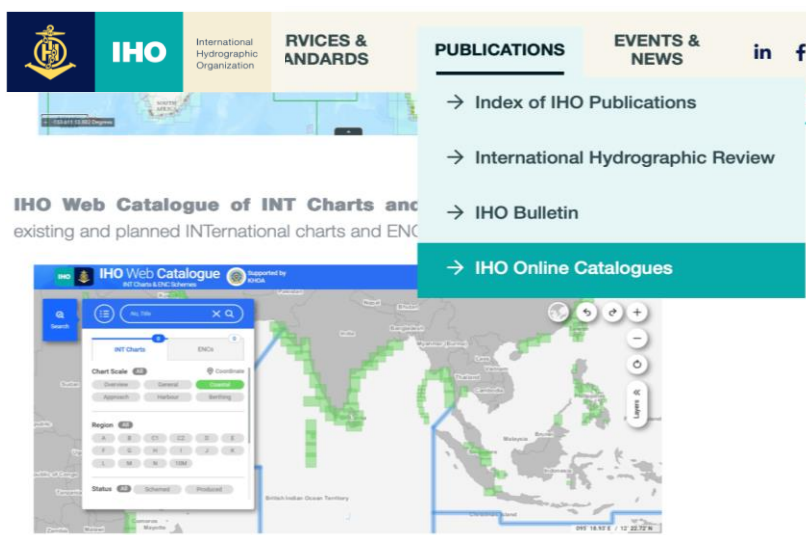
## ***Presentation of INToGIS III for S=1xx products***

### **Agenda Item 02.3A**



## • What is INTOGIS

- Providing a list of the latest INT charts (schema and products) supporting maintenance tasks such planning, review and approval of INT charts
  - Currently providing links to the IHO online catalogue and publication on the IHO website (Link: <https://chart.iho.int/iho/main.do> → INToGIS II)
- In the future, IHO secretarial manage and coordinate catalogue S-1XX schema and products



IHO		INTERNATIONAL HYDROGRAPHIC ORGANIZATION	SERVICES & STANDARDS	PUBLICATIONS	EVENTS & NEWS
S-11	Guidance for the Preparation and Maintenance of International (INT) Chart and ENC Schemes and Catalogue of International (INT) Charts <b>Part A</b> - Guidance for the Preparation and Maintenance of International (INT) Chart and ENC Schemes (Edition 3.1.0, February 2018 - Publication date: February 2018)			<a href="#">English</a>	
	<b>Part B</b> - INTERNATIONAL Chart Web Catalogue, Associated Webservices and User Manuals			<a href="#">Link</a>	
	<ul style="list-style-type: none"> <li>• <a href="#">IHO International Charting Regions</a></li> <li>• <a href="#">INT Charts/ENC Regions Coordinators</a> (as of 30 June 2023)</li> </ul>				



- **About INT Chart maintenance subject, procedure, scope**
  - IHO NCWG\* is responsible for maintenance such as new, closed, and renewed INT charts
  - S-11\*\* contains maintenance guidelines for INT chart (PartA) and the list of the latest INT charts (PartB)
  - The decision to maintain the INT charts consist of a process proposed by the HO, ICCWG \*\*\* and finally approved by the IHO
  - The S-11 standard was revised in June 2017 to include not only paper based INT charts but also ENC

\* Nautical Chart Working Group

\*\* Guidance for the preparation and maintenance of International Chart and ENC schemes and catalogue of International Charts

\*\*\* INT Chart Coordination WorkingGroup



**IHO**

# **DEVELOPMENT STAGE**

International  
Hydrographic  
Organization

- **INToGIS I (2016~2017)**
  - **Web catalogue**
    - Build/display BaseMap and INT Charting Regions (A to N) worldwide
    - Search by INT Chart Name, Zone, Publication country, Publication Date, etc
    - Search INT chart and download search results according to the route direction
  - **Manager Mode (INT Chart Web Manager)**
    - Membership, login, and empowerment according to the role of HO/ICCWG/IHB
    - Provide approval process such as proposal, approval, etc. accordingly
    - Version management according to INT Chart management

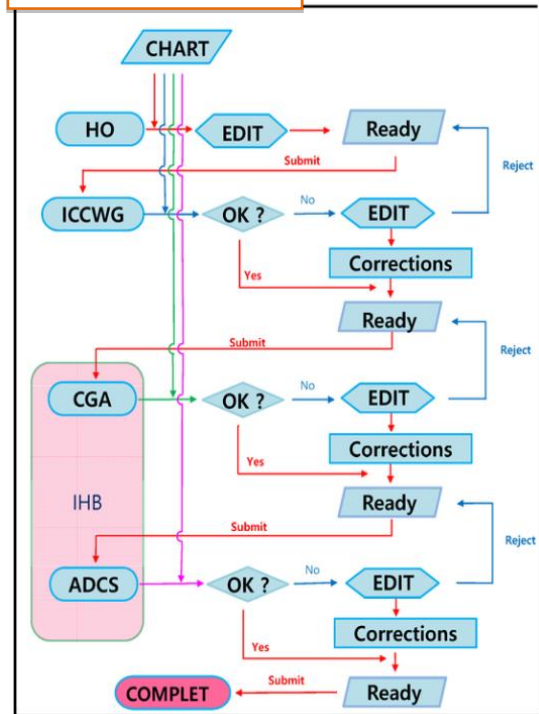


IHO

# DEVELOPMENT STAGE

General User(No need for login)

Submit Process



Member(Login Require)

INT No.	PanelId	INT Region	Region Ver.	INT Title	Producer	Nat.No.	S.Init	N.Init	W.Init	E.Init	1stEdYear	1stEdWeek	NewEdYear	NewEdWeek	Status
5251	MAIN	K	3.0.0 - Jan. 2016	Jukbyeon Hang L...	KR	103	35°00.18'N	37°06.18'N	128°57.84'E	130°49.84'E	1991		2008		Prc
5252	MAIN	K	3.0.0 - Jan. 2016	Geomundo to Dae...	KR	214	33°27.20'N	35°01.20'N	124°49.90'E	127°35.90'E	1992		2009		Prc
5253	MAIN	K	3.0.0 - Jan. 2016	Busan Hang to G...	KR	229	33°50.18'N	35°23.18'N	127°05.87'E	129°46.85'E	1993		2008		Prc
5254	MAIN	K	3.0.0 - Jan. 2016	Daehuksan Gund...	KR	302	34°35.02'N	36°47.02'N	125°04.14'E	126°58.87'E	1994		2009		Prc
5255	MAIN	K	3.0.0 - Jan. 2016	Gyeonyeolbi Yeo...	KR	323	36°36.18'N	38°09.15'N	124°14.90'E	126°59.87'E	1994		2009		Prc
5351	MAIN	K	3.0.0 - Jan. 2016	Ulsan Man	KR	119	35°21.20'N	35°32.10'N	129°19.20'E	129°28.50'E	1993		2010		Prc
5352	MAIN	K	3.0.0 - Jan. 2016	Ulsan Hang	KR	119-1	35°28.02'N	35°32.01'N	129°21.06'E	129°28.03'E	1993		2010		Prc
5354	MAIN	K	3.0.0 - Jan. 2016	Pohang Hang	KR	135	35°59.40'N	36°04.80'N	129°21.70'E	129°31.10'E	1991		2010		Prc
5356	MAIN	K	3.0.0 - Jan. 2016	Busan Hang	KR	201	35°04.03'N	35°08.01'N	129°01.40'E	129°07.30'E	1995		2010		Prc
5357	MAIN	K					35°00.18'N	37°06.18'N	128°57.90'E	129°02.60'E	1995		2008		Prc
5358	MAIN	K					33°27.20'N	35°01.20'N	128°57.90'E	129°02.60'E	1995		2008		Prc
5359	MAIN	K					36°36.18'N	38°09.15'N	128°57.90'E	129°02.60'E	1995		2008		Prc
5360	MAIN	K					35°04.03'N	35°08.01'N	128°57.90'E	129°02.60'E	1995		2008		Prc

INT Chart management

Types of permissions by user

		HO	ICCWG	CGA	ADCS
READY	ACTION	New, Modify Delete	New, Modify Delete	New, Modify Delete	New, Modify Delete
	STATUS	Edit, Reject	Edit, pending Reject	Edit, pending Reject	Edit, Ready
SUBMISSION	ACTION	New, Modify Delete	New, Modify Delete	New, Modify Delete	New, Modify Delete
	STATUS	Pending, Ready Approved Complete	Pending, Ready Approved Complete	Ready Approved Complete	Approved Complete



**IHO**

# **DEVELOPMENT STAGE**

International  
Hydrographic  
Organization

- **INToGIS II (2018~2019)**
  - **Web catalogue**
    - Additional display of electronic charts in accordance with S-11 ed3.0.0 amendment and providing detailed information
    - Improving the marking of polar INT charts (transition of Antarctic/Arctic coordinate system)
  - **Manager Mode (INT Chart Web Manager)**
    - Add an INT electronic chart proposal and approval process
    - Provide information on paper and electronic charts around the world
    - Provide spatial analysis on INT and All the world charts for INT chart plan
    - Additional information, update, and management functions for INT charts plan (World Port Index, Traffic Density(EU/World), CATZOC)

\* WPI, Global Maritime Traffic Density Service(NGA) Transfer to online linkage using API(2023)the





# IHO

# DEVELOPMENT STAGE

International Hydrographic Organization

**INT Chart Web Manager** IHO KHQA

Search: INT Chart No, Title, port, country

Base map: WORLDMap, STREETSMAP, SATELLITEMAP, BATHYMETRYMap, Arctic Map, Antarctic Map

Information Detail:

Nation Title	Barentshavet
Nation Chart No	514
Inclusion Year	
First Edition Year	1960
New Edition Year	2011
Producers	NO
Chart Date Year	
Printer Nation	
Print Chart No	
Print format	
Frame Dimensions	
Scale	2,000,000
INT Area	N
Producing Status	Produced
Record Update Date	
Region Version	3.0.0 JAN. 2016

**INT Chart Web Manager** IHO KHQA Hello ADCS

Search: INT Chart No, Title, port, country

Information Detail:

Nation Title	Caucasian coast: Bukhta Vulkan to Port Ochamchira
Nation Chart No	32173
Inclusion Year	
First Edition Year	1995
New Edition Year	2010
Producers	RU
Chart Date Year	
Printer Nation	
Print Chart No	
Print format	
Frame Dimensions	
Scale	300,000
INT Area	F
Producing Status	Produced
Record Update Date	
Region Version	3.0.0 JAN. 2016

INT No	PanelId	INT Region	Region_Ver.	INT Title	Producer	Nat No.	S_Limit	N_Li
60	MAIN	3	3.0.8 - Oct. 2017	Australasia and...	AU	4060	51°0.0'S	2°36.27'S
3810	MAIN	1	3.0.0 - Jan. 2016	Caucasian coast...	RU	32173	42°36.00'N	44°28.00'

**INT Chart Web Manager** IHO KHQA

Search: INT Chart No, Title, port, country

930 - Grönlandshavet (Grönlandsee)

3,500,000	M	N	2008	NO	Produced
-----------	---	---	------	----	----------

9301 - Jan Mayen

100,000	M	N	2011	NO	Produced
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931 - Nonskeihavet-Norge - Jan Mayen (Norway to Jan Mayen)

3,500,000	M	N	1976	NO	Produced
-----------	---	---	------	----	----------

9311 - Svalbard, Bjørnøya Isfjorden

700,000	M	N	2011	NO	Produced
---------	---	---	------	----	----------

9312 - Barentshavet, Sørbariken-Sentralsbariken, Novaya Zemlja

700,000	M	N	2011	NO	Produced
---------	---	---	------	----	----------

Conversion Arctic Map

**IHO Web Manager** Supported by KHQA Hello GEOTW

World Port Index (WPI) showing port locations across the globe.

World Port Index(WPI)

**IHO Web Manager** Supported by KHQA Hello GEOTW

World Traffic Density map showing shipping routes and density.

World Traffic Density

**Website Management**

Manager Manual  
Manager Manual\_Ver1.3.pdf  
파일 선택 선택된 파일 없음

Catalogue Manual  
Catalogue\_Manual\_Ver1.0.pdf  
파일 선택 선택된 파일 없음

Fair Way  
파일 선택 선택된 파일 없음

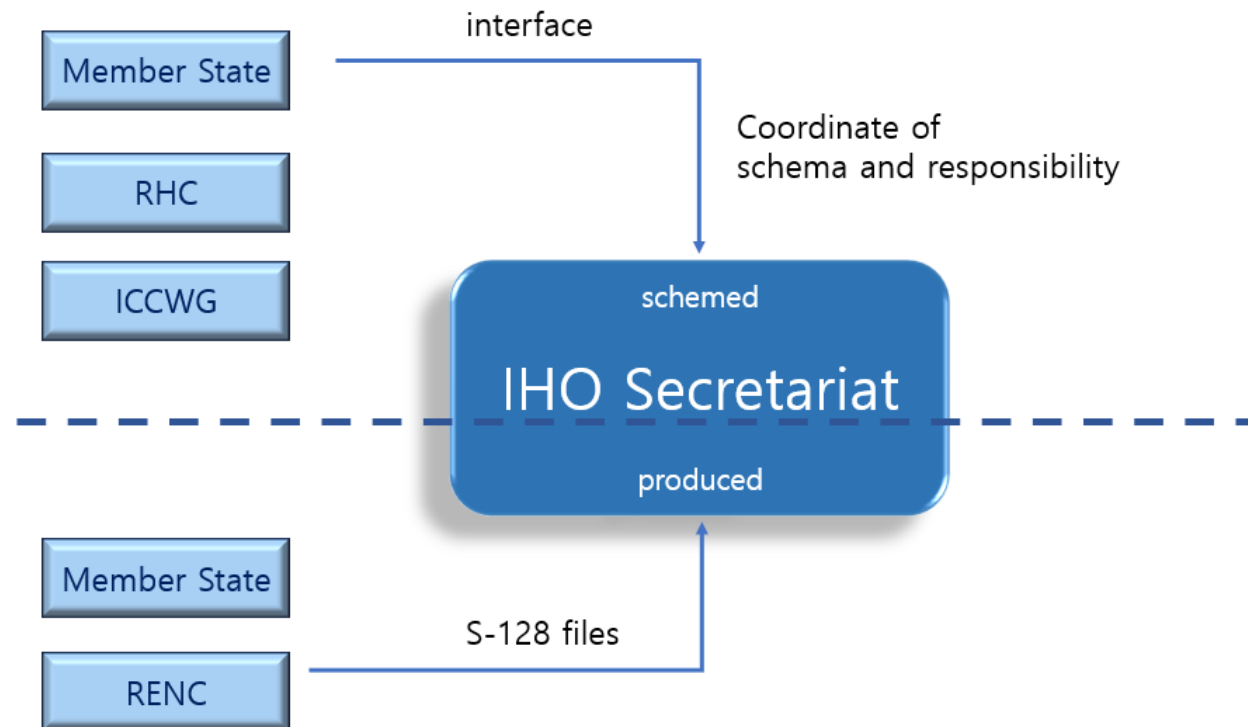
Port  
파일 선택 선택된 파일 없음

World ENC  
파일 선택 선택된 파일 없음

Additional information update management



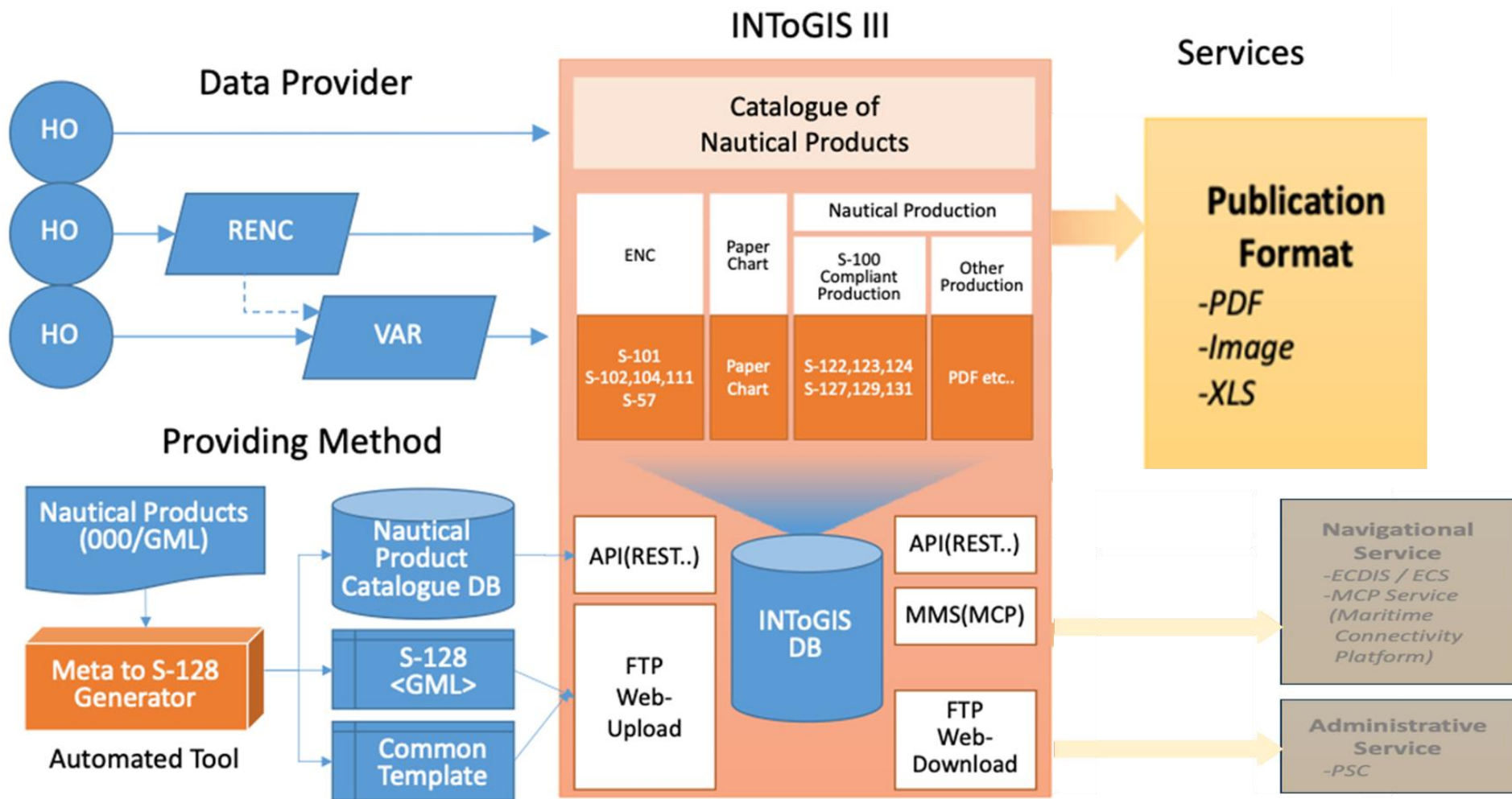
- **The direction of INTToGISIII development**
  - Provides the tools for MS/RHC/ ICCWG to plane schemes of S-1xx data/service including S-101
  - by applying the S-128 model, INTToGIS III will also display actual cover







## INToGIS III System Design





**IHO**

# **S-128 DEVELOPMENT**

International  
Hydrographic  
Organization

- **INToGIS III** status
  - In 2022 status
    - Search and map the latest navigational publications
    - Provides a collective registration function for S-128 format of navigation publication information
    - Test e-Navigation MCP with the latest navigation publication information  
(MCP Maritime Connectivity Platform)
  - In 2023 status
    - Improvement of DB model according to S-128 ed1.1.0 amendment (draft)
    - Display and search by separating plans and publications of navigational publications



# IHO INTOGISIII

International Hydrographic Organization

Search for Nautical Publication

**IHO Web Manager** Supported by KHOA  
INT Charts & ENC Schemes

Search: No, Title

All 0 Chart 0 **NPub** 0

**Nautical Publication** All

S-102 S-104 S-111  
S-124 S-129 Other

Status All Schemed Produced

Producer Issuance Year  
1 Items Selected 2022

Search Reset

Latest publication information of Nautical Publication

**IHO Web Manager** Supported by KHOA Hello T-S128 Disclaimer Manual Logout

Map Basic OpenStreet GEBCO Arctic Antarctic

Search: No, Title

All 0 Chart 0 **NPub** 3

Title

104UK\_20210401T000000Z\_SolettAndAppr\_dcf2 UK

104KR00KR4\_G3B30\_20220810\_F24 KR

104KR00KR4\_G3B20\_20220810\_F24 KR

Back Download

**104KR00KR4\_G3B30\_20220810\_F24**

Title	104KR00KR4_G3B30_20220810_F24
Producer	KR
Product ID	S-104
Product Type	S-100 compliant product
Publication Number	S-104
Copyright	KHOA
Edition Date	2022-04-07
Edition Number	1.0
Issue Date	2022-04-07
Product Format	HDF5

DB Version  
INT chart: 3.0.174 - Jul. 2022  
ENCs scheme : 1.2.97 - Apr. 2021  
ENC catalogue : SDFSDF  
130° 10.12' E / 35° 57.43' N



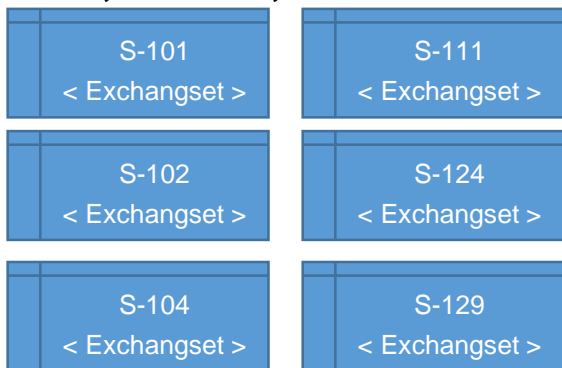
IHO

# INTOGIS III

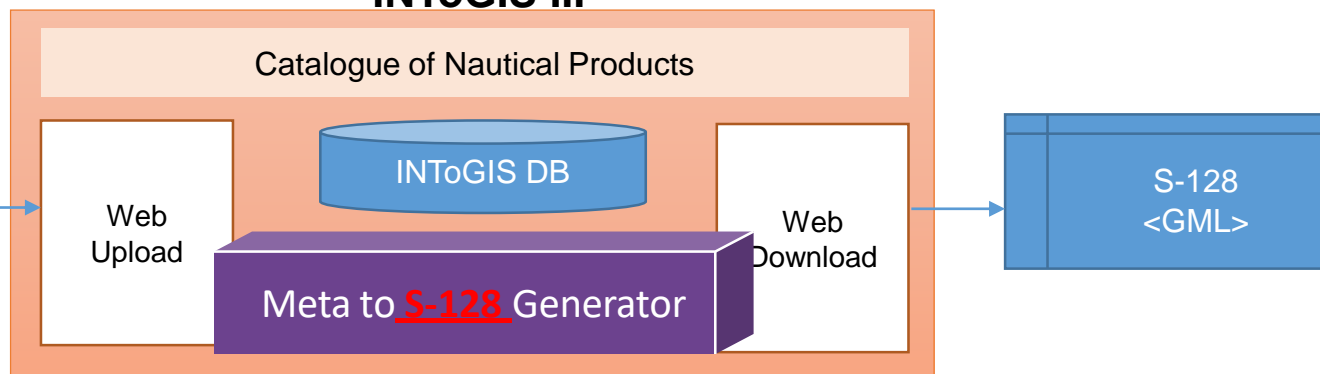
International Hydrographic Organization

The screenshot shows the 'S-128 Catalogue of Nautical Product' interface. On the left, the 'ExchangeSet To S-128' section is active, with a 'Supporting Product' dropdown menu open, showing options S-101 through S-129. A red arrow points from the 'Convert' button to the right-hand screenshot. In the right-hand screenshot, the 'Supporting Product' is set to 'S-101' and the progress bar shows '100.0%'. Below the interface, a red-bordered box contains the text 'Generate S-128 GML from ExchangeSet'. To the right, a 'Recent Downloads' window is visible, showing a file named '128AA00T20230802182453.gml' with a size of 4.9 MB, downloaded 3 minutes ago.

## HOs, RENCs, Other Providers



## INTOGIS III





- **Test Site**
  - URL : <http://119.195.114.103/s128Beta>
  - Account(User Id / Password) : T-S128 / test128
- **S-128 Dataset Registration Function**
  - If you don't have the S-128 Dataset
    - Use the S-128 Generator feature to convert the CATALOG.xml file for the S-100 product into an S-128 Dataset (GML) file
  - If you have the S-128 Dataset
    - Share datasets using the S-128 upload function
- Provides the latest navigation publication information
  - S-128 Data Inquiry by Object
  - Integrated inquiry of S-128 data and INT data

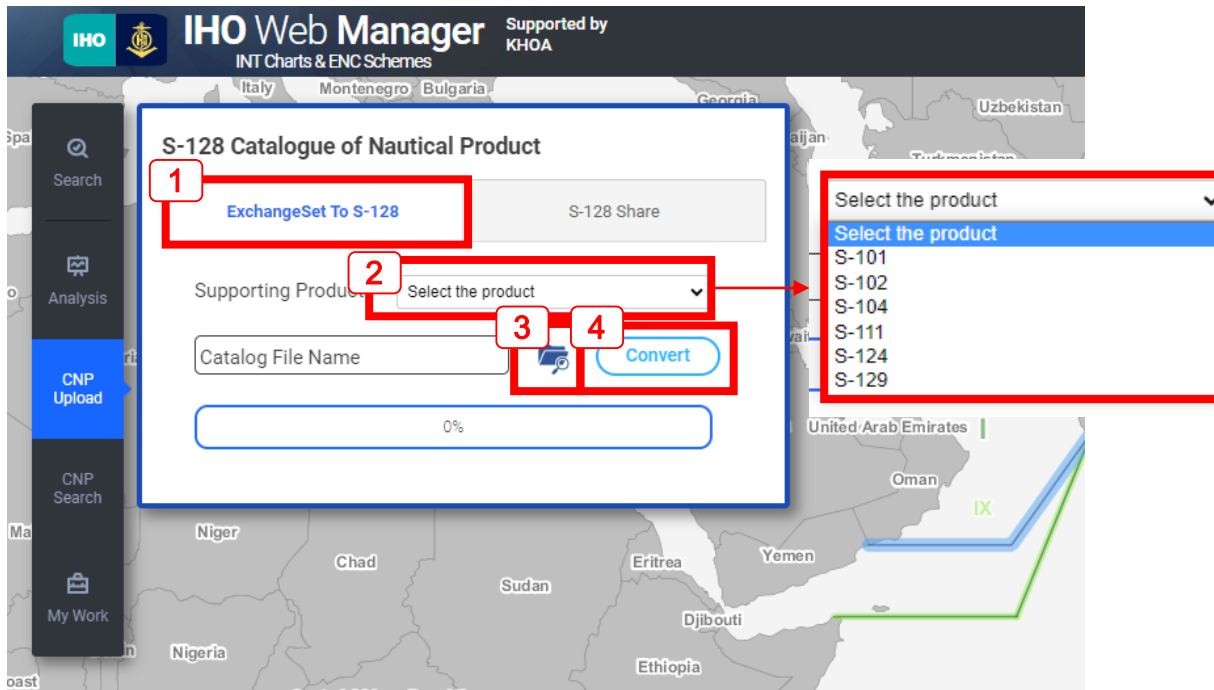




# IHO INTOGIS III FUNCTION

International  
Hydrographic  
Organization

- S-128 Dataset Registration Function: If you do not have an S-128 Dataset
  - S-128 Generator functionality: CATALOG.xml for S-100 products
    - S-128 Dataset Supported Product Lists: S-101, S-102, S-104, S-111, S-124, S-129



1. Click the "ExchangeSet To S-128" tab to convert S-100-based products to S-128 Dataset.
2. Select the product to upload from the Supporting Product list.
3. Click the folder icon to select the CATALOG.xml file you want to convert.
4. Click the Convert button to convert to the S-128 dataset.



# IHO INTOGIS III FUNCTION

International  
Hydrographic  
Organization

- S-128 Dataset Registration Function: If you do not have an S-128 Dataset

The screenshot displays the IHO Web Manager interface for the S-128 Catalogue of Nautical Product. The interface includes a sidebar with navigation options: Search, Analysis, CNP Upload (highlighted), CNP Search, and My Work. The main content area shows the 'S-128 Catalogue of Nautical Product' section with a map of the Republic of Korea in the background. A conversion process is shown with a progress bar at 100.0%. A 'GML Download' button is highlighted with a red box and labeled '2'. Below the progress bar, a 'Recent Downloads' window is open, showing a file named '128AA00T20231025145408.gml' (2,920 B) with a status of 'Done', highlighted with a red box and labeled '3'. On the map, a purple rectangle labeled 'Nautical Publication' is highlighted with a red box and labeled '1'. The interface also shows 'ExchangeSet To S-128' and 'S-128 Share' buttons, a 'Supporting Product' dropdown set to 'S-102', and an input field containing 'CATALOG\_KHOA.xml' with a 'Convert' button.

1. The data area of the uploaded file is displayed on the map.
2. When converting is completed, a 'GML Download' button is created.
3. When converting is completed, a 'GML Download' button is created.



# IHO INTOGIS III FUNCTION

International Hydrographic Organization

- S-128 Dataset Registration Function: If you have an S-128 Dataset

**IHO Web Manager** Supported by KHQA  
INT Charts & ENC Schemes

### S-128 Catalogue of Nautical Product

ExchangeSet To S-128 **S-128 Share**

S-128 GML File Name

**Upload**

**GML**

Feature	
Total	
Paper Chart	
Electronic Chart	
Nautical Products	

MetaData	
S100:encodingSpecification	
S100:encodingSpecificationEdition	
productEdition	
datasetFileIdentifier	
datasetReferenceDate	

**Choose File** No file chosen

1. Click the 'S-128 Share' tab to upload S-128 data.
2. Click the Upload button to display a window where you can select a file.
3. Click the 'Choose File' button to select the S-128 Dataset file (GML) file to upload.
4. After selecting the file, click the 'ok' button to complete the upload.



# IHO INTOGIS III FUNCTION

International  
Hydrographic  
Organization

- S-128 Dataset Registration Function: If you have an S-128 Dataset

**S-128 Catalogue of Nautical Product**

ExchangeSet To S-128      S-128 Share

S-128\_TDS\_sample.gml      Upload

**1**

**Feature**

Total	3
Paper Chart	1
Electronic Chart	1
Nautical Products	1

**3**

**MetaData**

S100:encodingSpecification	S-100 Part 10b
S100:encodingSpecificationEdition	1.0
productEdition	1.1
datasetFileIdentifier	S128_TDS
datasetReferenceDate	2023-10-12

Save

**2**

Nautical Publication

Republic of Korea

1001

101KR002G4000\_1

1. Feature and MetaData information of the uploaded dataset are displayed.
2. The area of the object in the dataset can be seen on the map.
3. You can check detailed information by clicking on the object name (Paper Chart, Electronic Chart, Nautical Products).



# IHO INTOGIS III FUNCTION

International Hydrographic Organization

- S-128 Dataset Registration Function: If you have an S-128 Dataset

**S-128 Catalogue of Nautical Product**

ExchangeSet To S-128 [S-128 Share](#)

1

Paper Chart 1 Electronic Chart 1 Nautical Products 1

Chart Number	Producer	Scale	Issue Date	Product Type	Geometry
1001	KR	2000000	2018-10-	paper nautical chart	N

2

Back Save

Total 3 data are saved. Ok

1001 Republic of Korea

1. Detailed information for each object can be checked.
2. Upload is completed through the Save button, and the number of uploaded objects appears in a pop-up window.

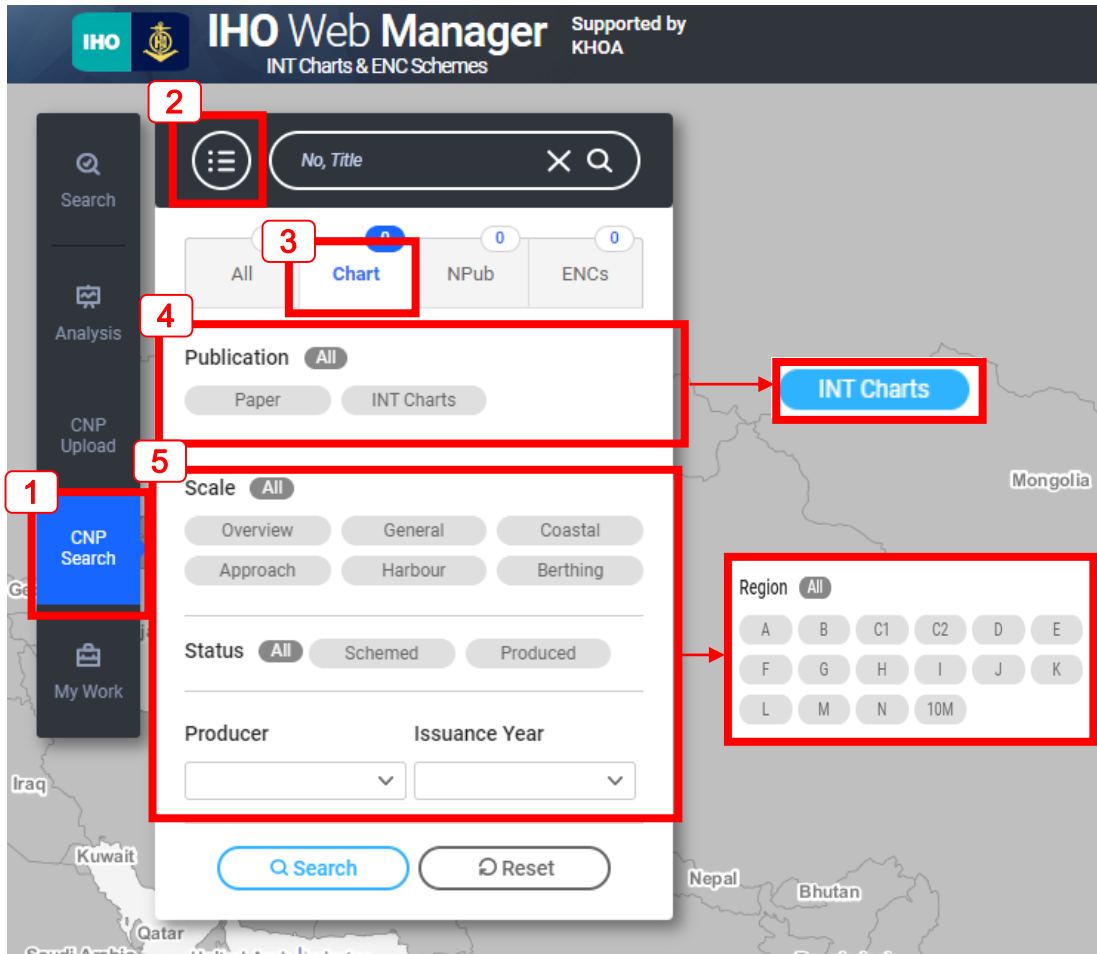




# IHO INTOGIS III FUNCTION

International Hydrographic Organization

- Provides the latest navigation publication information – Search for paper chart information



1. Click CNP Search Tab for hydro product search.
2. Click the menu-shaped icon to display a search window.
3. Select 'Chart' Tab for paper chart search.
4. You can search by selecting Paper (S-128 paper comprehension) and INT charts (international paper charts). \* For INT charts, a region search condition is added.
5. You can select Scale, Status, Producer, and Issue Year as search conditions.



# IHO INTOGIS III FUNCTION

International  
Hydrographic  
Organization

- Provides the latest navigation publication information – searching navigation publication information

The screenshot displays the IHO Web Manager interface for navigation publication search. The top header shows the IHO logo and 'IHO Web Manager' with 'Supported by KHOA' and 'INT Charts & ENC Schemes'. A search bar at the top contains 'No, Title'. A sidebar on the left includes 'Search', 'Analysis', 'CNP Upload', 'CNP Search', and 'My Work'. The main content area features a search modal with the following elements:

- 1**: A tab labeled 'NPub' is selected, highlighted with a red box and the number 1.
- 2**: A section titled 'Nautical Publication' with an 'All' filter, containing buttons for 'S-102', 'S-104', 'S-111', 'S-124', 'S-129', and 'Other', highlighted with a red box and the number 2.
- 3**: A section titled 'Status' with 'All', 'Schemed', and 'Produced' filters, and a section for 'Producer' and 'Issuance Year' with dropdown menus, highlighted with a red box and the number 3.

At the bottom of the search modal are 'Search' and 'Reset' buttons. The background shows a map of the region including Kuwait, Pakistan, Nepal, and Bhutan.

1. Select 'Npub' Tab for navigation publication search.
2. Navigation products may be classified into S-102, S-104, S-111, S-124, S-129, and Other and searched.
3. You can select Status, Producer, and Issue Year as search conditions..



- Provides the latest navigation publication information – ENC information retrieval

The screenshot shows the IHO Web Manager interface for ENC search. The search bar at the top contains 'No, Title'. The navigation menu on the left includes Search, Analysis, CNP Upload, CNP Search, and My Work. The search filter panel is highlighted with a red box and divided into three sections:

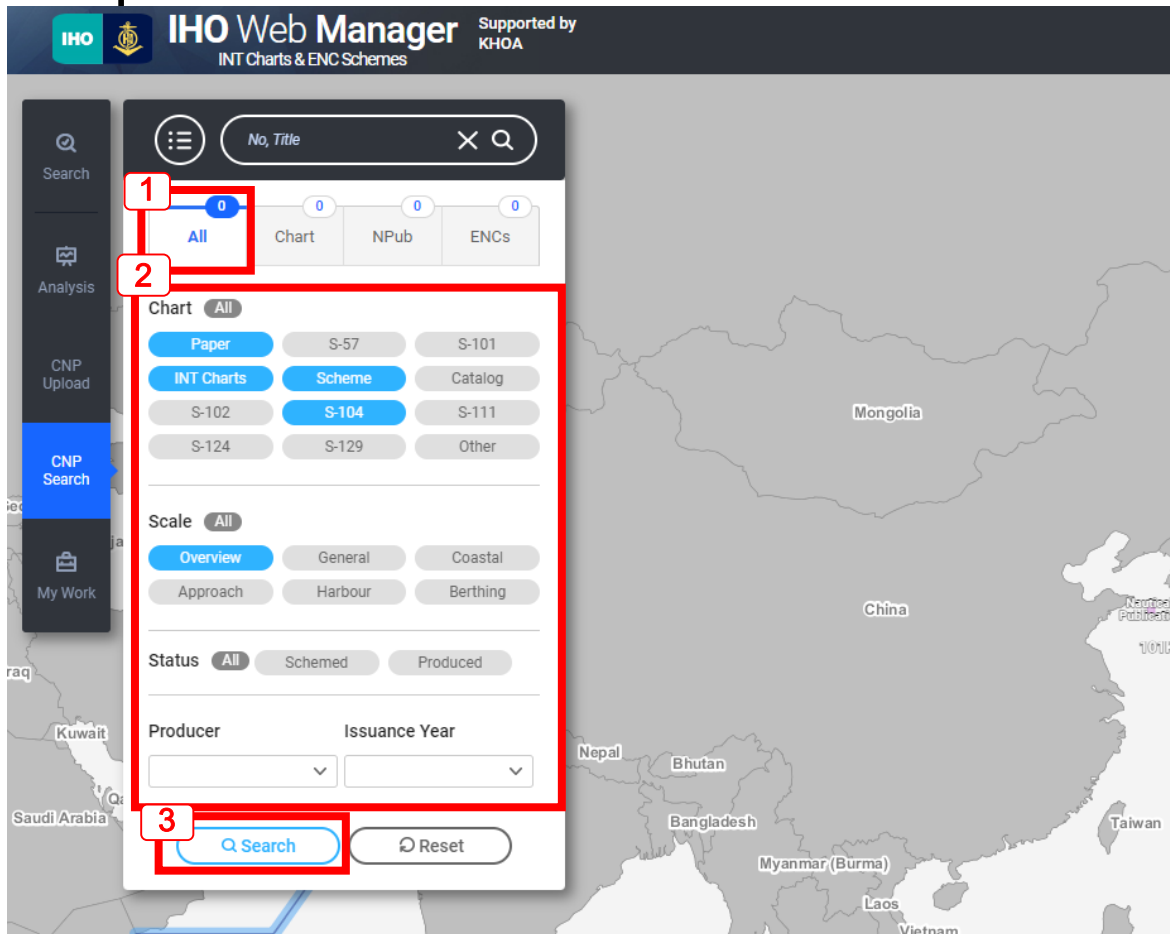
- ENCs Tab:** The 'ENCs' tab is selected, with 'All', 'Chart', and 'NPub' tabs also visible.
- ENCs Publication:** The 'All' tab is selected, with 'S-128', 'S-57', 'S-101', 'INT', 'Scheme', and 'Catalog' options available.
- Scale:** The 'All' tab is selected, with 'Overview', 'General', 'Coastal', 'Approach', 'Harbour', and 'Berthing' options available.

Below the filter panel, there are sections for 'Status' (All, Schemed, Produced), 'Producer' (dropdown), and 'Issuance Year' (dropdown). At the bottom, there are 'Search' and 'Reset' buttons. A map of the region is visible in the background.

- Select 'ENCs' Tab for electronic chart search.
- S-57, S-101 data collected by S-128, and Scheme (international electronic charts) and Catalog (provided by RENC) can be selected and searched.  
\* For Scheme and Catalog, a region search condition is added.
- You can select Status, Producer, and Issue Year as search conditions.



- Provides the latest navigation publication information – unified navigation publication information search



1. Select 'All' Tab
2. You can search for products at once with all the numbers that correspond to Chart, Npub, and ENC's Tab.
3. Press the Search button to start the search.



# IHO INTOGIS III FUNCTION

International  
Hydrographic  
Organization

- Provides the latest navigational publication information

The screenshot displays the IHO Web Manager interface for searching navigational publications. The search results are as follows:

Item	INTChart	GE
<input type="checkbox"/> 3873	INTChart	GE
<input type="checkbox"/> 3873	INTChart	GE
<input type="checkbox"/> 3871	INTChart	GE
<input type="checkbox"/> 3748	INTChart	TR
<input type="checkbox"/> 3744	INTChart	TR

The map shows the Republic of Korea with several search results overlaid, including a purple box labeled 'Nautical Publication', a yellow box labeled '101KR002C4000-1', and two pink boxes labeled 'S-104'.

1. The number of data that meet the condition is displayed.
2. A list of search data is displayed.
3. A list of search data is displayed on the map.





# IHO INTOGIS III FUNCTION

International  
Hydrographic  
Organization

- Provides the latest navigational publication information

The screenshot displays the IHO Web Manager interface. The search results list on the left contains several entries, with the second entry, '104KR00KR4\_G3B30\_20220810\_F24', highlighted in red and labeled '1'. A red box labeled '2' encompasses the detailed view of this selected entry, which includes fields such as Title, Producer, Product ID, Product Type, Publication Number, Copyright, Edition Date, Edition Number, Issue Date, Product Format, and Status. A red box labeled '3' highlights the 'Download' button at the bottom of the search results list.

104KR00KR4_G3B20_20220810_K24	
Title	104KR00KR4_G3B20_20220810_F24
Producer	KR
Product ID	S-104
Product Type	S-100 compliant product
Publication Number	S-104
Copyright	KHOA
Edition Date	2022-04-07
Edition Number	1.0
Issue Date	2022-04-07
Product Format	HDFS
Status	Schemed

1. In the search list, click the data you want to query for details.
2. The area of the selected data is highlighted and detailed information is displayed together.
3. After selecting the data to download as a file, you can download it as a file in GML, PDF, and XLS formats by clicking the Download button.  
(Part of function modification in progress)



IHO

# FUTURE PLANS

International Hydrographic Organization

					Display setup	Output setup	Input setup									
Products in Database					Display test	Output test	Input Test	Overall Test	WEND-13 Feedback		Finalize		TESTING		COMMISSIONING	
APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR ~ DEC		JAN~JUN		JUL~DEC	
2022								2023				2024				

- updating INToGIS II -> INToGIS III at IHO : November 2023
- Testing INToGIS III : January – June 2024
- Commissioning : 2<sup>nd</sup> half 2024