



2nd IHO Geospatial Information (GI) Registry Workshop

Introduction of IHO GI Registry

IHO GI Registry Manager (Jeff Wootton)



IHO

2ND GI REGISTRY WORKSHOP - AIMS

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Hydrographic
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- Introduction to the IHO GI Registry
- Understanding structure of the IHO GI Registry
- Understanding the GI Registry Interface
- Discuss possible improvements to the Registry Interface
- Advance development of “conventions and guidelines” for the IHO GI Registry
 - Rationalization of Registry content
 - Discuss possible new data modelling concepts for the Registry (for example utilization of concept specializations (URNs, Namespaces))
- Introduction to Registry associated tools
 - Feature Catalogue Builder
 - Portrayal Catalogue Builder

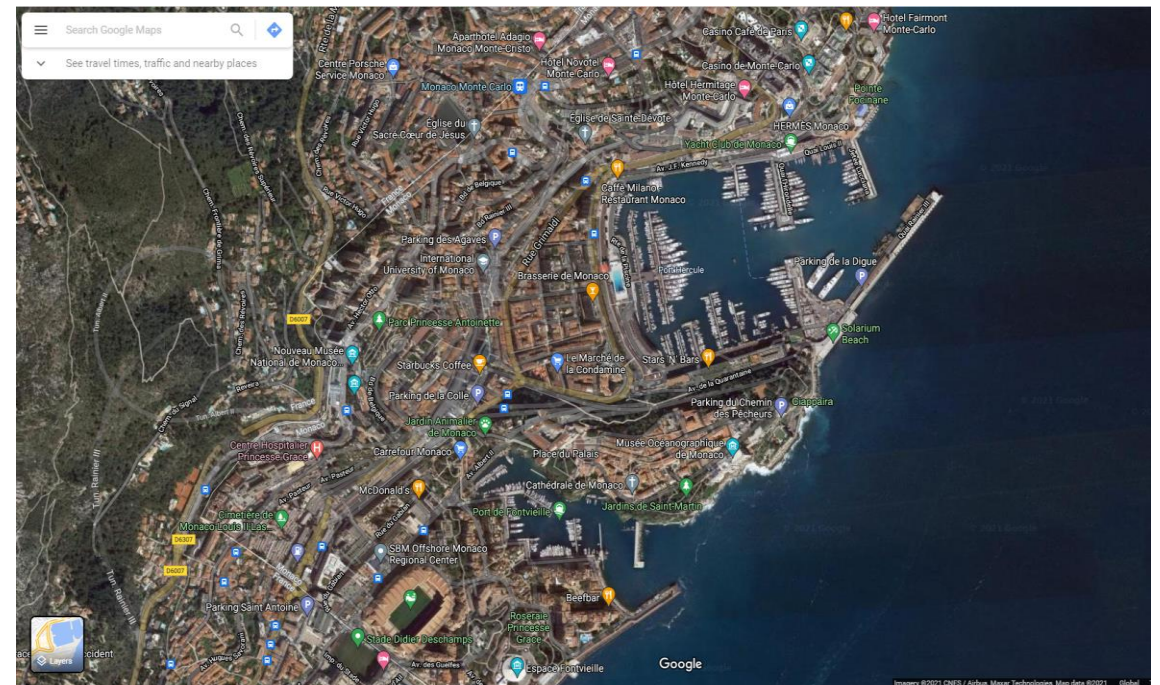
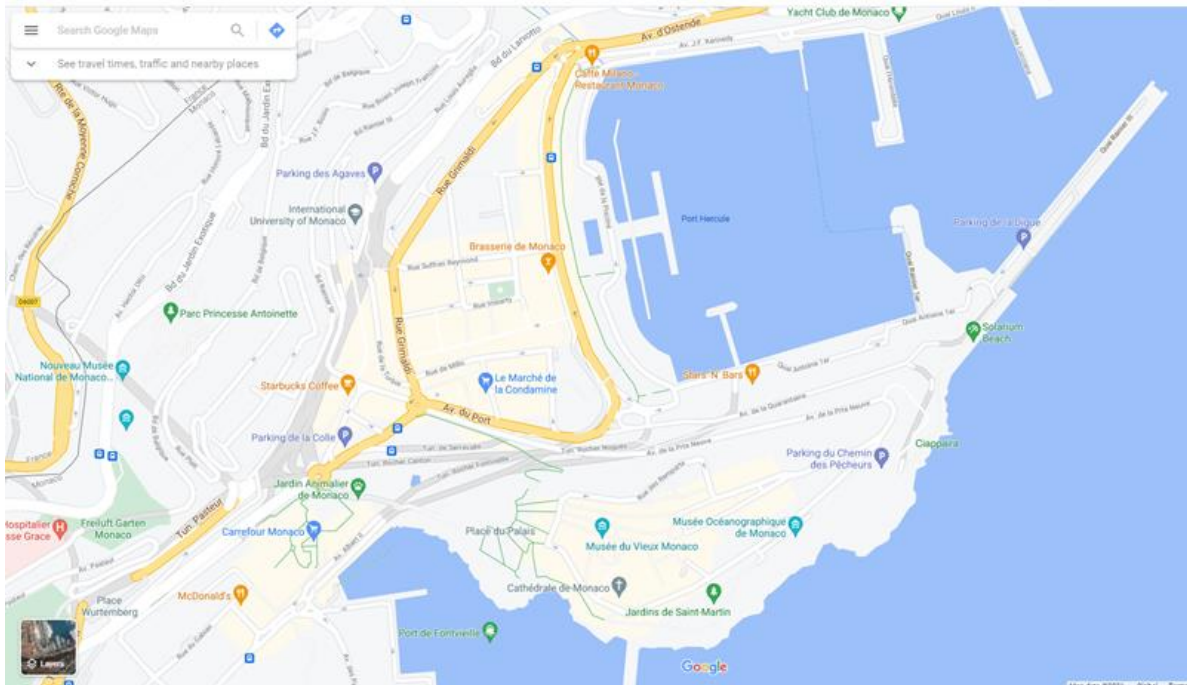


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INTRODUCTION

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- Modern Geoinformation software has the ability to **combine geodata from various themes and domains**.
 - Example : Google Maps™ (position and directions, but also links to restaurants and services; satellite imagery, real time traffic information)

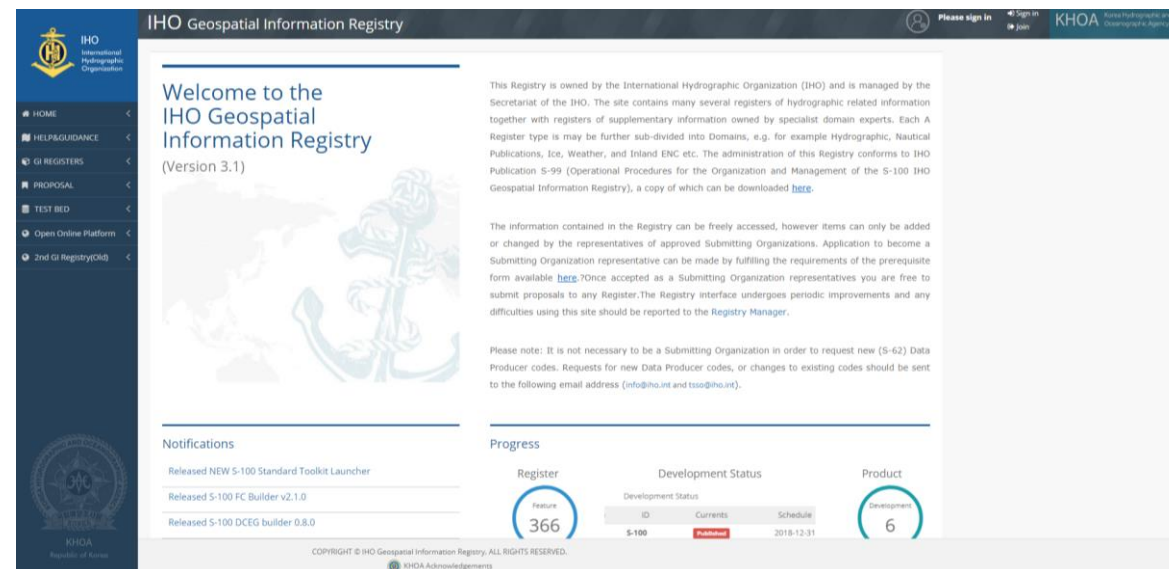
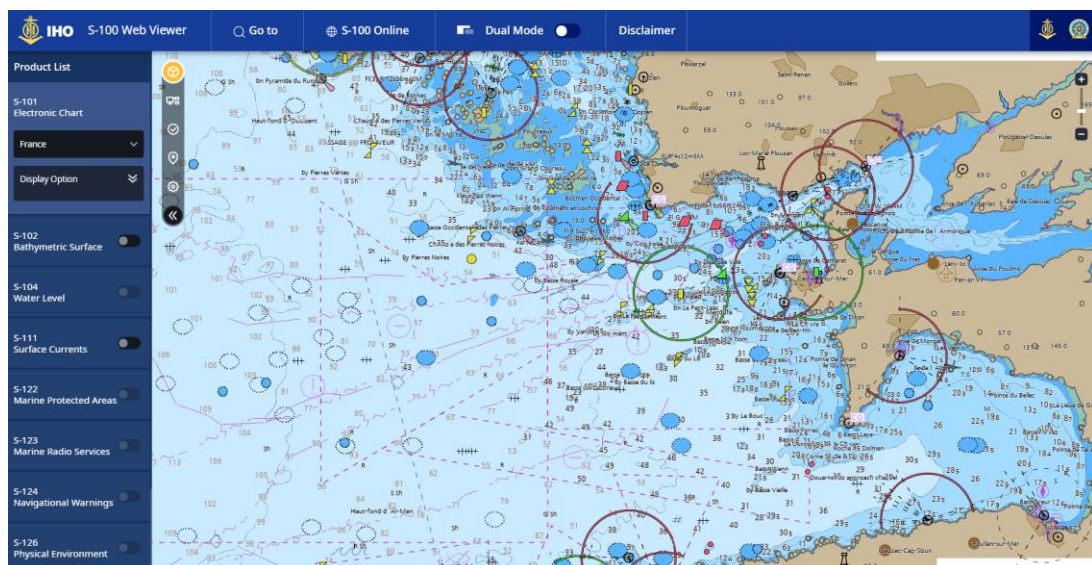




IHO INTRODUCTION (2)

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- The underlying data model for the incoming data must be consistent to seamlessly integrate data from a multitude of sources.
 - At the same time this data model needs to be expandable for new sorts of Geoinformation – analogous with installing a new app.
- The **IHO geospatial Information (GI) Registry concept** complies with this paradigm for the maritime domain, but in contrast to Google's commercial approach the Registry is **open source** and depends on the engagement of subject-specific domains who wish to be included.



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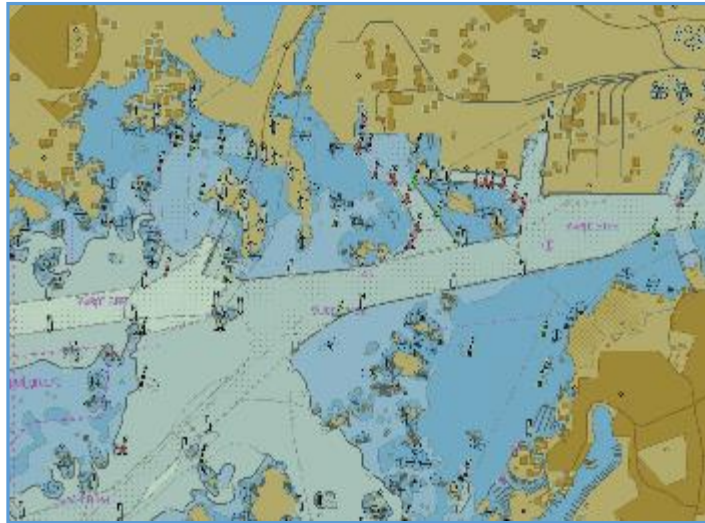


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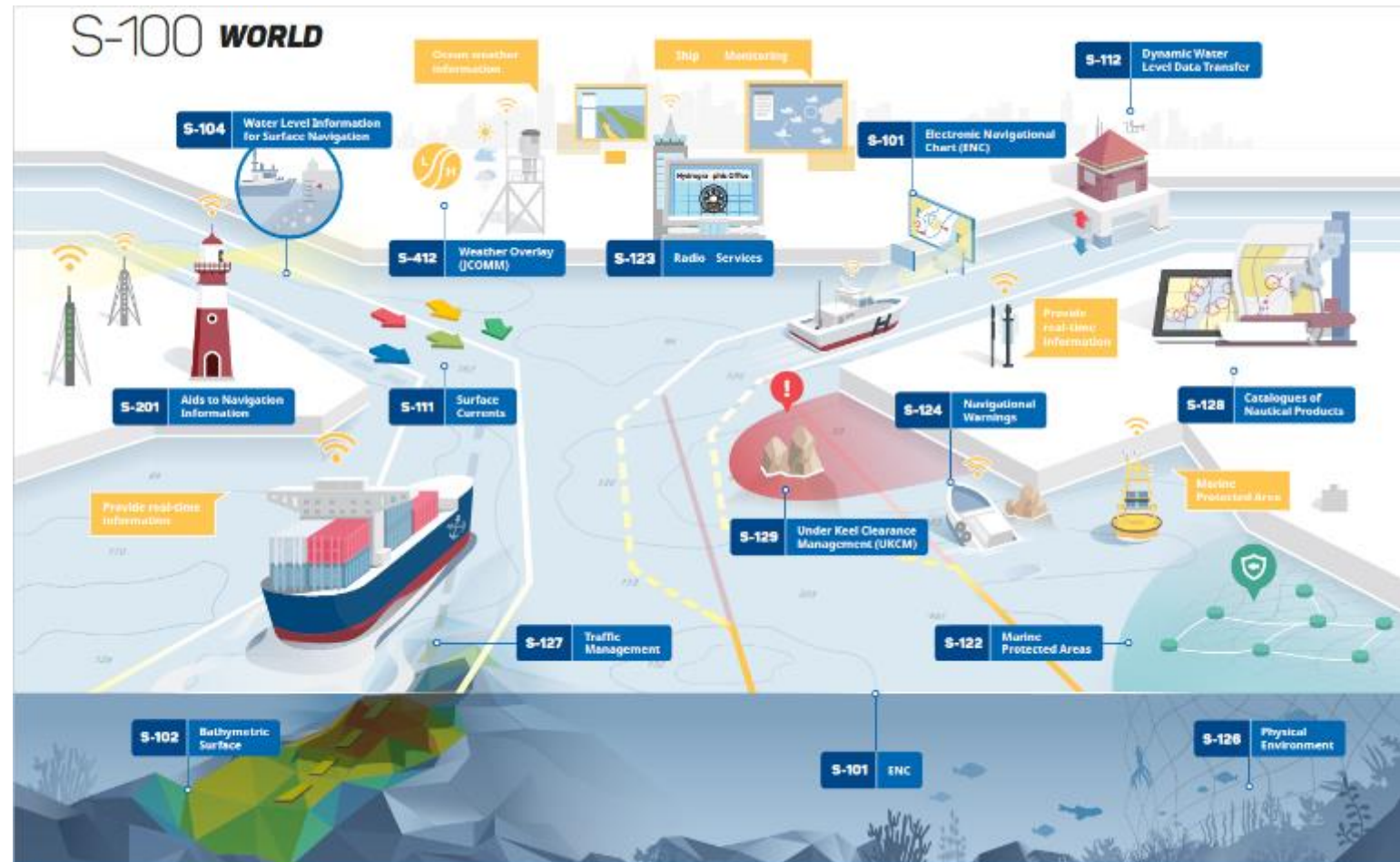
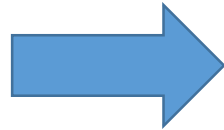
S-100 – THE COMMON MARITIME DATA STRUCTURE

FUTURE

CURRENT



2D ECDIS (S-57/S-52)



4D ECDIS and shore-based systems: Additional vertical and real time information dimension (S-100)

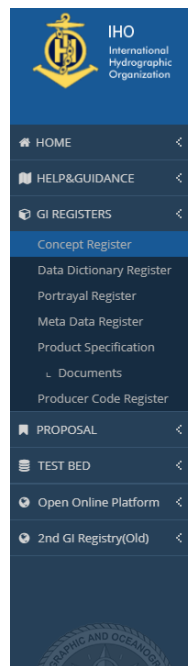
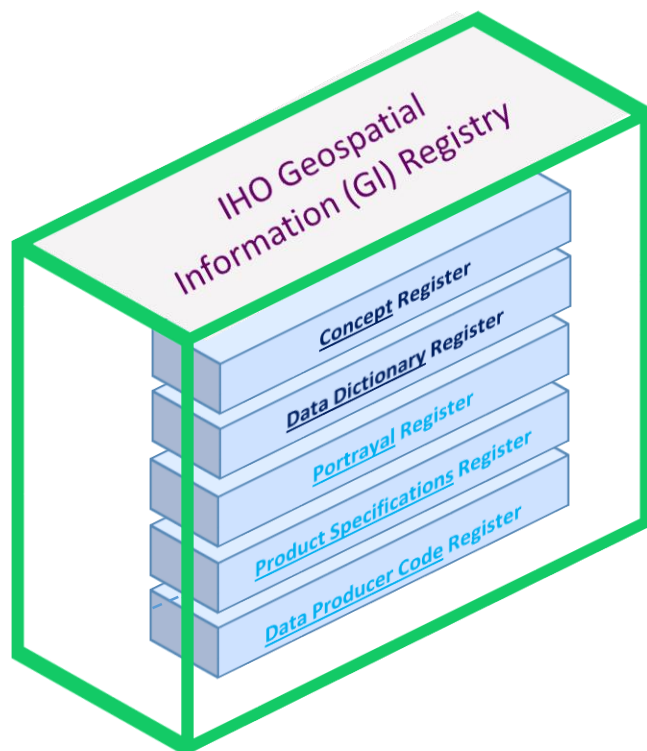
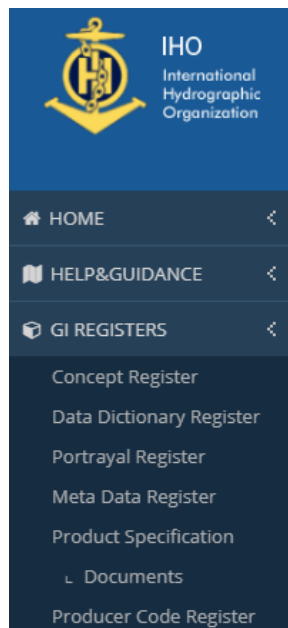


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IHO GI REGISTRY

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- The IHO GI Registry itself is an **easily expandable library** of named and attributed features to describe real world and administrative entities; based on the principles described in ISO 19135 - *Procedures for registration of items of geographic information*.
- In order to keep it manageable, The GI Registry contains **several Registers**, some of which are **sub-divided into thematic Domains** to host subject-related collections of these features.



No	Name	Camelcase	Definition	Status	Date Accepted
6761	Sea Wall	seaWall	An embankment or wall for protection against waves or tidal action alo...	Valid	2020-03-27
6762	Landing Steps	landingSteps	Steps at the shoreline as the connection between land and water on dli...	Valid	2020-03-27
6763	Slipway	slipway	The prepared and usually reinforced inclined surface on which keel-an...	Valid	2020-03-27
6764	Fender	fender	A protective structure designed to cushion the impact of a vessel and p...	Valid	2020-03-27
6765	Solid Face Wharf	solidFaceWharf	A wharf consisting of a solid wall of concrete, masonry, wood etc., such ...	Valid	2020-03-27
6766	Open Face Wharf	openFaceWharf	A wharf supported on piles or other structures which allow free circulat...	Valid	2020-03-27
6767	Log Ramp	logRamp	An inclined plane used to dump logs into the water for transport, or to ...	Valid	2020-03-27
6768	Quay	quay	A wharf approximately parallel to the shoreline and accommodating sh...	Valid	2020-03-27
6769	Causeway	causeway	A raised way across low or wet ground or water.	Valid	2020-03-27
6770	Canal	canal	An artificial waterway with no flow, or a controlled flow, used for naviga...	Valid	2020-03-27
6771	Category of Canal	categoryOfCanal	Classification of an artificial waterway used for travel, drainage, or irriga...	Valid	2020-03-27
6772	Transportation	transportation	A canal used for navigation as part of a transport system.	Valid	2020-03-27
6773	Drainage	drainage	A canal used to drain excess water from surrounding land.	Valid	2020-03-27
6774	Irrigation	irrigation	A canal used to supply water for the purpose of irrigation.	Valid	2020-03-27
6775	Distance Mark	distanceMark	A distance mark indicates the distance measured from an origin and co...	Valid	2020-03-27
6776	Category of Distance Mark	categoryOfDistanceMark	Classification of fixed and virtual distance marks.	Valid	2020-03-27
6777	Distance Mark Not Physically Insta...	distanceMarkNotPhysicallyInstalled	A point at which a distance from an origin along a feature is given for in...	Valid	2020-03-27
6778	Visible Mark, Pole	visibleMarkPole	A point at which a distance from an origin along a feature is given for in...	Valid	2020-03-27
6779	Visible Mark, Board	visibleMarkBoard	A point at which a distance from an origin along a feature is given for in...	Valid	2020-03-27
6780	Visible Mark, Unknown Shape	visibleMarkUnknownShape	A point at which a distance from an origin along a feature is given for in...	Valid	2020-03-27



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IHO GI REGISTRY (2)

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- Registry became operational (Version 3.1) in October 2016.
- Migration of content from Version 2.1 to Version 3.1 March-September 2020.
- Management of IHO Data Producer Codes transferred to Data Producer Code Register in November 2021.



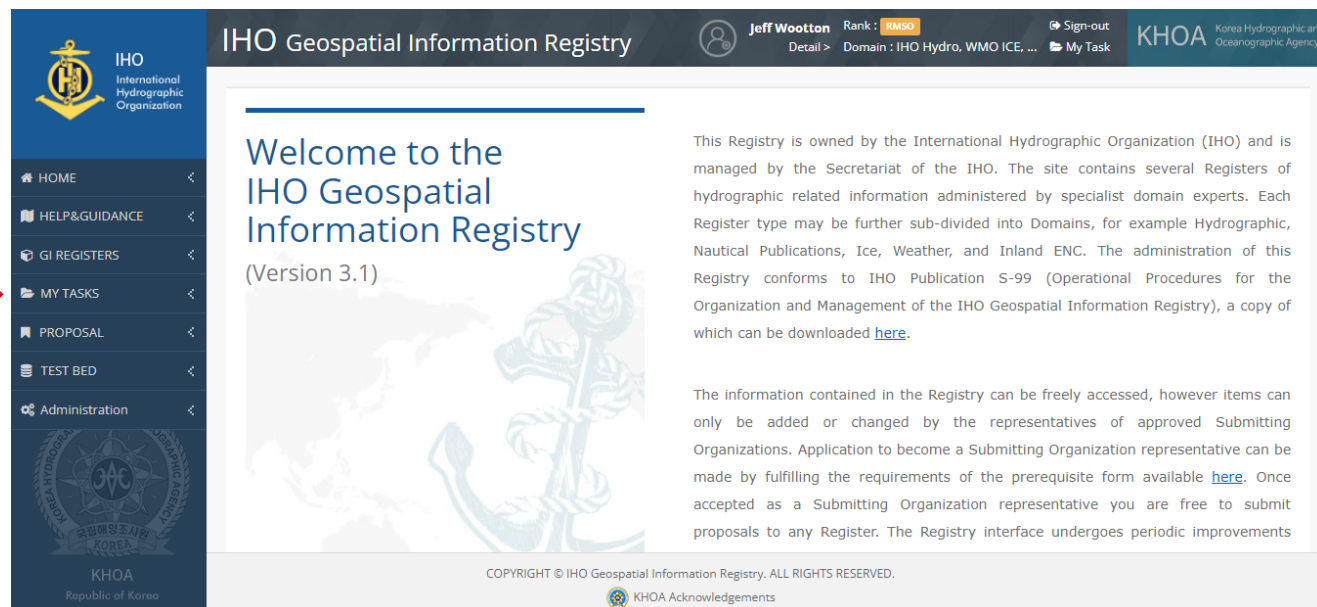
Welcome to the S-100 Geospatial Information Registry (Version 2.1)

This registry is owned by the International Hydrographic Organization (IHO) and is managed by the Secretariat of the IHO. The site contains many registers of hydrographic information together with registers of supplementary information owned by specialist domain experts. Each register type is further sub-divided into domains e.g. hydrographic, nautical publications, ice, inland ENC etc. The administration of this registry conforms to IHO Publication S-99 (Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry) a copy of which can be downloaded [here](#).

The information contained in the Registry can be freely accessed, however items can only be added or changed by the managers of approved Submitting Organizations. Application to become a Submitting Organization can be made by fulfilling the requirements of the prerequisite form available [here](#). Please note: It is not necessary to be a submitting organization in order to request new (S-62) Data Producer codes. Requests for new Data Producer codes, or changes to existing codes should be sent to the following email address (adcs@iho.int).

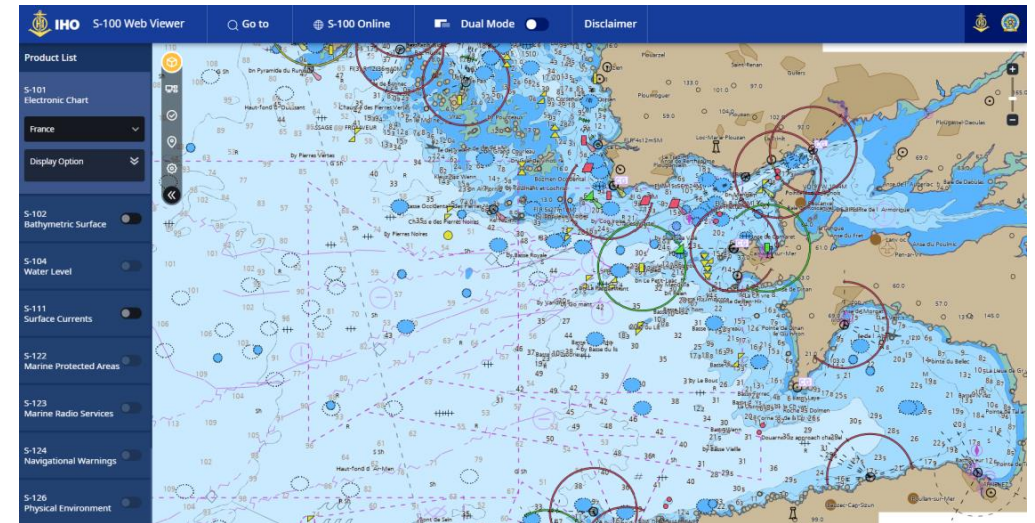
Once accepted as a submitting organization you are free to submit proposals to any register. The Registry interface undergoes periodic improvements and any difficulties using this site should be reported to the [Registry Manager](#).

* Go to [Portrayal Catalogue Builder](#)





- The items maintained in the Registers are abstract descriptions
 - Characteristics described through associated attributes and portrayal specifications. These attributed features are used in Catalogues to specify the feature in a product.
 - A typical feature from the Hydrography Domain is a wreck:





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REGISTERS (2)

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Name
Definition ...

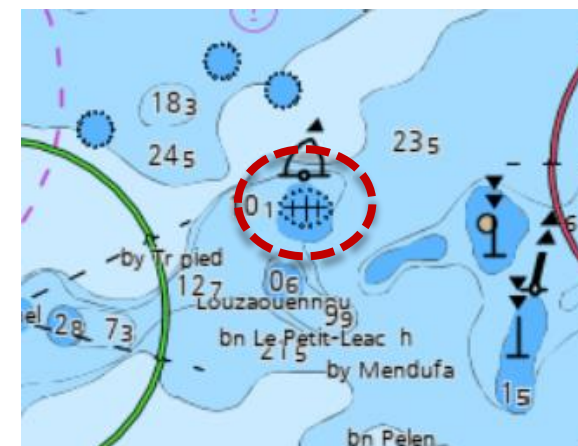
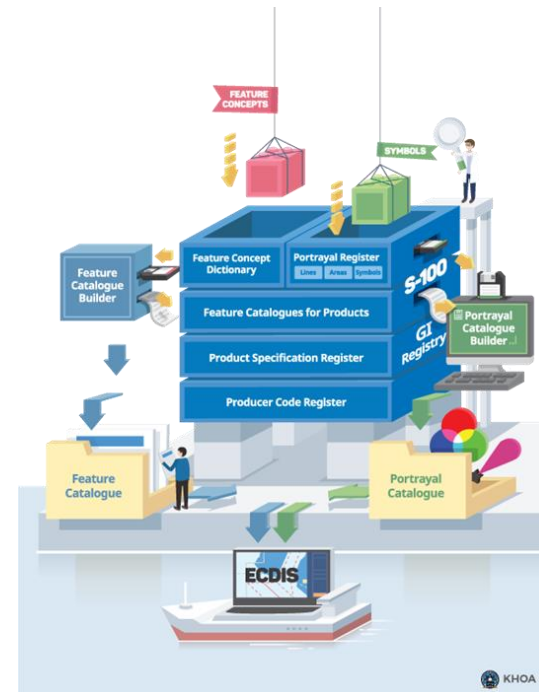
**Concept
(Dictionary)**

Type of feature
Attributes,
relations ...

**Data Dictionary
(Structure)**

Symbol, colours,
fonts ...

**Portrayal
(Representation)**





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REGISTERS: CONCEPT

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- The Concept Register specifies unique, independent sets of definitions of concepts that may be used to describe information.
 - These concepts as registered in the Concept Register may then be used within Data Dictionaries.



No	Name	Camelcase	Definition	Status	Date Accepted
1	Wreckage	wreckage	Goods or parts of a wrecked vessel washed ashore or afloat; remains o...	Valid	2020-10-21
2	Wreck Buoy	wreckBuoy	A buoy marking the location of a wreck.	Valid	2020-10-21
3	Wreck Pontoon, Passage Allowed ...	wreckPontoonPassageAllowedOn...	A red-white sign shown on a wreck pontoon to indicate the side on whi...	Valid	2020-05-11
4	Wreck Pontoon, Passage Allowed ...	wreckPontoonPassageAllowedOn...	Red-white signs shown on a wreck pontoon to indicate that passage is ...	Valid	2020-05-06
5	Refuge for Shipwrecked Mariners	refugeForShipwreckedMariners	Shelter or protection from danger or distress at sea.	Valid	2020-04-08
6	Historic Wreck Area	historicWreckArea	An area around certain wrecks of historical importance to protect the w...	Valid	2020-04-03
7	Wreck	wreck	The ruined remains of a stranded or sunken vessel which has been ren...	Valid	2020-04-01
8	Category of Wreck	categoryOfWreck	Classification of a wrecked or ruined ship.	Valid	2020-04-01
9	Non-Dangerous Wreck	nonDangerousWreck	A wreck which is not considered to be dangerous to surface navigation.	Valid	2020-04-01
10	Dangerous Wreck	dangerousWreck	A wreck submerged at such a depth as to be considered dangerous to s...	Valid	2020-04-01
11	Wreck Showing Mast/Masts	wreckShowingMastMasts	Wreck of which only the mast(s) is visible at the sounding datum indicat...	Valid	2020-04-01
12	Wreck Showing Any Portion of Hul...	wreckShowingAnyPortionOfHullOr...	Wreck of which any portion of the hull or superstructure is visible at th...	Valid	2020-04-01
13	Distributed Remains of Wreck	distributedRemainsOfWreck	A substantively decayed wreck over which it is safe to navigate but whic...	Valid	2020-04-01
14	Wreck Mark	wreckMark	A mark used to indicate the existence of a wreck.	Valid	2020-03-27

Concept Details	
Name	Wreck
Alias	WRECKS
CamelCase	wreck
Definition	The ruined remains of a stranded or sunken vessel which has been rendered useless.
Reference	http://iho-ohi.net/532/engView.php?quick_filter=wreck&quick_filter_operator=Equals
Reference Source	Hydrographic Dictionary, Part I Volume I, English (Detail view)
Similarity to Source	Identical
Remarks	



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REGISTERS: CONCEPT (2)

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- Includes concept name, definition and associated metadata only.
 - No association to modelling (feature/attribute/enumerate binding).
- Current contents of the Concept Register.
 - 7930 individual registered items (December 2022).
 - Registered contents intended for use in the IHO Hydro, IALA, IEC, Inland ENC and WMO Domains.
 - Includes entire content of the IHO Hydrographic Dictionary.
- Outstanding issues recorded in maintained spreadsheet.

IHO Geospatial Information Registry

Jeff Wootton Rank: **EMSO** Sign-out: KHQA Korea Hydrographic and Oceanographic Agency

Domain: IHO Hydro, WMO ICE, ... My Task

Concept Register

Home / GI REGISTERS / Concept Register

Concept is a definition of object, information or phenomena of nature without any relation to other concept.

Status: Valid Category: Name

Download

No	Name	Camelcase	Definition	Status	Date Accepted
1	Icebreaking Ship	icebreakingShip	A ship equipped to make and maintain a channel through ice.	Valid	2022-09-13
2	Type of Harbour Development	typeOfHarbourDevelopment	Description of construction work on harbour structures or f...	Valid	2022-09-13
3	Excluded	excluded	Vessels with these characteristics are excluded from the reg...	Valid	2022-09-13
4	Beacon Temporary Establish...	beaconTemporaryEstablish...	A new beacon has been or will be established for a limited p...	Valid	2022-09-13
5	Route Info Vessel Beam	routeInfoVesselBeam	Vessel beam for which the route information is applicable	Valid	2022-07-29

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KHQA Acknowledgements

Excel spreadsheet showing the Concept Register data, including columns for Item, To Context Register, Domain (FCD), Type, Issue, Comments, and Decision.

Item	To Context Register	Domain (FCD)	Type	Issue	Comments	Decision
ALL	ALL	ALL	Complex Att	Review all complex attribute names to remove the word "Complex" from the name.		
Q Oktas	WMO Weather	WMO Weather	Enumerate	Discussion at S-100WG2 meeting: Recommendation is that where a concept can be modelled as an Enumerate type attribute, it should be done rather than modelling as a CodeList type.	Retired 07/08/18 (WMO - remodelled)	
Q Small Vessels and Pleasure Craft	29/04/20	Inland ENC	Enumerate	There appears to be a "code" value included at the start of the item name for all registered values of "Category of CEMT Class", in addition to the "meaning" (?) of the code being included. Needs to be discussed.		
Q to 50 meters	WMO Weather	WMO Weather	Enumerate	Discussion at S-100WG2 meeting: Recommendation is that where a concept can be modelled as an Enumerate type attribute, it should be done rather than modelling as a CodeList type.	Retired 06/08/18 (WMO - remodelled)	
0.5-1.0 nm Between Bergs	27/05/20	WMO Ice	Enumerate	Why are the enumerate values not consecutive (i.e. there are large gaps between values)?		21/02/20: Amended camelcase to be more specific to value. Amended definition to be more concise.
0.5-2.0 nm Between Bergs	27/05/20	WMO Ice	Enumerate	Why are the enumerate values not consecutive (i.e. there are large gaps between values)?		21/02/20: Amended camelcase to be more specific to value. Amended definition to be more concise.
0/10 to 1/10	27/05/20	WMO Ice	Enumerate	NOTE: There are 4 different bindings of this item Name as an enumerate value, however each binding instance has a different camelCase. Is this allowable?	TS90: Suggest that this be renamed to "0 to 1 Tenth"	27/05/20: Amended camelCase to zeroToOneTenths for all instances (ConceptRegister only).
0/10 to 1/10	27/05/20	WMO Ice	Enumerate	NOTE: There are 4 different bindings of this item Name as an enumerate value, however each binding instance has a different camelCase. Is this allowable?	TS90: Suggest that this be renamed to "0 to 1 Tenth"	27/05/20: Amended camelCase to zeroToOneTenths for all instances

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REGISTERS: DATA DICTIONARY



- The Data Dictionary Register specifies independent sets of definitions/structures of features, attributes, listed values, and information types through assignment of binding to items from the Concept Register.

“Feature”

Domain	IHO Hydro																																		
Name	Wreck																																		
CamelCase	Wreck																																		
Item Identifier	597 ?																																		
Use Type	Geographic : Carries the descriptive characteristics of a real world entity.																																		
Definition	The ruined remains of a stranded or sunken vessel which has been rendered useless.																																		
Reference	http://iho-ohl.net/S32/engView.php?quick_filter=wreck&quick_filter_operator=Equals																																		
Reference Source	Hydrographic Dictionary, Part I Volume I, English																																		
Similarity to Source	Identical : The style of the definition has been changed to match the style and structure of other specifications in the register that has imported the specification.																																		
Remarks																																			
INT1	<input type="text" value="K 20-31"/>																																		
S4	<input type="text" value="B-422.1-8"/>																																		
Recommended Attributes	<table><tr><th>No.</th><th>Attribute name</th></tr><tr><td>1</td><td>Display Uncertainties (Valid)</td></tr><tr><td>2</td><td>Surrounding Depth (Valid)</td></tr><tr><td>3</td><td>Default Clearance Depth (Valid)</td></tr><tr><td>4</td><td>Scale Minimum (Valid)</td></tr><tr><td>5</td><td>Water Level Effect (Valid)</td></tr><tr><td>6</td><td>Visual Prominence (Valid)</td></tr><tr><td>7</td><td>Value of Sounding (Valid)</td></tr><tr><td>8</td><td>Technique of Vertical Measurement (Valid)</td></tr><tr><td>9</td><td>Status (Valid)</td></tr><tr><td>10</td><td>Reported Date (Valid)</td></tr><tr><td>11</td><td>Radar Conspicuous (Valid)</td></tr><tr><td>12</td><td>Quality of Vertical Measurement (Valid)</td></tr><tr><td>13</td><td>Height (Valid)</td></tr><tr><td>14</td><td>Feature Name (Valid)</td></tr><tr><td>15</td><td>Exposition of Sounding (Valid)</td></tr><tr><td>16</td><td>Category of Wreck (Valid)</td></tr></table>	No.	Attribute name	1	Display Uncertainties (Valid)	2	Surrounding Depth (Valid)	3	Default Clearance Depth (Valid)	4	Scale Minimum (Valid)	5	Water Level Effect (Valid)	6	Visual Prominence (Valid)	7	Value of Sounding (Valid)	8	Technique of Vertical Measurement (Valid)	9	Status (Valid)	10	Reported Date (Valid)	11	Radar Conspicuous (Valid)	12	Quality of Vertical Measurement (Valid)	13	Height (Valid)	14	Feature Name (Valid)	15	Exposition of Sounding (Valid)	16	Category of Wreck (Valid)
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11	Radar Conspicuous (Valid)																																		
12	Quality of Vertical Measurement (Valid)																																		
13	Height (Valid)																																		
14	Feature Name (Valid)																																		
15	Exposition of Sounding (Valid)																																		
16	Category of Wreck (Valid)																																		

“Attribute”

Domain	IHO Hydro																
Name	Category of Wreck																
CamelCase	categoryOfWreck																
Item Identifier	70 ?																
Definition	Classification of a wrecked or ruined ship.																
Data type	enumeration																
Related Listed Value	<table><tr><th>Code number</th><th>Enumerated value Name</th><th>Code number</th><th>Enumerated value Name</th></tr><tr><td>1</td><td>Non-Dangerous Wreck</td><td>2</td><td>Dangerous Wreck</td></tr><tr><td>3</td><td>Distributed Remains of Wreck</td><td>4</td><td>Wreck Showing Mast/Masts</td></tr><tr><td>5</td><td>Wreck Showing Any Portion of Hull or Superstructure</td><td></td><td></td></tr></table>	Code number	Enumerated value Name	Code number	Enumerated value Name	1	Non-Dangerous Wreck	2	Dangerous Wreck	3	Distributed Remains of Wreck	4	Wreck Showing Mast/Masts	5	Wreck Showing Any Portion of Hull or Superstructure		
	Code number	Enumerated value Name	Code number	Enumerated value Name													
	1	Non-Dangerous Wreck	2	Dangerous Wreck													
	3	Distributed Remains of Wreck	4	Wreck Showing Mast/Masts													
	5	Wreck Showing Any Portion of Hull or Superstructure															
Reference	Edition 1.0.0, Clause 27.71																
Reference Source	S-101 IHO Electronic Navigational Chart Product Specification																
Similarity to Source	Identical : The style of the definition has been changed to match the style and structure of other specifications in the register that has imported the specification.																
Remarks																	
INT1	<div>K 31.1</div>																
S4	<div>B-422.8</div>																

“Listed Value”

Domain	IHO Hydro				
Name	Wreck Showing Any Portion of Hull or Superstructure				
CamelCase	wreckShowingAnyPortionOfHullOrSuperstructure				
Item Identifier	773 ?				
Definition	Wreck of which any portion of the hull or superstructure is visible at the sounding datum indicated.				
Data type	Enumerated value				
Associated Attribute	<table><tr><th>Attribute type</th><th>Name</th></tr><tr><td>Enumerated type</td><td>Category of Wreck</td></tr></table>	Attribute type	Name	Enumerated type	Category of Wreck
Attribute type	Name				
Enumerated type	Category of Wreck				
Reference	Chapter 2, Page 2.105				
Reference Source	IHO Transfer Standard for Digital Hydrographic Data, Appendix A: Object Catalogue - Description of the Feature Coding Schema to be Used for Hydrographic Requirements				
Similarity to Source	Identical : The style of the definition has been changed to match the style and structure of other specifications in the register that has imported the specification.				
Remarks					
INT1	<div>K 24</div>				
S4	<div>B-422.2</div>				

**IHO**

REGISTERS: DATA DICTIONARY (2)

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- HOME
- HELP&GUIDANCE
- GI REGISTERS
 - Concept Register
 - Data Dictionary Register
 - Portrayal Register
 - Meta Data Register
 - Product Specification
 - Documents
 - Producer Code Register
- MY TASKS
- PROPOSAL
- TEST BED
- Administration

IHO Geospatial Information Registry

**Jeff Wootton**[Detail >](#)Rank : **RMSO**

Domain : IHO Hydro, WMO ICE, ...

[Sign-out](#)[My Task](#)**KHOA**Korea Hydrographic and
Oceanographic Agency

Data Dictionary Register

[Home](#) / [GI REGISTERS](#) / [Data Dictionary Register](#)

Feature Type **374** Information Type **30** Attribute Type **734** Complex Type **116** Enumeration Value **2381** Codelist Value **453**

Domain **ALL**Status **Valid**Category **Name**

Item ID	Name	Camelcase	Definition	Domain	Status	Date Accepted
620	NAVWARN Part	NAVWARNPart	Navigational warning information tha...	IHO Hydro	Valid	2022-09-01
615	Outer Limit	OuterLimit	The extent to which a coastal State cl...	IHO Hydro	Valid	2022-08-10
611	Layout	Layout	The spatial arrangement of areas and...	IHO Hydro	Valid	2022-08-03
612	Harbour Physical Infrastructure	HarbourPhysi...	The physical installations and facilitie...	IHO Hydro	Valid	2022-08-03
613	Berth Position	BerthPosition	A specific position within a berth whe...	IHO Hydro	Valid	2022-08-03
614	Harbour Area Section	HarbourArea...	A distinguishable portion of the area ...	IHO Hydro	Valid	2022-08-03

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KHOA Acknowledgements

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REGISTERS: PORTRAYAL



- The Register of attributed features as an abstract description of entities is only one element of the overall concept. As long as human interaction with geoinformation is dominated by visualization, visual elements to be associated with the various attributed features are required.
- Therefore a second type of Register has been implemented for different types of visualizations. The basic three types are for points, lines and areas - all coming with patterns and colours.

IHO Geospatial Information Registry

Portrayal Register

Home / GI REGISTERS / Portrayal

Symbol 937 Line Style 55 Area Fill 25 Font 4 Others

Domain ALL Status Valid Type name or definition

No	Preview	Name	Definition	Item Type	Status	Date Accepted
1		BOYNL030	River buoy bifurcation of the fairway (3.B of CEVNI) - on position	symbol	Valid	2021-08-20
2		TOPMA117	Beacon top mark, red-green sphere	symbol	Valid	2021-08-20
3		TOPMA115	Beacon top mark, green cone, point up	symbol	Valid	2021-08-20
4		TOPMA109	Beacon top mark, green boarded square board, diagonal	symbol	Valid	2021-08-20

Preview	Name	Definition	Item Type	Status	Date Accepted
	NMKREG51	Wreck pontoon, passage allowed on both sides	symbol	Valid	2019-08-17
	NMKREG50	Wreck pontoon, passage allowed on side showing red-white sign	symbol	Valid	2019-08-17
	WRECK505	dangerous wreck, depth unknown	symbol	Valid	-
	WRECK504	non-dangerous wreck, depth unknown	symbol	Valid	-
	WRECK501	wreck showing any portion of hull or superstructure at level of chart ...	symbol	Valid	-
	EMLOWAC31	embedded symbol for area of wrecks or obstructions of low accuracy	symbol	Valid	-



[symbol] Portrayal Details

Domain	IHO Hydro
Name	WRECK501
Alias	WRECK501
Definition	wreck showing any portion of hull or superstructure at level of chart datum
Remarks	
Reference Source	Unspecified
Item schema	:: Select the schema type::
Preview Image	
Engineering Image	
INT1	
S4	
SVG View	
XML	SHOW/HIDE Download

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REGISTERS: PORTRAYAL (2)

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Organization

IHO Geospatial Information Registry



Jeff Wootton
Detail >

Rank : **RMSO**
Domain : IHO Hydro, WMO ICE, ...

Sign-out
My Task

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Portrayal Register

Home / GI REGISTERS / Portrayal

- HOME
- HELP&GUIDANCE
- GI REGISTERS
 - Concept Register
 - Data Dictionary Register
 - Portrayal Register
 - Meta Data Register
 - Product Specification
 - Documents
 - Producer Code Register
- MY TASKS
- PROPOSAL
- TEST BED
- Administration

Symbol 938	Line Style 55	Area Fill 25	Font 4	Others
Display Mode 8	Display Plane 4	Context Parameter 7	Symbol Schema 1	Linestyle Schema 1
Viewing Group 162	Viewing Group Layer 8	Colourprofile Schema 1	Areafill Schema 1	Pixmap Schema 1
Colour Token 93	Colour Profile 3	Cascading style sheet 2	Display priority 20	Pixmap 1



Domain ALL

Status Valid

Type name or definition



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KHOA Acknowledgements

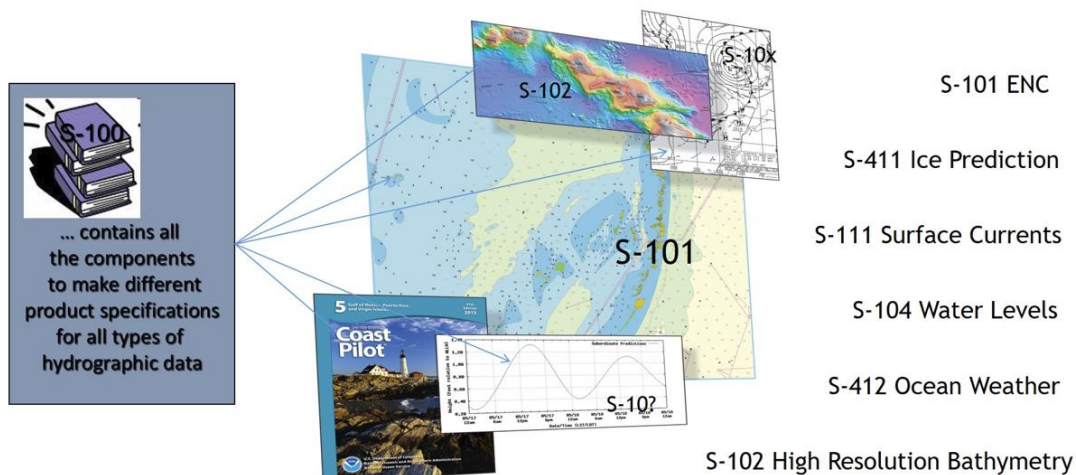


IHO

REGISTERS ➔ DATA PRODUCTS

International
Hydrographic
Organization

S-100 and Product Specifications



Name	S-100 Standard Toolkit Launcher		
Version	1.0.0		
Uploader	IHO (S-100WG)		
Date Updated	2021-02-10		
File Name	S-100 Toolkit_Setup ver.1.1.7594.33491.msi	Download	[142 Downloads]

S-100 Standard Toolkit Launcher has been released in order to maintain and provide efficient S-100 applications.

The Toolkit contains the following S-100 applications;

- Feature Catalogue Builder
- Portrayal Catalogue Builder
- DCEG Composer
- Symbol Editor



	No	Product ID	Name	Version	Status	Domain	Date updated	Document view
Nam	1	S-100	Universal Hydrographic Data Model	4.0.0	Published	IHO Hydro	2020-12-17	🔗
Versi	2	S-101	Electronic Navigational Chart	1.0.0	Published	IHO Hydro	2021-07-22	🔗
Uplo	3	S-102	Bathymetric Surface	2.0.0	Published	IHO Hydro	2019-12-09	🔗
Date Upd	4	S-111	Surface Currents Product Specification	1.0.0	Published	IHO Hydro	2021-05-06	🔗
File I	5	S-121	Maritime Limits and Boundaries	1.0.0	Published	IHO Hydro	2020-11-24	🔗

The Toolkit contains the following S-100 applications;

- Feature Catalogue Builder
- Portrayal Catalogue Builder
- DCEG Composer
- Symbol Editor

Description

2nd IHO GI Registry Workshop – Monaco – 12-13 December 2022



IHO

REGISTERS ➔ DATA PRODUCTS (2)

“Portrayal”



“Concept”

Concept Details	
Name	Wreck
Alias	WRECKS
CamelCase	wreck
Definition	The ruined remains of a stranded or sunken vessel which has been rendered useless.
Reference	http://iho-ohi.net/S32/engView.php?quick_filter=wreck&quick_filter_operator=Equals
Reference Source	Hydrographic Dictionary, Part I Volume I, English (Detail view)
Similarity to Source	Identical
Remarks	

“Data Dictionary”



[symbol] Portrayal Details	
Domain	IHO Hydro
Name	WRECKS01
Alias	WRECKS01
Definition	wreck showing any portion of hull or superstructure at level of chart datum
Remarks	
Reference Source	Unspecified
Item schema	Select the schema type:
Preview Image	
Engineering Image	
INT1	
S4	
SVG View	
XML	SHOW/HIDE Download

“Catalogue”



“Product”



	Mast (1-2) Wk	Wreck, hull never covers, on large-scale charts
	Mast (1a) Wk	Wreck, hull covers and uncovers, on large-scale charts
	Wk	Submerged wreck, depth known, on large-scale charts
	Wk	Submerged wreck, depth unknown, on large-scale charts
		Wreck showing any part of hull or superstructure at the level of Chart Datum
	Masts	Wreck of which the mast(s) only are visible at Chart Datum
	Wk	Wreck over which the depth has been obtained by sounding but not by wire drag

```

- <S100FC:S100_FC_FeatureType isAbstract="false">
  <S100FC:name>Wreck</S100FC:name>
  <S100FC:definition>The ruined remains of a stranded or sunken vessel which has been rendered useless.</S100FC:definition>
  <S100FC:code>Wreck</S100FC:code>
  <S100FC:alias>WRECKS</S100FC:alias>
- <S100FC:definitionReference>
  <S100FC:sourceIdentifier>597</S100FC:sourceIdentifier>
  <S100FC:definitionSource ref="IHOREG" />
</S100FC:definitionReference>
- <S100FC:attributeBinding sequential="false">
- <S100FC:multiplicity>
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</S100FC:multiplicity>
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</S100FC:multiplicity>
  <S100FC:attribute ref="displayUncertainties" />
</S100FC:attributeBinding>

```



[Feature] Dictionary Details	
Domain	IHO Hydro
Name	Wreck
CamelCase	Wreck
Item Identifier	597 ?
Use Type	Geographic : Carries the descriptive characteristics of a real world entity.
Definition	The ruined remains of a stranded or sunken vessel which has been rendered useless.
Reference	http://iho-ohi.net/S32/engView.php?quick_filter=wreck&quick_filter_operator=Equals
Reference Source	Hydrographic Dictionary, Part I Volume I, English
Similarity to Source	Identical : The style of the definition has been changed to match the style and structure of other specifications in the register that has imported the specification.
Remarks	
INT1	K 20-31
S4	B-422.1-8
No.	Attribute name
1	Display Uncertainties (Valid)
2	Surrounding Depth (Valid)
3	Default Clearance Depth (Valid)
4	Scale Minimum (Valid)
5	Water Level Effect (Valid)
6	Visual Prominence (Valid)
7	Value of Sounding (Valid)
8	Technique of Vertical Measurement (Valid)
9	Status (Valid)
10	Reported Date (Valid)
11	Radar Conspicuous (Valid)
12	Quality of Vertical Measurement (Valid)
13	Height (Valid)
14	Feature Name (Valid)

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**IHO**

REGISTERS: DATA PRODUCER CODE



- IHO Publication S-62 – *List of Data Producer Codes*, formerly managed as bespoke stand-alone database.
- Management transferred to Data Producer Code November 2021.
 - Currently being updated to manage S-100 Data Producer Codes.

IHO Geospatial Information Registry

Producer Code Register (S-62)

Introduction Codes

1. IHO Member States or Other authorized hydrographic offices

The two-character Producer Code (3166-alpha2 country code standard) is used in the IHO States and Other States code Register page, which can be accessed from the IHO Geospatial Information Registry.

No	Country		Agency			Date		Status
	Name	Code	Agency Name	Code Num	Code Alpha	Accepted	Amended	
1	Argentina	AR	Servicio de Hidrografia Naval (...)	1	AR	2008-10-16	2019-09-03	Valid
2	Australia	AU	Australian Hydrographic Office	10	AU	2017-12-31	2020-08-12	Valid
3	Bahrain	BH	Hydrographic Survey Office	20	BH	2008-10-16	-	Valid
4	Bangladesh	BD	Hydrographic Department	660	BD	2008-10-16	-	Valid

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KHOA Acknowledgements



List of Data Producer Codes

This document was generated on : 11 December 2022

Date of last change to S-62 : 01 September 2022

A cumulative list of all major changes to the list of Data Producer Codes (new or renewed producers; changed numeric or alpha Agency Codes) is maintained [here](#).

IHO

Published by the International Hydrographic Organization
48, rue Alexandre I^{er}
F-92125 Montrouge Cedex
Tel: (33) 1 47 11 81 00
Fax: (33) 1 47 11 81 40
info@iho.int
www.iho.int

2nd IHO GI Registry Workshop – Monaco – 12-13 December 2022



IHO

REGISTERS: DOMAINS (NOT JUST FOR THE IHO)

- The Data Dictionary and Portrayal Registers are organized into a number of Domains, aligned with affiliated Organizations and related subject matter experts within the overarching maritime domain.

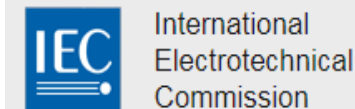
Data Dictionary Register

Home / GI REGISTERS / Data Dictionary Register

Feature Type **366** Information Type **26** Attribute Type **667** Complex Type **92** Enumeration Value **2274** Codelist Value **117**

Domain: **ALL** Status: **Valid** Category: **Name**

Item ID	Name	Domain	Status	Date Accepted
598	Vertical Datum of Data	IHO Hydro	Valid	2021-03-30
593	Quality of Bathymetric Data	IHO Hydro	Valid	2021-03-01
595	Underwater/Awash Rock	IHO Hydro	Valid	2021-03-01
596	Obstruction	IHO Hydro	Valid	2021-03-01
597	Wreck	IHO Hydro	Valid	2021-03-01



New Domains can be added as required. The IHO invites other ocean science disciplines to participate in the activities of the GI Registry. For information contact the IHO GI Registry Manager at jeff.wootton@iho.int





IHO

S-100 BASED PRODUCT SPECIFICATIONS

International
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• IHO S-100 based Product Specifications:

- ✓ • **S-101** – Electronic Navigational Chart (ENC)
- ✓ • **S-102** – Bathymetric Surface
 - **S-103** – Sub-Surface Navigation
- ✓ • **S-104** – Water level Information for Surface Navigation
- ✓ • **S-111** – Surface Currents
- ✓ • **S-121** – Maritime Limits and Boundaries
- ✓ • **S-122** – Marine Protected Areas
- ✓ • **S-123** – Marine Radio Services
 - **S-124** – Navigational Warnings
 - **S-125** – Marine Aids to Navigation (AtoNs)
 - **S-126** – Marine Physical Environment
- ✓ • **S-127** – Marine Traffic Management
 - **S-128** – Catalogue of Nautical Products
- ✓ • **S-129** – Under Keel Clearance management (UKCM)
 - **S-130** - Polygonal Demarcations of Global Sea Areas
 - **S-131** – Marine Harbour Infrastructure
 - **S-164** – IHO Test Datasets for S-100 ECDIS

• Non-IHO S-100 based Product Specifications:

- ✓ • IALA **S-201** - Aids to Navigation Information
- ✓ • IALA **S-211** – Port Call Message Format
 - IALA **S-212** – VTS Digital Information Service
 - IALA **S-240** - DGNSS Station Almanac
 - IALA **S-245-247** - eLoran related Product Specifications
- IEHG **S-401** - Inland ENC
- IEHG **S-402** - Bathymetric Contour Overlay for Inland ENC
- ✓ • WMO JCOMM **S-411** - Ice Information
- ✓ • WMO **S-412** - Weather Overlay
- ✓ • IEC **S-421** - Route Plan
- ????





IHO

REGISTRY ADMINISTRATION

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- IHO Publication S-100 Part 2 – *Management of Registers*
- IHO Publication S-99 - *Operational Procedures for the Organization and Management of the IHO Geospatial Information Registry*
- Registry/Registers Manager: Staff position with the IHO Secretariat, Monaco
- Register content oversight: **Register Domain Control Body** (subject matter experts)
- Registry development, support and maintenance: With great appreciation to the support of the Korea Hydrographic and Oceanographic Agency (KHOA), Republic of Korea
- International technical input and oversight: IHO S-100 Working Group (S-100WG) and IHO Hydrographic Services and Standards Committee (HSSC)

S-100 Edition 4.0.0

December 2018

S-99	Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry (Edition 1.1.0, November 2012)	English
S-100	IHO Universal Hydrographic Data Model (Edition 4.0.0, December 2018) S-100 Portal <i>Please note: the S-100 (Part 15) Security Scheme applications document for OEMs and Data Servers are available from the Data Protection Scheme</i> S-100 based Product Specifications may be based on a previous Edition of S-100. For reference, previous Editions of S-100 are available here: <ul style="list-style-type: none">• IHO Universal Hydrographic Data Model (Edition 1.0.0, January 2010) - English• IHO Universal Hydrographic Data Model (Edition 2.0.0, June 2015) - English• IHO Universal Hydrographic Data Model (Edition 3.0.0, April 2017) - English	English Link Link
IHO Registry	IHO Geospatial Information (GI) Registry The IHO GI Registry is an online resource that comprises several Registers which contain organised lists of hydrographic related information	Link

S-100 – Part 2

Management of Registers

<https://iho.int/en/standards-and-specifications>



HOME > S-100WG

S-100WG

S-100 Working Group

Chair:	Ms Julia POWELL (USA)
Vice-Chair:	Ms Elizabeth HANESSY (Denmark)
Secretary:	Mr Yong BAEK (IHO Secretariat)

Objectives:

- maintain, develop and extend the S-100 - Universal Hydrographic Data Models and S-99 - Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry;
- supervise the management and development of the [S-100 Geospatial Information Registry](#);
- advise and support the development and maintenance of S-100 based product specifications in liaison with the relevant IHO bodies and non-IHO entities;
- monitor the development of other relevant international standards

INTERNATIONAL HYDROGRAPHIC ORGANIZATION



Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry

Edition 1.1.0 – November 2012

IHO Publication S-99

Published by the
International Hydrographic Bureau
MONACO

2nd IHO GI Registry Workshop – Monaco – 12-13 December 2022



IHO

REGISTRY ROLES

IHO Geospatial Information Registry

Members

Home / Administration / Members

Registry Roles Summary:

- All Member: 137
- Registry Manger: 5
- Domain Control Body: 10
- Executive Control Bod: 1
- Submitting Organizat: 17
- User (TestBed/DCEG): 103
- Producer Code Manager: 1
- Pending: 0

Search

No	ID	Individual Name	Organization	Rank	Email	Date Accepted
1	khoadmin	Yong BAEK	IHO (S-100WG)	RMSO	addt@iho.int	2018-01-01
2	richardsont	Tom Richardson	IHO (S-100WG)	SO	thomas.richardson@ic-enc.org	2018-06-05
3	kama_yus	Kamaruddin kama	IHO (S-100WG)	DCEG User	kama@navy.mil.my	2018-06-05
4	DaveGrant	David Grant	IHO (S-100WG)	DCEG User	David.Grant1@navy.mil	2018-06-26

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KHOA Acknowledgements

- Registry/Register Owner: IHO
- Registry/Register Manager: IHO Secretariat on behalf of the IHO.
 - Registry content (including Producer Code Manager): IHO Secretariat (TSSO).
 - Registry infrastructure – development and maintenance: Republic of Korea (KHOA) on behalf of the IHO.



IHO

REGISTRY ROLES (2) – REGISTRY/REGISTER MANAGER RESPONSIBILITIES

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A Register Manager is responsible for the administration of a Register. This includes:

- sustaining the necessary coordination between Submitting Organizations, Control Bodies and the Registry Manager;
- inspecting and processing the various application forms;
- maintaining items within the Register;
- maintaining and publishing a list of Submitting Organizations; and
- providing periodic reports at intervals no greater than 12 months to the Executive Control Body and to the HSSC. Each report shall take account of all notable events since the last report, including:
 - proposals received and the decisions taken;
 - any new enrolments of representatives of Submitting Organizations; and
 - all other matters of interest and relevance to the Executive Control Body or the HSSC.



IHO

REGISTRY ROLES (3)

- Submitting Organization: Represent a recognized body or stakeholder group (such as from government, industry, academia, and relevant user groups).
 - Registered Submitting Organizations appoint representatives (normally no more than 2) to make submissions on behalf of the Organization (Concept, Data Dictionary, Portrayal and Product Specification Registers).
 - Submissions to the Data Producer Code Register is by email to the Register Manager by Data Producers (no requirement to be registered as a Submitting Organization).

IHO Geospatial Information Registry

Members

Home / Administration / Members

Summary of Member Counts:

- All Member: 137
- Registry Manger: 5
- Domain Control Body: 10
- Executive Control Body: 1
- Submitting Organization: 17**
- User (TestBed/DCEG): 103
- Producer Code Manager: 1
- Pending: 0

No	ID	Individual Name	Organization	Rank	Email	Date Accepted
1	richardsont	Tom Richardson	IHO (S-100WG)	SO	thomas.richardson@ic-enc.org	2018-06-05
2	raphaelm1	Raphael Malyankar	IHO (S-100WG)	SO	raphaelm@portolansciences.com	2018-07-28
3	eivindem	Eivind Mong	IALA	SO	eivind.mong@dfo-mpo.gc.ca	2018-08-06
4	jens_0501	Jens Schröder-Fürstenberg	IHO (NIPWG)	SO	jens.schroeder-fuerstenberg@bsh.de	2018-08-09

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REGISTRY ROLES (4)

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- Domain Control Body Representative (Concept, Data Dictionary and Portrayal Registers): Responsible for acting as the spokesperson for their Domain.
 - For the Concept Register, a representative of each of the Domains included in the Data Dictionary Register; a representative from the IHO Hydrographic Dictionary Working Group and the Nautical Cartography Working Group; and the Registry Manager.
 - For the Data Dictionary Register, currently the Registry Manager.
 - For the Portrayal Register, a representative of each Domain in the Portrayal Register; and the Registry Manager.

No	ID	Individual Name	Organization	Rank	Email	Date Accepted	Approval Authority (Concept)	Approval As (Data Dictio
1	iala42sm	Minsu Jeon	IALA	DCB	minsuj.eon@iala-aism.org	2016-11-08	ON	OFF
2	tc80sec	Kim Fisher	IEC	DCB	kpfisher@btinternet.com	2017-01-26	ON	OFF
3	drladue2017	Denise LaDue	IENC	DCB	denise.r.ladue@usace.army.mil	2017-03-06	ON	OFF



IHO

REGISTRY ROLES (5) – DOMAIN CONTROL BODY RESPONSIBILITIES

1.1.1.1 Domain Control Body Responsibilities

Domain Control Body members are responsible for:

- acting as the spokesperson for their Domain;
- canvassing other members in their Domain for an opinion on the acceptability of any new proposal. How this is organized is at the discretion of the Domain Owners; and
- forwarding a decision to the Register Manager within 60 days through the approval process in the IHO GI Registry interface (NOTE; Nil returns will be taken as acceptance of the proposal).

The overriding purpose of the DCB is to assess the suitability of every new proposal submitted to a Register.

Any rejection of a proposal by a member of the DCB must be fully justified.

Criteria for not accepting a proposal includes:

- the specification of the item is incomplete or incomprehensible;
- an identical or very similar item already exists in the Register or in another Register in the Registry;
- the proposed item does not belong to an item class included in a Register;
- the proposed item does not fall within the scope of a Register; or
- the justification for the proposal is inadequate.



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REGISTRY ROLES (6)

- Executive Control Body: Monitors and advises the Register Manager(s); and acts as arbiters for any decisions or disputes in the Register process.
 - Currently not activated (Registry Manager only).

IHO Geospatial Information Registry

Members

Home / Administration / Members

Summary of Member Counts:

Role	Count
All Member	137
Registry Manger	5
Domain Control Body	10
Executive Control Body	1
Submitting Organizat	17
User (TestBed/DCEG)	103
Producer Code Manager	1
Pending	0

Table of Members:

No	ID	Individual Name	Organization	Rank	Email	Date Accepted	Approval Authority (Concept)	Approval Authority (Data Dictionary)
1	ihoexecutive	Jeff Wootton	IHO Secretariat	ECB	jeff.wootton@iho.int	2020-06-19	ON	ON


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IHO

REGISTRY ROLES (7)

- Register User: A Register User is any person or Organization requiring access to and use of the contents of a Register.



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Organization

IHO Geospatial Information Registry

Jeff Wootton Rank : **RMSO**
Detail > Domain : IHO Hydro, WMO ICE, ...

Sign-out
My Task

KHOA Korea Hydrographic and
Oceanographic Agency

Members

Home / Administration / Members

All Member 137

Registry Manger 5

Domain Control Body 10

Executive Control B... 1

Submitting Organizat... 17


User (TestBed/DCEG) 103

Producer Code Manager 1

Pending 0

No	ID	Individual Name	Organization	Rank	Email	Date Accepted
1	khoaadmin	Yong BAEK	IHO (S-100WG)	RMSO	addt@iho.int	2018-01-01
2	richardson	Tom Richardson	IHO (S-100WG)	SO	thomas.richardson@ic-enc.org	2018-06-05
3	kama_yus	Kamaruddin kama	IHO (S-100WG)	DCEG User	kama@navy.mil.my	2018-06-05
4	DaveGrant	David Grant	IHO (S-100WG)	DCEG User	David.Grant1@navy.mil	2018-06-26

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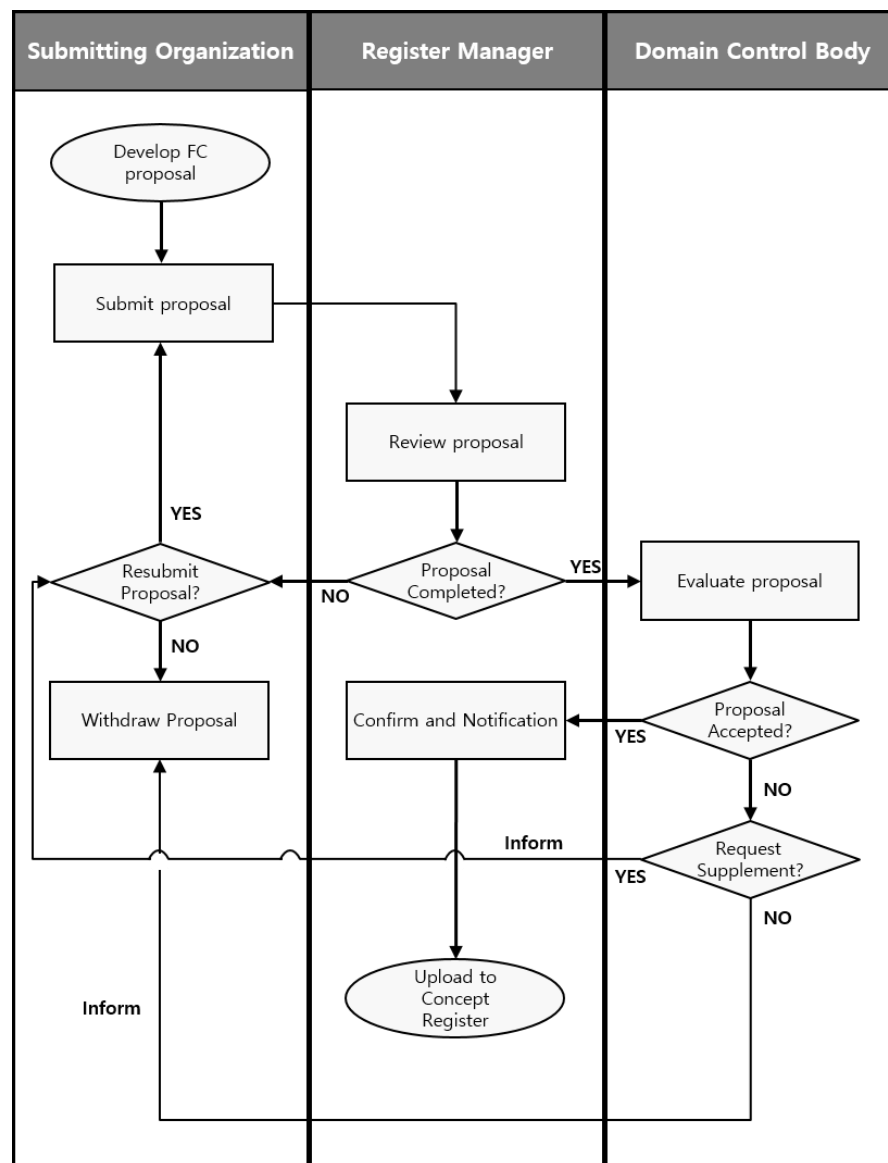
 KHOA Acknowledgements



IHO

PROPOSAL PROCESS (CONCEPT REGISTER)

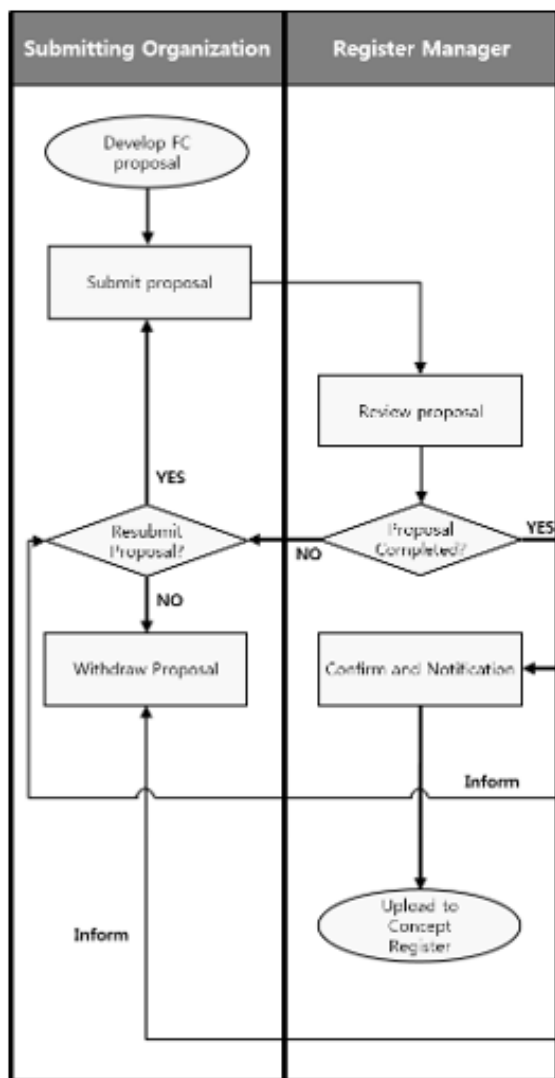
International
Hydrographic
Organization



**IHO**

PROPOSAL PROCESS (CONCEPT REGISTER) (2)

International
Hydrographic
Organization



The Submitting Organization representative shall:

- receive proposals for the registration of items from proposers within their respective Working Groups, communities or organizations;
- ensure that all proposals are logical and complete and are consistent with other registered items within the Register; and
- submit proposals to the appropriate Register through the submission process in the IHO GI Registry interface.

The Register Manager shall:

- receive proposals from Submitting Organizations representatives;
- review proposals for completeness;
- return proposals to the Submitting Organization representative if incomplete or inconsistent; and
- update the item management record, with the proposalStatus set to 'notYetDetermined'.

The Register Manager shall use the following criteria to determine if a proposal is complete:

- the proposal is from a recognized Submitting Organization representative;
- the proposed item falls within the scope of the Register or domain; and
- a registered item (or similar) to the proposed item does not already exist.

If the decision of the Register Manager is positive, the proposal shall be forwarded to the Register Domain Control Body for approval. If the decision of the Register Manager is negative, the proposal shall be returned to the Submitting Organization representative for rework or cancellation as required.

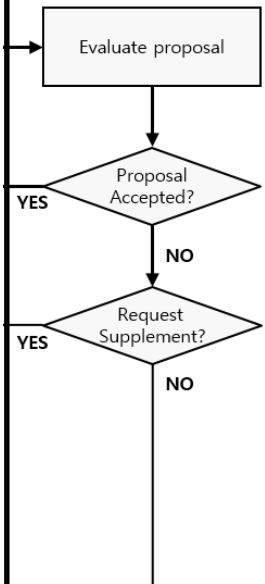


IHO

PROPOSAL PROCESS (CONCEPT REGISTER) (3)

International
Hydrographic
Organization

Domain Control Body



The Register Domain Control Body can decide to:

- a) accept the proposal without change;
- b) accept the proposal subject to changes negotiated with the Submitting Organization; or
- c) not accept the proposal.

Criteria for not accepting a proposal include:

- a) the specification of the item is incomplete or incomprehensible;
- b) an identical or very similar item already exists in the Register or in another Register of the Registry;
- c) the proposed item does not belong to an item class included in the Register;
- d) the proposed item does not fall within the scope of the Register; or
- e) the justification for the proposal is inadequate.

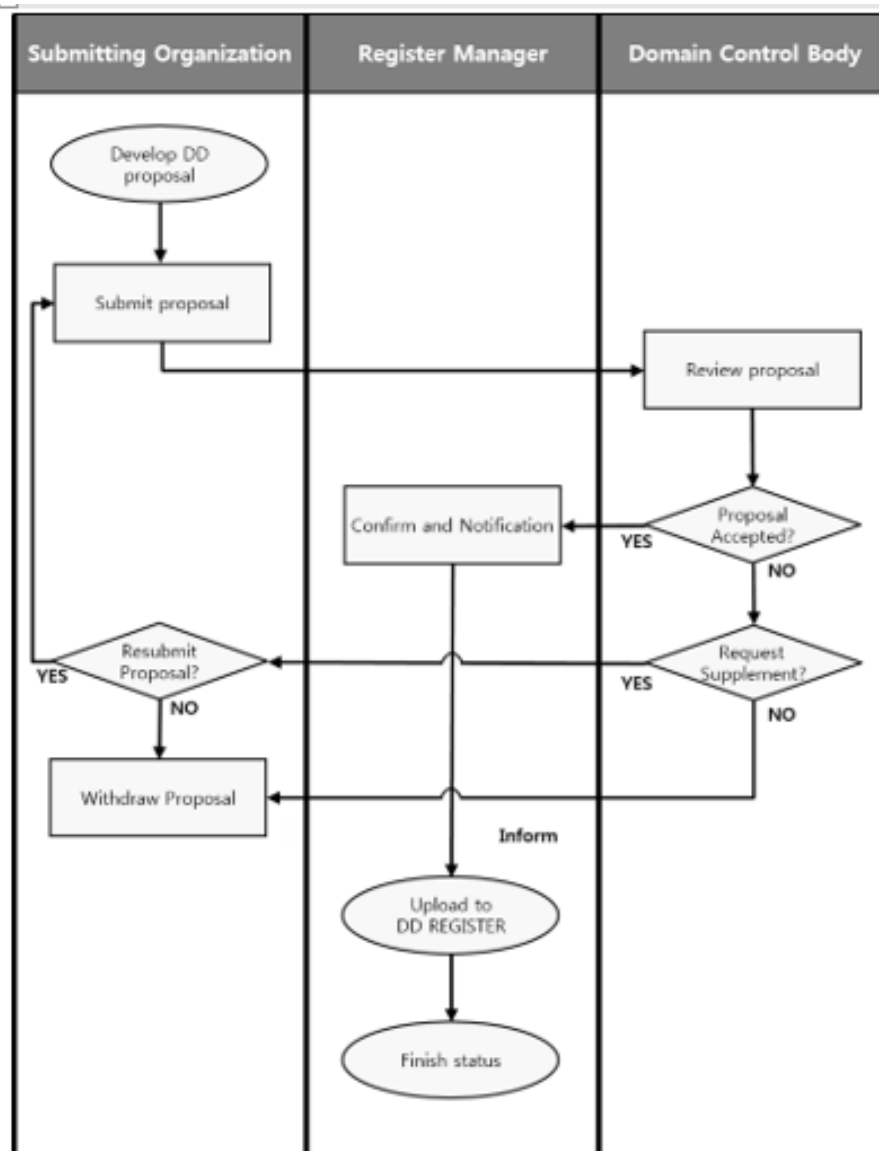
Each Domain Control Body member shall inform the Register Manager of their Working Group / organization's decision, and the rationale for that decision, within 60 days of receipt of the proposal through the approval process in the IHO GI Registry interface. Nil returns will be taken as acceptance of the proposal.



IHO

PROPOSAL PROCESS (DATA DICTIONARY AND PORTRAYAL REGISTERS)

International
Hydrographic
Organization

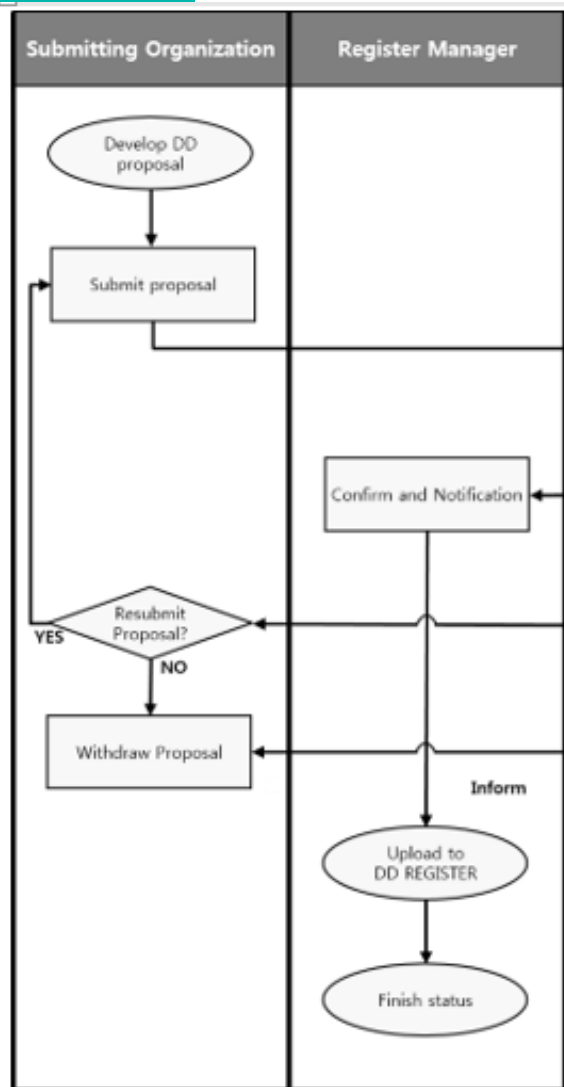




IHO

PROPOSAL PROCESS (DATA DICTIONARY AND PORTRAYAL REGISTERS) (2)

International
Hydrographic
Organization



The Submitting Organization representative shall:

- receive proposals for the registration of items from proposers within their respective Working Groups, communities or organizations;
- ensure that all proposals are logical and complete and are consistent with other registered items within the Register; and
- submit proposals to the appropriate Register through the submission process in the IHO GI Registry interface.

The Register Manager shall:

- receive proposals from Submitting Organizations representatives;
- review proposals for completeness;
- return proposals to the Submitting Organization representative if incomplete or inconsistent; and
- update the item management record, with the proposalStatus set to "notYetDetermined".

The Register Manager shall use the following criteria to determine if a proposal is complete:

- the proposal is from a recognized Submitting Organization representative;
- the proposed item falls within the scope of the Register or domain; and
- a registered item (or similar) to the proposed item does not already exist.

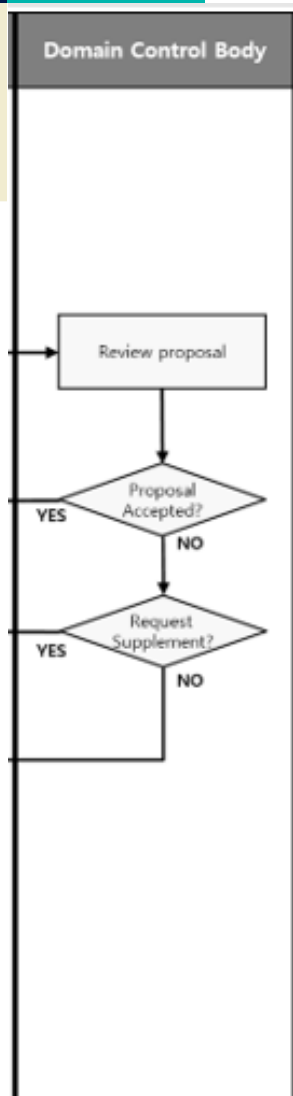
If the decision of the Register Manager is positive, the proposal shall be forwarded to the Register Domain Control Body for approval. If the decision of the Register Manager is negative, the proposal shall be returned to the Submitting Organization representative for rework or cancellation as required.



IHO

PROPOSAL PROCESS (DATA DICTIONARY AND PORTRAYAL REGISTERS) (3)

International
Hydrographic
Organization



The process for determining the acceptability of proposals is illustrated in Figures 4-1 and 4-2 above. The approval process shall normally be completed within a time period of 60 days. In the case of appeal this period shall be extended to 90 days.

The Register Manager shall ensure the following:

- a) if the proposal is for clarification or retirement of a Register item, set the *itemStatus* of the item to 'processing'; and forward the proposal to the Register Domain Control Body; or
- b) if the proposal is for registration of a new item or supersession of an existing Register item:
 - 1) assign an *itemIdentifier* to the new or superseding item,
 - 2) set the *itemStatus* of the item to 'processing'; and
 - 3) inform the Register Domain Control Body of the new proposal within five working days.

The Register Domain Control Body can decide to:

- a) accept the proposal without change;
- b) accept the proposal subject to changes negotiated with the Submitting Organization; or
- c) not accept the proposal.

Criteria for not accepting a proposal include (but may not be restricted to):

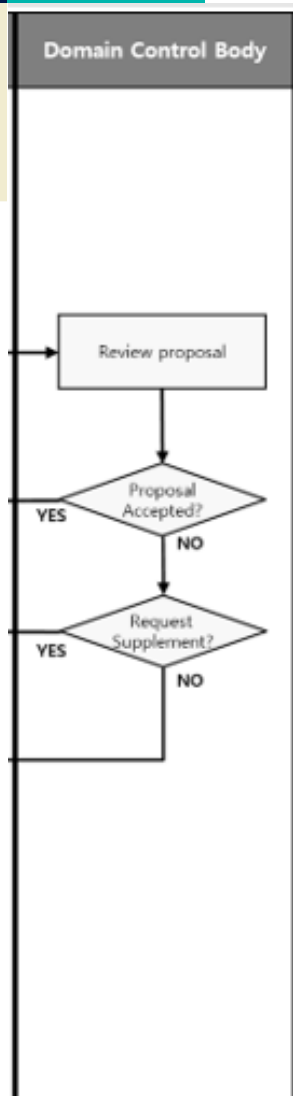
- a) the specification of the item is incomplete or incomprehensible;
- b) an identical or very similar item already exists in the Register or in another Register of the Registry;
- c) the proposed item does not belong to an item class included in the Register;
- d) the proposed item does not fall within the scope of the Register; or
- e) the justification for the proposal is inadequate.



IHO

PROPOSAL PROCESS (DATA DICTIONARY AND PORTRAYAL REGISTERS) (4)

International
Hydrographic
Organization



Each Domain Control Body member shall inform the Register Manager of their Working Group / organization's decision, and the rationale for that decision, within 60 days of receipt of the proposal through the approval process in the IHO GI Registry interface. Nil returns will be taken as acceptance of the proposal.

The Register Manager shall:

- serve as the point of contact if there is a need for negotiations between a Submitting Organization and the Register Domain Control Body regarding any changes required to a proposal that may be specified by the Domain Control Body as a condition of acceptance; and
- inform the Submitting Organization representative of the results of processing the proposal.

If the decision of the Register Domain Control Body is positive, the Register Manager shall, in accordance with policies for the Register:

- complete the proposal management record with proposalStatus set to 'accepted', and dateAccepted to the date of the Domain Control Body's decision;
- make approved changes to the content of the Register item; and
- set the Register item itemStatus to 'valid', 'clarified', 'superseded', or 'retired', as appropriate.

If the decision of the Register Domain Control Body is negative, the Register Manager shall:

- update the proposal management record by setting proposalStatus to 'rejected', and dateAmended to the date of the Domain Control Body's decision;
- inform the Submitting Organization of the 60 working day deadline for appealing the decision of the Domain Control Body; and
- make the results of the approval process available to all interested parties.

Submitting Organization representatives shall:

- negotiate with the Register Domain Control Body through the Register Manager, regarding any changes to their proposals that are specified by the Domain Control Body as a condition of acceptance; and
- make known to the proposer and within their respective Submitting Organization communities or organizations the decisions taken on proposals by the Domain Control Body as transmitted to them by the Register Manager.

**IHO**

SUBMITTING ORGANIZATION PROCESS (CONCEPT)

- Login using your personal Submitting Organization login and password.
- PROPOSAL/Concept.

The screenshot displays the IHO Geospatial Information Registry website. The top navigation bar includes the IHO logo, the title "IHO Geospatial Information Registry", a user profile for "Jeff Wootton" with a rank of "SO", and links for "Sign-out" and "My Task". The left sidebar menu lists various options: HOME, HELP&GUIDANCE, GI REGISTERS, MY TASKS, PROPOSAL (highlighted with a red box), and TEST BED. Under the PROPOSAL menu, the "Concept" option is also highlighted with a red box. The main content area features a welcome message, a description of the registry, and a link to download the operational procedures. The footer contains copyright information and a link to KHOA Acknowledgements.

IHO International Hydrographic Organization

IHO Geospatial Information Registry

Jeff Wootton Rank : SO

Sign-out My Task

KHOA Korea Hydrographic and Oceanographic Agency

PROPOSAL

Concept

DATA DICTIONARY

PORTRAYAL

META DATA

TEST BED

WELCOME TO THE IHO GEOSPATIAL INFORMATION REGISTRY (Version 3.1)

This Registry is owned by the International Hydrographic Organization (IHO) and is managed by the Secretariat of the IHO. The site contains several Registers of hydrographic related information administered by specialist domain experts. Each Register type may be further sub-divided into Domains, for example Hydrographic, Nautical Publications, Ice, Weather, and Inland ENC. The administration of this Registry conforms to IHO Publication S-99 (Operational Procedures for the Organization and Management of the IHO Geospatial Information Registry), a copy of which can be downloaded [here](#).

The information contained in the Registry can be freely accessed, however items can only be added or changed by the representatives of approved Submitting Organizations. Application to become a Submitting Organization representative can be made by fulfilling the requirements of the prerequisite form available [here](#). Once accepted as a Submitting Organization representative you are free to submit proposals to any Register. The Registry interface undergoes periodic improvements

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KHOA Acknowledgements

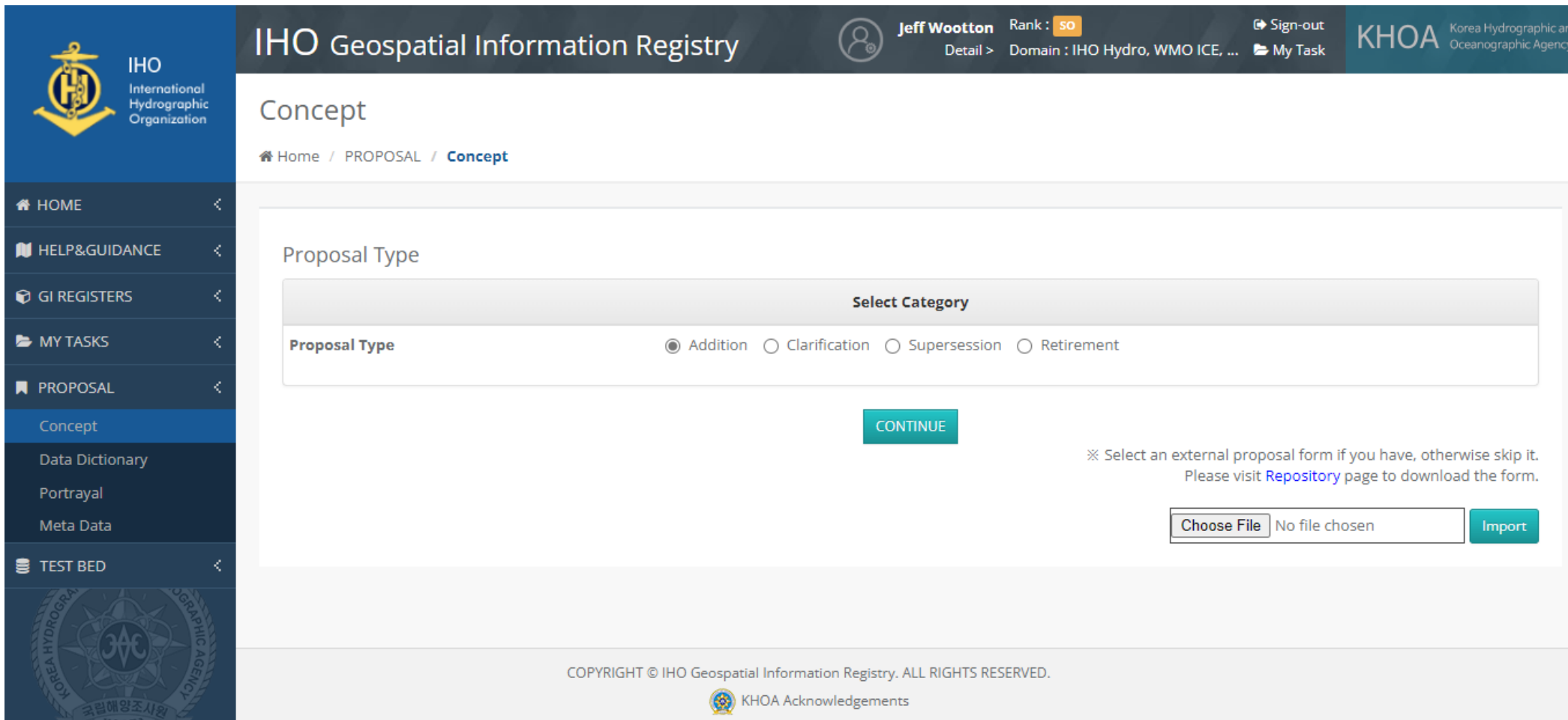
<https://registry.iho.int/#>



IHO

SUBMITTING ORGANIZATION PROCESS (CONCEPT) (2)

- Select Proposal Type (Addition/Clarification/Supersession/Retirement).



The screenshot shows the IHO Geospatial Information Registry interface. The top navigation bar includes the IHO logo, the title "IHO Geospatial Information Registry", user information for Jeff Wootton (Rank: SO), and links for Sign-out and My Task. The left sidebar contains a menu with options: HOME, HELP&GUIDANCE, GI REGISTERS, MY TASKS, PROPOSAL, Concept (selected), Data Dictionary, Portrayal, Meta Data, and TEST BED. The main content area is titled "Concept" and shows a breadcrumb trail: Home / PROPOSAL / Concept. Below this, the "Proposal Type" section features a "Select Category" dropdown menu with four radio button options: Addition (selected), Clarification, Supersession, and Retirement. A green "CONTINUE" button is positioned below the options. To the right of the button, a note states: "※ Select an external proposal form if you have, otherwise skip it. Please visit [Repository](#) page to download the form." Below this note is a file upload section with a "Choose File" button, the text "No file chosen", and an "Import" button. The footer contains the copyright notice "COPYRIGHT © IHO Geospatial Information Registry. ALL RIGHTS RESERVED." and the KHOA Acknowledgements logo.

IHO Geospatial Information Registry

Jeff Wootton Rank : SO Sign-out My Task

KHOA Korea Hydrographic and Oceanographic Agency

Concept

Home / PROPOSAL / Concept

Proposal Type

Select Category

Proposal Type ☒ Addition ☐ Clarification ☐ Supersession ☐ Retirement

CONTINUE

※ Select an external proposal form if you have, otherwise skip it.
Please visit [Repository](#) page to download the form.

Choose File No file chosen Import

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IHO

SUBMITTING ORGANIZATION PROCESS (CONCEPT) (3)

International
Hydrographic
Organization

- Complete fields in the Proposal form as appropriate and submit.
 - All mandatory fields must be populated.
 - NOTE: camelCase fiels is populated as part of the Name duplication check.
 - Detailed procedures and conventions will be included in S-99 Annex A.

IHO Geospatial Information Registry

Jeff Wootton Rank : SO Detail > Domain : IHO Hydro, WMO ICE, ... Sign-out My Task KHOA Korea Hydrographic and Oceanographic Agency

HOME / PROPOSAL / Concept

[Concept] Proposal Process

Name * Category of Beer Duplication Check

Alias

Camel Case * categoryOfBeer

Definition * Classification of different types of beer.

Reference

Reference Source S-101 Project Team Propose

Similarity to Source Identical

Remarks

Proposed Change * New enumerate type attribute.

Justification * Required for S-101.

Save Submit Cancel

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IHO

SUBMITTING ORGANIZATION PROCESS (DATA DICTIONARY)

International
Hydrographic
Organization

- Similar to Concept Register.
 - PROPOSAL/Data Dictionary.
 - Select Proposal Type, Item Type and Domain.
 - Select Concept from drop-down list. Complete all other required fields.
 - Detailed procedures and conventions will be included in S-99 Annex A.

The screenshot shows the 'Data Dictionary' page in the IHO Geospatial Information Registry. The page is titled '[Attribute] Addition' and contains a form with the following fields:

[Attribute] Addition	
Concept	Groyne
Alias	Groin
Camel Case	Groyne
Definition	A low artificial wall-like structure of durable material extending from the land to seaward for a particular purpose, such as to protect the coast or to force a current to scour a channel.
Reference	http://iho-ohi.net/S32/engView.php?quick_filter=groin+(or+groyne)&quick_filter_operator=Equals
Reference Source	Hydrographic Dictionary, Part I Volume I, English
Similarity to Source	Unspecified

At the bottom of the page, there is a copyright notice: 'COPYRIGHT © IHO Geospatial Information Registry. ALL RIGHTS RESERVED.' and a logo for 'KHOA Acknowledgements'.



IHO

SUBMITTING ORGANIZATION PROCESS (PORTRAYAL)

International
Hydrographic
Organization

- Similar to Concept Register.
 - PROPOSAL/Portrayal.
 - Select Proposal Type, Portrayal Type and Domain.
 - Complete all required fields.
 - Detailed procedures and conventions will be included in S-99 Annex A.

The screenshot shows the 'IHO Geospatial Information Registry' interface. The top navigation bar includes the IHO logo, user information for 'Jeff Wootton' (Rank: SO), and links for 'Sign-out' and 'My Task'. The main header is 'IHO Geospatial Information Registry'. The left sidebar contains a menu with 'HOME', 'HELP&GUIDANCE', 'GI REGISTERS', 'MY TASKS', 'PROPOSAL' (selected), 'Concept', 'Data Dictionary', 'Portrayal' (highlighted), 'Meta Data', and 'TEST BED'. The main content area is titled 'Portrayal Proposal' and shows a breadcrumb trail: 'Home / Proposal / Portrayal'. The form is titled '[symbol] Addition' and contains the following fields: 'Domain' (IHO Hydro), 'Alias' (empty), 'symbol Name*' (BEER01) with a 'Duplication Check' button, 'Definition*' (Point symbol for representation of an establishment that serves beer.), and 'Remarks' (empty). The footer includes copyright information: 'COPYRIGHT © IHO Geospatial Information Registry. ALL RIGHTS RESERVED.' and 'KHOA Acknowledgements'.



IHO

DOMAIN CONTROL BODY PROCESS (CONCEPT)

- Login using your personal DCB login and password.
- MY TASKS/Concept.

IHO Geospatial Information Registry

Jeff Wootton Rank: DCA

Sign-out Hydro My Task KHOA Korea Hydrographic and Oceanographic Agency

IHO International Hydrographic Organization

HOME < HELP&GUIDANCE < GI REGISTERS < MY TASKS < Concept < Data Dictionary Portrayal Meta Data PROPOSAL < TEST BED < Open Online Platform < 2nd GI Registry(Old) <

Concept Register

Home / MY TASKS / Concept Register

Works Submitted Saved

Show history ☒ Progress Transferred Category Name

No	Name	Status	Decision Status	Proposal Type	Proposed By	Date Proposed
1	Buoy Commissioned for Navigation Season	Processing	Transferred	Addition	Elena Maria Gnehm	2021-11-15
2	Route Format Version	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
3	Route ID	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
4	Route Edition No	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
5	Route Extensions	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
6	Route Action Points Extensions	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
7	Route Action Point ID	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
8	Route Action Point Name	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
9	Route Action Point External Reference	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
10	Route Action Point Radius	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
11	Route Action Point Time to Act	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
12	Route Action Point Required Action	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18
13	Route Action Point Required Action Description	Processing	Transferred	Addition	KWANGIL LEE	2022-01-18

Showing 1 to 20 of 403 rows 20 rows per page

KHOA Republic of Korea

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2nd IHO GI Registry Workshop – Monaco – 12-13 December 2022



IHO

DOMAIN CONTROL BODY PROCESS (CONCEPT) (2)

- For a batch export of a long list of pending proposals for examination/forwarding to relevant SMEs:
 - GI REGISTERS/Concept Register; select Status = “Processing”.
 - Select (Export data) and choose preferred export format (JSON, XML, CSV, TXT, SQL, Excel, PDF).

IHO Geospatial Information Registry

Concept Register

Concept is a definition of object, information or phenomena of nature without any relation to other concept.

Status: Processing

Category: Name

No	Name	Camelcase	Definition	Status	Export
1	Buoy Commissioned for Navigation Season	buoyCommissionedForNavigationSeason	A buoy which was in ice over the winter and has been verified undamaged and in advertised position for the navigational season	Processing	JSON, XML, CSV, TXT, SQL, MS-Excel, PDF
2	Location Maritime Resource Name	locationMRN	Location identifier, based on MRN. This can be either a specific identifier for an identified physical location or a type-only identifier for a logical location, such as BERTH	Processing	
3	Comment	comment	Comment regarding an entity obvious from context	Processing	
4	Port call ID	portCallId	Port call identifier, based on MRN. First element of the NSS should be the 5 character UN/Locode of the port	Processing	
5	Vessel ID	vesselId	Vessel identifier, based on MRN. Can be either IMO or MMSI based	Processing	
6	Message ID	messageId	Port call message identifier, based on MRN and UUID.	Processing	
7	Local Port Call ID	localPortCallId	Local Port call identifier, based on MRN. First element of the NSS should be the UN/Locode of the port, second element is a data source id and the third is the port call id of the data source external system.	Processing	
8	local Job ID	localJobId	Port call identifier, based on MRN. First element of the NSS should be the UN/Locode of the port	Processing	
9	Reported At	reportedAt	Time when a time stamp was reported	Processing	
10	Reported By	reportedBy	Entity that reported a time stamp	Processing	
11	Category of Message Operation	categoryOfMessageOperation	Operation to be performed on port call message	Processing	
12	effective Time	effectiveTime	The instant at which the information or condition becomes effective.	Processing	
13	Reference Object	referenceObject	The entity that the time stamp concerns that changes location upon a time window	Processing	
14	Window After	windowAfter	Time offset, after a given time.	Processing	
15	Window Before	windowBefore	Time offset, before a given time.	Processing	



(.pdf)

No	Name	Camelcase	Definition	Status	Date Proposed
1	Buoy Commissioned for Navigation Season	buoyCommissionedForNavigationSeason	A buoy which was in ice over the winter and has been verified undamaged and in advertised position for the navigational season	Processing	15/11/2021
2	Location Maritime Resource Name	locationMRN	Location identifier, based on MRN. This can be either a specific identifier for an identified physical location or a type-only identifier for a logical location, such as BERTH	Processing	26/11/2021
3	Comment	comment	Comment regarding an entity obvious from context	Processing	26/11/2021
4	Port call ID	portCallId	Port call identifier, based on MRN. First element of the NSS should be the 5 character UN/Locode of the port	Processing	26/11/2021
5	Vessel ID	vesselId	Vessel identifier, based on MRN. Can be either IMO or MMSI based	Processing	26/11/2021
6	Message ID	messageId	Port call message identifier, based on MRN and UUID.	Processing	26/11/2021
7	Local Port Call ID	localPortCallId	Local Port call identifier, based on MRN. First element of the NSS should be the UN/Locode of the port, second element is a data source id and the third is the port call id of the data source external system.	Processing	26/11/2021
8	local Job ID	localJobId	Port call identifier, based on MRN. First element of the NSS should be the UN/Locode of the port	Processing	26/11/2021
9	Reported At	reportedAt	Time when a time stamp was reported	Processing	26/11/2021

**IHO**

DOMAIN CONTROL BODY PROCESS (CONCEPT) (3)

International
Hydrographic
Organization

- Open proposal for evaluation and processing:

The Register Domain Control Body can decide to:

- accept the proposal without change;
- accept the proposal subject to changes negotiated with the Submitting Organization; or
- not accept the proposal.

Criteria for not accepting a proposal include (but may not be restricted to):

- the specification of the item is incomplete or incomprehensible;
- an identical or very similar item already exists in the Register or in another Register of the Registry;
- the proposed item does not belong to an item class included in the Register;
- the proposed item does not fall within the scope of the Register; or
- the justification for the proposal is inadequate.

Each Domain Control Body member shall inform the Register Manager of their Working Group / organization's decision, and the rationale for that decision, within 60 days of receipt of the proposal through the approval process in the IHO GI Registry interface. Nil returns will be taken as acceptance of the proposal.



IHO

DOMAIN CONTROL BODY PROCESS (CONCEPT) (4)

Evaluation:

- Should be carried out in regard to the subject-matter expertise of the DCB representative, in accordance with individually established processes (internal consultation etc).

RM	DCB	Role	Name	Status	Date
RM	IHO Secretariat	Jeff Wootton	transfer	03:48:56 PM / 2022-01-18	
DCB	WHO	Hillary Fort	Not yet determined	-	
DCB	IALA	Minsu Jeon	Not yet determined	-	
DCB	IEC	Kim Fisher	Not yet determined	-	
DCB	IEC	Denise LaDue	Not yet determined	-	
DCB	IHO Secretariat	Jeff Wootton	Not yet determined	-	
DCB	IHO (S-100WG)	Lindsay Perryman	Not yet determined	-	
DCB	IHO (S-100WG)	Elizabeth Haessy	Not yet determined	-	

Concept Details			
Name	Route Waypoint Name		
Alias	routeWaypointName		
CamelCase	routeWaypointName		
Definition	Name of waypoint		
Reference	S-421		
Reference Source	Unspecified (Detail view)		
Similarity to Source	Unspecified		
Remarks			

Management Details			
Proposal Type	Addition	Submitting Org	IEC
Successor	--	Date Proposed	2022-01-18
Predecessor	--	Date Accepted	
Proposed Change			
Justification			

Please leave your comments

Jeff Wootton

Jeff Wootton
05:24:19 PM / 2022-01-18

Save

Proposal erroneously accepted. Duplicate of the camelCase included in the Alias needs to be removed.

- NOTE:** All proposals submitted to the DCB have already been assessed by the Register Manager for completeness and content.



IHO

DOMAIN CONTROL BODY PROCESS (CONCEPT) (5)

- Accepting the proposal:

- Simply select the “Accept” option.
- There is no requirement to leave a comment in the Comments section.

IHO Geospatial Information Registry

Concept Register

Home / MY TASKS / Concept Register

Works Submitted Saved

Show history ☐ Progress All Category Name

Proposal Status

Progress: Transferred

SO: KWANGIL LEE [SO]

RM	IHO Secretariat	Jeff Wootton	transfer	03:48:56 PM / 2022-01-18
DCB	WMO	Hillary Fort	Not yet determined	-
DCB	IALA	Minsu Jeon	Not yet determined	-
DCB	IEC	Kim Fisher	Not yet determined	-
DCB	IEHC	Denise LaDue	Not yet determined	-
DCB	IHO Secretariat	Jeff Wootton	Not yet determined	-
DCB	IHO (S-100WG)	Lindsay Perryman	Not yet determined	-
DCB	IHO (S-100WG)	Elizabeth Hahessy	Not yet determined	-

LIST Accept Reject Supplement

**IHO**

DOMAIN CONTROL BODY PROCESS (CONCEPT) (6)

International
Hydrographic
Organization

- Rejecting the proposal:
 - Before rejecting the proposal, a comment must be included in the “Comments” box at the bottom of the form.
 - Ensure that after inserting your comment justifying the rejection, the comment is saved by clicking on the “save” button.
 - After saving your comment, select the “Reject” option.

Please leave your comments

Jeff Wootton

Jeff Wootton

05:24:19 PM / 2022-01-18

Save

Proposal erroneously accepted. Duplicate of the camelCase included in the Alias needs to be removed.

Criteria for not accepting a proposal include (but may not be restricted to):

- the specification of the item is incomplete or incomprehensible;
- an identical or very similar item already exists in the Register or in another Register of the Registry;
- the proposed item does not belong to an item class included in the Register;
- the proposed item does not fall within the scope of the Register; or
- the justification for the proposal is inadequate.

IHO Geospatial Information Registry

Concept Register

Home / MY TASKS / Concept Register

Works Submitted Saved

Show history ☐ Progress All Category Name

Proposal Status

Progress: Transferred

SO	Proposal	RM	DCB	IALA	IEC	IENC	IHO Secretariat	IHO (S-100W)	Progress	Date
50	KWANGIL LEE [50]	IHO Secretariat					Jeff Wootton		transfer	03:48:56 PM / 2022-01-18
		WMO					Hillary Fort		Not yet determined	-
							Minsu Jeon		Not yet determined	-
							Kim Fisher		Not yet determined	-
							Denise LaDue		Not yet determined	-
							Jeff Wootton		Not yet determined	-
							Lindsay Perryman		Not yet determined	-
							Elizabeth Hahessy		Not yet determined	-

LIST Accept Reject Supplement



IHO

DOMAIN CONTROL BODY PROCESS (CONCEPT) (7)

International
Hydrographic
Organization

- Accept the proposal subject to changes:
 - A comment must be included in the “Comments” box at the bottom of the form that fully describes the suggested change and the reason for the change
 - Ensure that after inserting your comment justifying the rejection, the comment is saved by clicking on the “save” button.
 - After saving your comment, select the “Supplement” option (note – the proposal will remain in your DCB queue until resolved with the Submitting Organisation representative and accepted).

Please leave your comments

Jeff Wootton

Jeff Wootton

05:24:19 PM / 2022-01-18

Save

Proposal erroneously accepted. Duplicate of the camelCase included in the Alias needs to be removed.

IHO Geospatial Information Registry

Concept Register

Home / MY TASKS / Concept Register

Works Submitted Saved

Show history ☐ Progress All Category Name

Proposal Status

Progress: Transferred

RM	IHO Secretariat	Jeff Wootton	transfer	03:48:56 PM / 2022-01-18
DCB	WMO	Hillary Fort	Not yet determined	-
DCB	IALA	Minsu Jeon	Not yet determined	-
DCB	IEC	Kim Fisher	Not yet determined	-
DCB	IEHC	Denise LaDue	Not yet determined	-
DCB	IHO Secretariat	Jeff Wootton	Not yet determined	-
DCB	IHO (S-100WG)	Lindsay Perryman	Not yet determined	-
DCB	IHO (S-100WG)	Elizabeth Hahessy	Not yet determined	-

LIST Accept Reject Supplement



IHO

DOMAIN CONTROL BODY PROCESS (DATA DICTIONARY AND PORTRAYAL)

- Similar to Concept Register.
 - Only difference is in fields to be evaluated.
 - Detailed procedures and conventions will be included in S-99 Annex A.

HOME <
HELP&GUIDANCE <
GI REGISTERS <
MY TASKS <
Concept
Data Dictionary
Portrayal
Meta Data
PROPOSAL <
TEST BED <
Administration <

[symbol] Portrayal Details

Domain	IHO Hydro
Name	ACHARE03
Alias	ACHARE03
Definition	Reported Anchorage
Remarks	
Reference Source	IHO S-101 Project Team
Item schema	symbolSchema1
Preview Image	
Engineering Image	
SVG View	
XML	SHOW/HIDE

Management Details

Proposal Type	addition	Submitting Org	IHO (S-100WG)
Successor	--	Date Proposed	2022-11-03

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HOME <
HELP&GUIDANCE <
GI REGISTERS <
MY TASKS <
Concept
Data Dictionary
Portrayal
Meta Data
PROPOSAL <
TEST BED <
Administration <

[Feature Type] Dictionary Details

Domain	IHO Hydro
Name	Quality of Bathymetric Data
CamelCase	QualityOfBathymetricData
Use Type	Meta : Contains information about other objects.
Definition	An area within which a uniform assessment of the quality of the bathymetric data exists.
Reference	Chapter 1, page 1.216
Reference Source	IHO Transfer Standard for Digital Hydrographic Data, Appendix A: Object Catalogue - Description of the Feature Coding Schema to be Used for Hydrographic Requirements
Similarity to Source	Identical : The style of the definition has been changed to match the style and structure of other specifications in the register that has imported the specification.
Remarks	
INT1	<input type="text"/>
S4	B-297

No.	Attribute name
1	Vertical Uncertainty (Valid)
2	Survey Date Range (Valid)
3	Horizontal Position Uncertainty (Valid)
4	Full Feature Coverage Acknowledgement

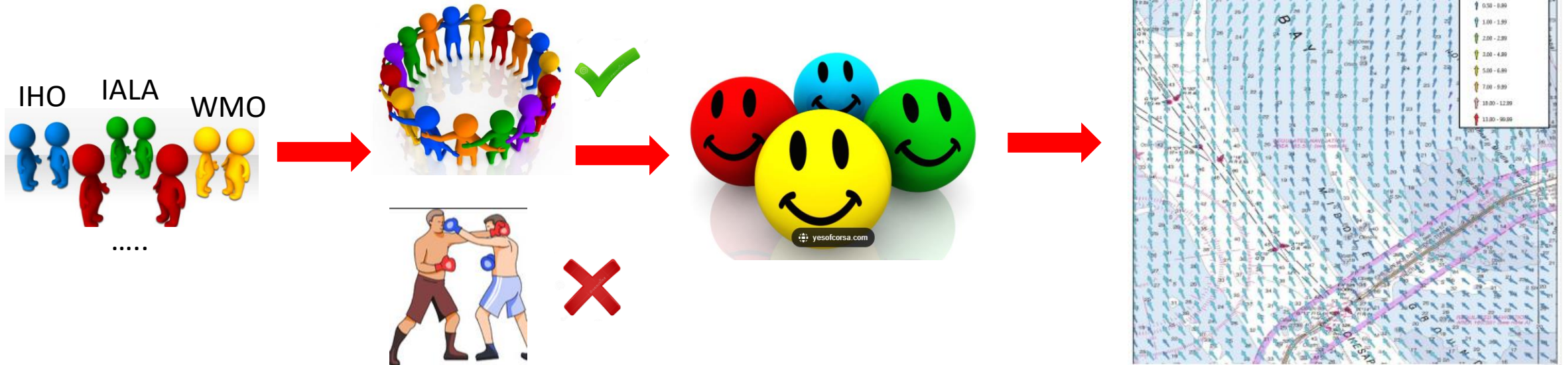
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IHO

CHALLENGES – HARMONIZATION – COMMUNICATION

- Communication between developers is important!
 - Particularly important for Product Specifications intended to be interoperable in an end-user system





IHO

CHALLENGES – HARMONIZATION – COMMUNICATION (2)

- End-user testing and feedback
 - Providing the best outcome for the intended end-user (standardized, fit for purpose, usability, interpretation/understanding, consistency) within the operational environment is key





IHO

CHALLENGES – HARMONIZATION – REGISTRY ITEM REVIEW

International
Hydrographic
Organization

- “Registry Item Review” Spreadsheet.
 - Maintained so as to identify inconsistencies/issues related to all items included in the Concept and Data Dictionary Registers.

FCD Register Item Review - Excel

Jeff Wootton

File Home Insert Page Layout Formulas Data Review View Help Tell me what you want to do

Clipboard Font Alignment Number Styles Cells Editing

A6953 Reduced Depth

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Item	Concept Register	Domain (FCD)	Type	Issue	Comments	Decision	Address	Item Name	CamelCase	Use Type	Definition	Definition Source
2	ALL		ALL	Complex	Review all complex attribute names to remove the word "Complex" from the name.								
3	0 Oktas		WMO Weather	Codelist Value	Discussion at S-100V/G2 meeting: Recommendation is that where a concept can be modelled as an Enumerate type attribute, it should be done rather than modelling as a	Retired 07/08/18 (WMO - remodelled)			OK	OK	NA	OK	Missin
4	0 Small Vessels and Pleasure Craft	23/04/20	Inland ENC	Enumerate	There appears to be a "code" value included at the start of the Item Name for all registered values of "Category of CEMT Class", in addition to the "meaning" (?) of the code being included. Needs to be discussed.				Refer to Issue	OK	NA	Does not look authoritative	OK
5	0 to 50 meters		WMO Weather	Codelist Value	Discussion at S-100V/G2 meeting: Recommendation is that where a concept can be modelled as an Enumerate type attribute, it should be done rather than modelling as a	Retired 06/08/18 (WMO - remodelled)			Action Required	Action Required	NA	Repeat of the name.	Missin
6	0.5-1.0 nm Between Bergs	27/05/20	WMO Ice	Enumerate	Why are the enumerate values not consecutive (i.e. there are large gaps between values)?		27/02/20: Amended camelcase to be more specific to value. Amended definition to be more concise.		Illegal characters "" and ""	OK	NA	Repeat of the name.	Missin
7	0.5-2.0 nm Between Bergs	27/05/20	WMO Ice	Enumerate	Why are the enumerate values not consecutive (i.e. there are large gaps between values)?		27/02/20: Amended camelcase to be more specific to value. Amended definition to be more concise.		Illegal characters "" and ""	OK	NA	Repeat of the name.	Missin
8	0/10 to 1/10	27/05/20	WMO Ice	Enumerate	NOTE: There are 4 different bindings of this Item Name as an enumerate value, however each binding instance has a different camelCase. Is this allowable?	TSSO: Suggest that this be renamed to "0 to 1 Tenth"	27/05/20: Amended camelCase to zeroToOneTenths for all instances (ConceptRegister only).		Action Required	Refer to Issue	NA	Repeat of the name.	Missin
9	0/10 to 1/10	27/05/20	WMO Ice	Enumerate	NOTE: There are 4 different bindings of this Item Name as an enumerate value, however each binding instance has a different camelCase. Is this allowable?	TSSO: Suggest that this be renamed to "0 to 1 Tenth"	27/05/20: Amended camelCase to zeroToOneTenths for all instances (ConceptRegister only).		Action Required	Refer to Issue	NA	Repeat of the name.	Missin
10	0/10 to 1/10	27/05/20	WMO Ice	Enumerate	NOTE: There are 4 different bindings of this Item Name as an enumerate value, however each binding instance has a different camelCase. Is this allowable?	TSSO: Suggest that this be renamed to "0 to 1 Tenth"	27/05/20: Amended camelCase to zeroToOneTenths for all instances (ConceptRegister only).		Action Required	Refer to Issue	NA	Repeat of the name.	Missin
11	0/10 to 1/10	27/05/20	WMO Ice	Enumerate	NOTE: There are 4 different bindings of this Item Name as an enumerate value, however each binding instance has a different camelCase. Is this allowable?	TSSO: Suggest that this be renamed to "0 to 1 Tenth"	27/05/20: Amended camelCase to zeroToOneTenths for all instances (ConceptRegister only).		Action Required	Refer to Issue	NA	Repeat of the name.	Missin
12	0/10 to 1/10	27/05/20	WMO Ice	Enumerate	NOTE: There are 4 different bindings of this Item Name as an enumerate value, however each binding instance has a different camelCase. Is this allowable?	TSSO: Suggest that this be renamed to "0 to 1 Tenth"	27/05/20: Amended camelCase to zeroToOneTenths for all instances (ConceptRegister only).		Action Required	Refer to Issue	NA	Repeat of the name.	Missin
13	1 Oktas		WMO Weather	Codelist Value	Discussion at S-100V/G2 meeting: Recommendation is that where a concept can be modelled as an Enumerate type attribute, it should be done rather than modelling as a	Retired 07/08/18 (WMO - remodelled)			OK	OK	NA	OK	Missin
14	1 Peniche	23/04/20	Inland ENC	Enumerate	There appears to be a "code" value included at the start of the Item Name for all registered values of "Category of CEMT Class", in addition to the "meaning" (?) of the code being				Refer to Issue	OK	NA	OK	OK

CodeLists Codelist Value Combined Combined All

Ready Accessibility: Investigate

70%



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CHALLENGES – HARMONIZATION – REGISTRY ITEM REVIEW (2)

- Definition Harmonization – IHO Hydrographic Dictionary.
 - All terms included in the Hydrographic Dictionary have been registered. However many of these terms do not have definitions aligned to the Dictionary.
 - Some definitions for Dictionary terms have been derived from Product Specifications (for example S-57, S-121) and not the Hydrographic Dictionary.

Boundary	02/06/20	IHO Hydro	Feature	Note that there is an IHO Hydrographic Dictionary definition for this term that has not been used in the IHO GI Registry (term has been defined by the S-121PT).	TSSO: Discussion required as to an authoritative definition for inclusion in the Registry and the IHO Hydrographic Dictionary.
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- Some definitions have been derived from other IHO Standards (for example B-6 – *Standardization of Undersea Feature Names*).

Abyssal Hills	31/03/20	IHO Hydro	Enumerate	Note that there is a difference between the B-6 (Register) definition for this item and the IHO Hydrographic Dictionary definition.	TSSO: Suggest that the IHO Hydrographic Dictionary definition is amended to match the Registry definition.
Abyssal Hills		S-32	None	Note that there is an IHO Hydrographic Dictionary definition for this term that has not been used in the IHO GI Registry (term has been defined by B-6).	TSSO: Suggest that the IHO Hydrographic Dictionary definition is amended to match the Registry definition.

- Terms having a different name to the term included in the Hydrographic Dictionary but an identical definition (two terms registered with identical definitions).

Aid to Navigation	16/07/20	S-32	None		
Aids to Navigation	29/05/20	IALA AtoNs	Feature	Note that this is intended to be a "Supertype" (?). Note also that this is identical to the IHO Hydrographic Dictionary registered term aidToNavigation.	TSSO: Suggest that this be amended to the IHO Hydrographic dictionary term.



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CHALLENGES – HARMONIZATION – REGISTRY ITEM REVIEW (3)

- Terms having a different name in Product Specifications and the Registry to that included in the Hydrographic Dictionary.

Alternating Light		S-32	None	Note that the term used for the definition in the Registry is "Alternating". Needs to be reconciled.	
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- Items that are essentially the same but having different names and slightly different definitions.

Anchorage	29/05/20	IHO Hydro	Feature			10/04/19: Concept added as a new feature - IHO Hydrographic Dictionary term.
Anchorage Area	02/04/20	IHO Hydro	Feature	Should this feature simply be "Anchorage"? Note that the definition is almost the same (noting also that the "seaplane" part of the definition is suggested not required as a seaplane becomes a "vessel" when it has touched down).	TSSO: Suggest that the feature should be "Anchorage" and this item retired.	

- Items having a definition derived from other international Standards (for example ISO, UNCLOS, IALA) but a different definition in the Hydrographic Dictionary.

Application Profile	29/05/20	IHO Hydro	Simple att	Note that there is an IHO Hydrographic Dictionary definition for this term that has not been used in the IHO GI Registry (term has been defined by ISO 19115::2014).	TSSO: Discussion required as to an authoritative definition for inclusion in the Registry and the IHO Hydrographic Dictionary.
Application Profile		S-32	None	Note that there is an IHO Hydrographic Dictionary definition for this term that has not been used in the IHO GI Registry (term has been defined by ISO 19115::2014).	TSSO: Discussion required as to an authoritative definition for inclusion in the Registry and the IHO Hydrographic Dictionary.



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CHALLENGES – HARMONIZATION – REGISTRY ITEM REVIEW (4)

- Terms having definitions in Product Specifications and Registry that have been derived from the Hydrographic Dictionary (that is, same term but slightly different definition).

Area To Be Avoided	31/03/20	IHO Hydro	Enumerate	Register definition has been taken from S-4. S-101 DCEG definition has been adapted from IHO Dictionary. Needs to be reconciled.	TSSO: Recommend amending the definition for this item to the Hydrographic Dictionary	12/04/19: Definition amended to adaptation of the Hydrographic Dictionary definition as used for S-101.
Area To Be Avoided		S-32	None	Note that the IHO Hydrographic Dictionary definition for this term has been adapted in the IHO GI Registry. Does this require reconciliation?	TSSO: Discussion required as to an authoritative definition for inclusion in the Registry and the IHO Hydrographic Dictionary.	

- Terms having definitions in the Registry derived (authorized?) by other Domains to the definition in the Hydrographic Dictionary.

Atmospheric Pressure	29/05/20	WMO Weather	Feature	Note that there is an IHO Hydrographic Dictionary definition for this term that has not been used in the IHO GI Registry (term has been defined by WMO Weather).	TSSO: Discussion required as to an authoritative definition for inclusion in the Registry and the IHO Hydrographic Dictionary.
Atmospheric Pressure		S-32	None	Note that there is an IHO Hydrographic Dictionary definition for this term that has not been used in the IHO GI Registry (term has been defined by WMO Weather).	TSSO: Discussion required as to an authoritative definition for inclusion in the Registry and the IHO Hydrographic Dictionary.



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CHALLENGES – HARMONIZATION – REGISTRY ITEM REVIEW (6)

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- General “tidying up” – consistency.

Always Under Water/Submerged	23/03/20	IHO Hydro	Enumerate	Suggest that this should be either "Always Under Water" or "Always Submerged" and the alternative registered as an Alias.	TSSO: Suggest use "Always Submerged" as the principle term to be consistent with WATLEV
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- Acronyms included in name.

Amsterdam Ordnance Datum (NAP)	30/04/20	Inland ENC	Enumerate	Item Name includes bracketed acronym.	TSSO: Recommend that the bracketed acronym be removed from the Item Name and added as an Alias.
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- Identical terms having different definitions in different Product Specifications.
 - Allowable in the previous Version of the Registry but against basic Registry principles.

Anchoring	29/05/20	IHO Hydro	Codelist Value		
Anchoring		IALA VTS	Codelist Value	Needs to be reconciled with the Concept Register definition for the term (taken from the IHO Hydro codelist value for actionOrActivity).	

- Items no longer included in Product Specifications or the Dictionary.

Anna 1 Astro 1965	29/05/20	IHO Hydro	Enumerate	Note that this concept has been removed from S-101. Need to determine whether this is required. Note also that in the GeoRepository database this datum appears to be named the "Cocos Islands 1965" datum.	TSSO: Suggest this item can be retired. However, if retained, suggest rename to "Cocos Islands 1965".
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CHALLENGES – HARMONIZATION – REGISTRY ITEM REVIEW (7)

International
Hydrographic
Organization

- Aliases for registered terms that have also been registered with a different definition.

Articulated Beacon	21/07/20	S-32	None	Note that the alias "Buoyant Beacon" has also been registered with a different definition (derived from S-57). Needs to be reconciled.	
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- Generic terms with specific definitions.

Assessed	18/03/20	IHO Hydro	Enumerate	Generic Item Name with a specific definition (to data quality). Needs to be reconciled.	TSSO: Suggest that, as the relationship of the definition to quality is relatively important, the Item Name be amended to "Quality Assessed".
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- Specific terms with generic definitions.

Bearing Information	02/06/20	IHO Hydro	Complex Att	The definition is the definition for a bearing, and not the bearing "information". Needs to be addressed.	02/06/20: Remark removed, as it it pertains to modelling as a complex attribute, which is not applicable at the concept level (Concept Register
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- Items that are essentially the same, but having slightly different syntax.

Baseline	29/05/20	IHO Hydro	Feature	NOTE that the generalization of the definition as derived from UNCLOS is incomplete as there are insufficient characters in this field from which to derive a generalization of all the UNCLOS articles quoted. Note also that there is an item "Base Line", which is the same concept in regard to definition. These items need to be reconciled and addresssd appropriately in the IHO Hydrographic Dictionary.	23/04/19: Add definition as derived from UNCLOS.
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CHALLENGES – HARMONIZATION – REGISTRY ITEM REVIEW (8)

International
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- Items having identical name and definition.

Bergy Bit (1-<5 m ASL; 5-<15 m Length)	02/06/20	WMO Ice	Enumerate	"ASL" = "above sea level"? Needs to be addressed. The definition for this item is exactly the same as the Item Name. Needs to be addressed.	TSSO: Suggest the Item Name should be just "Bergy Bit" and the bracketed part of this Item Name should be the definition (spelled out in full).
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- Items having different definitions for specific scopes. Discussion required on introducing a new (Codelist) Register?

Berthing	08/04/20	IHO Hydro	Enumerate	Generic Item Name for a specific definition (to signal stations). Needs to be reconciled. Note that the definition for the Codelist Value type is a more generic definition.	TSSO: Suggest amend Item Name to "Berthing Signal Station". [RM: This and the next row are why I suggest limiting the scope of enumerates to their containers.]
Berthing		IHO Hydro	Codelist Value	Needs to be reconciled with the Concept Register definition for the term (taken from the enumerate for categoryOfSignalStationTraffic).	[RM: defined by NIPWG]

- Possible enhancements to data modelling that may impact on items in the Concept Register.

Bunker Vessel Available	30/04/20	Inland ENC	Enumerate	Suggest that this be remodelled for Inland ENC as a Boolean type attribute, having the same name.	
Bunker Vessel, Availability	30/04/20	Inland ENC	Simple att	Suggest that this be remodelled for Inland ENC as a Boolean type attribute, having the same name.	TSSO: Suggest that this be a Boolean type of name "Bunker Vessel Available".



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RELATED DISCUSSIONS/REFERENCES

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- 1st IHO GI Registry Workshop – Aarlborg, Denmark, 25-26 March 2019.
- IHO GI Registry – DCB Workshop 03 February 2022 (VTC).
- Joint IHO/IALA Workshop on S-100/200 Development and Portrayal – Development of S-101 – ENC; Shared Experiences (lessons learned).
- Joint IHO/IALA Workshop on S-100/200 Development and Portrayal – Portrayal from an IHO Perspective.



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THANK YOU

<https://iho.int/>

IHO GI Registry Link : <http://registry.iho.int/main.do>

IHO Assistant Director: yong.baek@iho.int

GI Registry Manager : jeff.wootton@iho.int