

## Paper for Consideration by S-100WG2 and S-101PT

## Proposal to extend the S-101 Data Model

<b>Submitted by:</b>	NIPWG
<b>Executive Summary:</b>	This is a proposal for 1. harmonisation of the S-101 model with S-122, S-123 and other nautical publications specifications. It amends the Information Type NauticalInformation by replacing PICREP by a new complex attribute GRAPHICS, and 2. establishing the possibility to encode cable owner contact information to support the MoU between the IHO and the ICPC and related M-3 amendments
<b>Related Documents:</b>	(1) S-101 DCEG (version 0.0.2 August 2016), (2) MoU between the IHO and ICPC, 2016
<b>Related Projects:</b>	S-101; S-122, S-123 and other product specifications for nautical information.

## Proposal Type

Type of Change Requested	Mark All that Apply
S-101 DCEG Change	X
New/Amended Feature	
New/Amended Complex Attribute	X
New/Amended Simple Attribute	X
New/Amended Information Type	X
New/Amended Association/Aggregation/Composition	X
New/Amended Enumerate Value	X
New/Amended Code List	

## Justification and Impacts

## Benefits:

- Harmonization of attribute bindings for feature and information types allows re-use of portrayal and application code for different data products.
- Graphical information with a caption can be provided to enhance textual nautical information. The absence of captioning for a graphic means an information co-attribute will usually be required. Describing the graphic in the **information** co-attribute is likely to require a longer description than a caption, i.e., more text in **information.text**.
- Contact Information on cable owner can be provided to supplement nautical information and to fulfil the IHO part of the MoU between the IHO and the ICPC

NIPWG is using a richer model of Nautical Information than the S-101 DCEG currently contains and therefore binds different attributes to Nautical Information in place of **pictorial representation** and **information**. Harmonization of commonly used features and information types is highly desirable in order to facilitate reuse of portrayal, UI displays and controls, and application software modules.

Many of the additional NIPWG elements are optional for the case of **Nautical Information**, but the *structural* aspect of harmonization needs to be addressed even if they are omitted. For example, the **NauticalInformation.graphic.pictorialRepresentation** structure should be used in S-101 for harmonization purposes even if the complex attribute **graphic** as used by S-101 has no sub-attributes other than **pictorialRepresentation**.

## Required Resources:

- Email exchange
- no extra funding

Involved HSSC WG

- S-101 PT
- NIPWG

Due date:

- S100WG/S101PT meeting: No later than end of March 2017

Priority:

- High

Impact on work:

- Completion of the S-101, S-122, S-123, and other product specifications, data classification and encoding guides, and sample datasets

Related activities:

- S-101 DCEG, S-101 Product Specifications
- S-122, S-123, and other product specifications

**Action Requested:**

The S-100WG/S-101PT is invited to:

- consider the proposal,
- consider whether S-101 also needs the additional information elements in the full NPUB models of complex attributes **text content** and **graphic**. These additional elements are listed following the **Nautical Information** table later in this proposal.
- revise the current S-101 DCEG as appropriate

ANNEX A:

**Proposed change of the Information class Nautical Information**

<u>IHO Definition:</u> <b>NAUTICAL INFORMATION.</b> Nautical information about a related area or facility				
<b>S-101 InformationType:</b> Nautical Information				
<b>Primitives:</b> None				
<i>Real World</i>		<i>Paper Chart Symbol</i>		<i>ECDIS Symbol</i>
<b>S-101 Attribute</b>	<b>S-57 Acronym</b>	<b>Allowable Encoding Value</b>	<b>Type</b>	<b>Multiplicity</b>
<b>Category of Authority</b>				0,1
Text content			C	0,*
Information			C	1,* or 0,*
File locator			(S) TE	0,1
File reference	(TXTDSC) (NXTDSC)		(S) TE	0,1
Headline			(S) TE	0,1
Language		ISO 639-3	(S) TE	0,1
Text	(INFORM) (NINFOM)		(S) TE	0,1
<b>Graphic</b>			<b>C</b>	<b>0,*</b>
<b>Pictorial Representation</b>	<b>(PICREP)</b>		<b>(S) TE</b>	<b>1,*</b>
<b>Picture Caption</b>			<b>(S)TE</b>	<b>0,1</b>
<b>Picture Information</b>			<b>(S) TE</b>	<b>0,1</b>
Fixed date range			C	0,1
Date end	(DATEND)	ISO 8601: 2004	(S) TD	0,1
Date start	(DATSTA)	ISO 8601: 2004	(S) TD	0,1
Periodic date range			C	0,*
Date end	(PEREND)	ISO 8601: 2004	(S) TD	1,1
Date start	(PERSTA)	ISO 8601: 2004	(S) TD	1,1
<del>Pictorial representation</del>	<del>(PICREP)</del>		<del>TE</del>	<del>0,1</del>
INT 1 Reference:				
<b>24.4.1 Nautical information</b>				
If it is required to encode information which applies to one or more geo features which cannot be encoded using attributes on those features, it must be done using the information class <b>NauticalInformation</b> . Each instance of <b>NauticalInformation</b> must be associated to the feature(s) to which the information applies using the association <b>Additional Information</b> (see clause X.X).				
<b>24.4.2 Encoding of pictures</b>				
If a short explanatory title for the graphic is required, it must be encoded in the optional attribute <b>picture caption</b> .				
If it is necessary to include information in the dataset about picture source, date, owner credits, copyright, etc., it must be encoded in the optional attribute <b>pictureInformation</b> .				
The complex attribute <b>graphic</b> may be repeated if more than one picture is present, e.g., views of a landmark from different directions. This must be done if it is necessary for each picture to have its own caption.				
Very closely related pictures that share the same caption should be encoded using one instance of <b>graphic</b>				

with repeated **pictorial representation** attributes (each referring to a different graphic file).

Remarks:

At least one of the sub-attributes **textContent** and **graphic** must be populated.

If **textContent.information** is populated, exactly one of sub-attributes **fileReference** and **text** must be populated.

The complex attributes **fixedDateRange** and **periodicDateRange**, when populated for **NauticalInformation**, apply only to **NauticalInformation** and not to any feature that it may be associated with.

Distinction: Information area; update information.

#### Feature/Information associations

Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult
Asso	AdditionalInformation	NauticalInformation	Information provided for	0,1	All Geo Features	Provides information	1,*

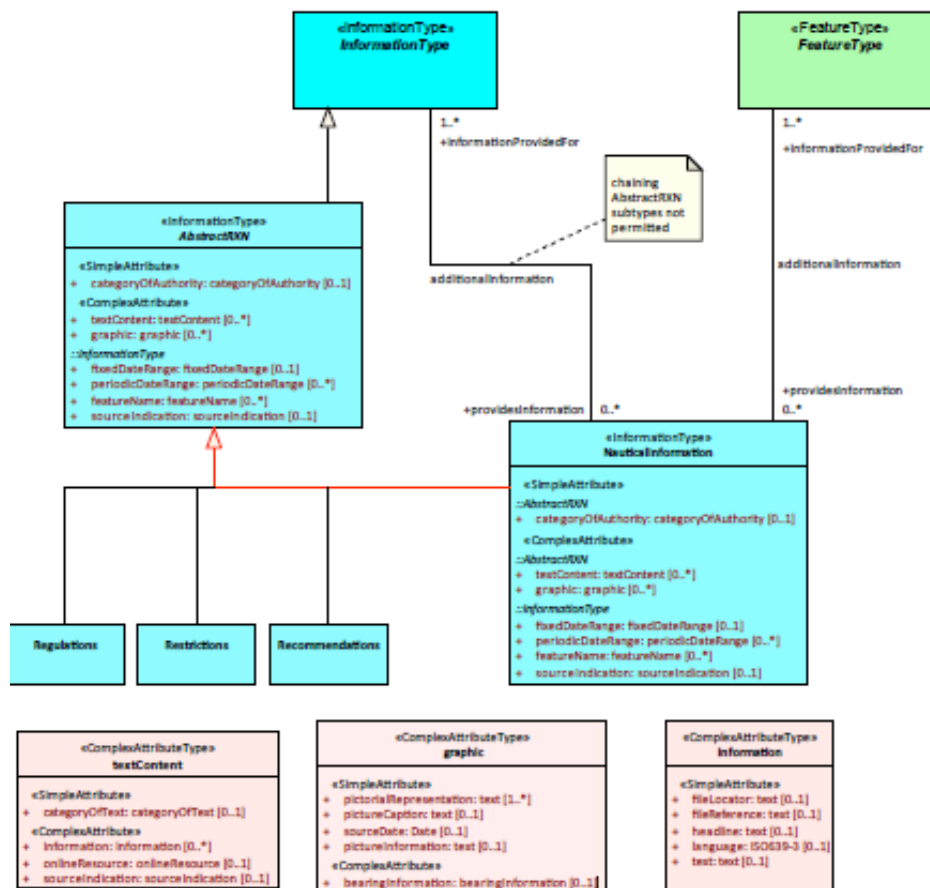
**Note:** The multiplicity of **textContent.information** is 0,\* in NPUB modelling because there is an alternative sub-attribute **onlineResource**. S-101 should set the multiplicity depending on whether **onlineResource** is added. If **information** is the only sub-attribute of **textContent**, it should obviously be mandatory.

The S-101 PT is invited to consider additional attributes used in NPUB modelling of **NauticalInformation** and complex attributes **graphic** and **textContent / information**. These attributes are depicted in the figure below and described on the NIPWG Wiki and/or the GI Registry.

- Nautical Information:
  - sourceIndication (<<http://wp12183585.server-he.de/npubwiki/wiki/index.php/SourceIndication> >)
  - featureName
- textContent:
  - categoryOfText (<<http://registry.iho.int/feature/view.do?recordID=2004061&page=1&type=3&status=2> >)
  - onlineResource (<<http://wp12183585.server-he.de/npubwiki/wiki/index.php/OnlineResource> >)
  - sourceIndication (see above)
- graphic:
  - sourceDate (or reportedDate)
  - bearingInformation (<<http://wp12183585.server-he.de/npubwiki/wiki/index.php/BRGINF> >)

In the NPUB model, **Nautical Information** inherits attributes from abstract super-types **AbstractRXN** and **InformationType**. The S-101 model should bind the inherited attributes directly to **Nautical Information** if it chooses not to include the NPUB abstract classes.

S-122 DCEG content describing the use of **textContent** and related attributes as well as **graphic** has been drafted and can be shared for consideration for adoption by the S-101 DCEG.



### New complex attributes relevant to the proposed feature

Attribute name: Graphic

IHO Definition: Pictorial information such as a photograph, sketch, or other graphic, optionally accompanied by descriptive information about the graphic and the location relative to its subject from which it was made.

Indication: A complex attribute which provides a pictorial representation of a feature and comprehensive information related to the location from where this information was made and other descriptive information.

Sub-attributes:

<b>Pictorial representation</b>	1..*	see clause 27.134
<b>Picture caption</b>	0..1	see clause X.X
<b>Picture information</b>	0..1	see clause X.X

Remarks:

- NIL

### New Free Text Type Attributes relevant to the proposed complex attributes

**Attribute Name:** Picture caption

IHO Definition: Short description of the purpose of the image.

Indication:

Format: String

Example:

Remarks: NIL

**Attribute Name:** Picture information

IHO Definition:A set of information to provide credits to picture creator, copyright owner etc.

Indication:

Format: String

Example:

Remarks:NIL

## **New Enumerations Attributes relevant to the proposed feature**

**Attribute:** Category of authority (already submitted to TSMAD 29)

IHO Definition: The type of person, government agency or organisation granted powers of managing or controlling access and/or activity in an area.

### **1) customs**

IHO Definition: the agency or establishment for collecting duties, tolls (Merriam-Websters online Dictionary 23rd February 2006, amended).

### **2) border control**

IHO Definition: the administration to prevent or detect and prosecute violations of rules and regulations at international boundaries (adapted from Merriam-Websters online Dictionary 23rd February 2006)

### **3) police**

IHO Definition: the department of government, or civil force, charged with maintaining public order (Adapted from OED)

### **4) port**

IHO Definition: person or corporation, owners of, or entrusted with or invested with the power of managing a port. May be called a Harbour Board, Port Trust, Port Commission, Harbour Commission, Marine Department (NP 100 8th Edition 14 Oct 2004).

### **5) immigration**

IHO Definition: the authority controlling people entering a country.

### **6) health**

IHO Definition: the authority with responsibility for checking the validity of the health declaration of a vessel and for declaring free pratique

### **7) coast guard**

IHO Definition: the organisation keeping watch on shipping and coastal waters according to governmental law; normally the authority with responsibility for search and rescue.

### **8) agricultural**

IHO Definition: the authority with responsibility for preventing infection of the agriculture of a country and for the protection of the agricultural interests of a country.

### **9) military**

IHO Definition: a military authority which provides control of access to or approval for transit through designated areas or airspace

### **10) private company**

IHO Definition: a private or publicly owned company or commercial enterprise which exercises control of facilities, for example a calibration area.

### **11) maritime police**

IHO Definition: a governmental or military force with jurisdiction in territorial waters. Examples could include Gendarmerie Maritime, Carabinieri, and Guardia Civil.

### **12) environmental**

IHO Definition: an authority with responsibility for the protection of the environment.

### **13) fishery**

IHO Definition: an authority with responsibility for the control of fisheries

**14) finance**

IHO Definition: an authority with responsibility for the control and movement of money.

**15) maritime**

IHO Definition: a national or regional authority charged with administration of maritime affairs.

Remarks:

No remarks

## Proposed change of the feature/information association of the feature class Submarine Cable (CBLSUB)

It is proposed to provide cable owner information. **Category of Authority** value 10 (private company) can be used. A vessel which sacrifices her anchor or gear may claim against her sacrifice by contacting the cable owner using the **ContactDetails**.

Feature/Information associations							
Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult
Asso	Additional Information	Authority	Information provided for	0,1	Cable Submarine	Provides information	1,*

### New Information Type relevant to the proposed association

<u>IHO Definition:</u> <b>AUTHORITY. A person or organisation having political or administrative power and control. (Oxford Dictionary of English)</b>				
<b>S-101 InformationType:</b> Authority				
<b>Primitives:</b> None				
<i>Real World</i>		<i>Paper Chart Symbol</i>		<i>ECDIS Symbol</i>
S-101 Attribute	S-57 Acronym	Allowable Encoding Value	Type	Multiplicity
Category of Authority				1,1
Feature name			C	0,*
Name			(S) TE	0,*
Language			(S) TE	0,*
Text content			C	0,*
Information			C	0,* or 1,*
File locator			(S) TE	0,1
File reference	(TXTDSC) (NTXTDS)		(S) TE	0,1
Headline			(S) TE	0,1

Language		ISO 639-3	(S) TE	0,1
Text	(INFORM) (NINFOM)		(S) TE	0,1
Fixed date range			C	0,1
Date end	(DATEND)	ISO 8601: 2004	(S) TD	0,1
Date start	(DATSTA)	ISO 8601: 2004	(S) TD	0,1

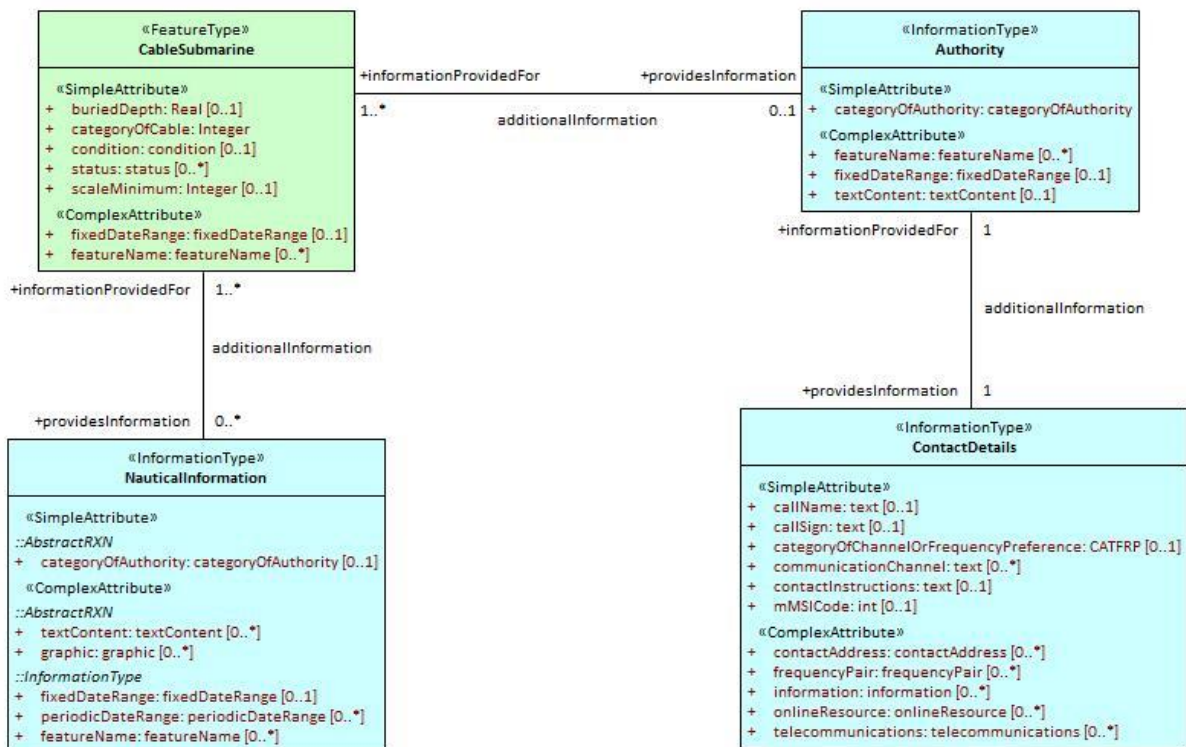
INT 1 Reference: NIL

Remarks:

The name of the organisation should be encoded in **featureName**.

If information about specific responsibilities etc. must be encoded, it should be encoded in **textContent.information**.

Contact information for the organisation must be encoded in an associated **ContactDetails**.



### Proposed change of the feature class Submarine Cable Area (CBLARE)

The same construction may apply to **CBLARE** but consideration is needed to specify whether it is feasible to distinguish between different cables in such an area. If the distinction between various cables owners is not possible the multiplicity of **additionalInformation** between the cable area and the authority might be 0..\*.