



# **S-1xx Feature Catalogues**

Relations



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## **PUBLISHED S-1XX PRODUCT SPECIFICATIONS**

International  
Hydrographic  
Organization

S-101	ENC Product Specification (Edition 1.0.0, December 2018)	<a href="#">Link</a>
S-102	Bathymetric Surface Product Specification (Edition 2.0.0, October 2019)	<a href="#">Link</a>
S-111	Surface Currents Product Specification (Edition 1.0.0, December 2018)	<a href="#">Link</a>
S-121	Maritime Limits and Boundaries Product Specification (Edition 1.0.0, October 2019)	<a href="#">Link</a>
S-122	Marine Protected Areas (Edition 1.0.0, January 2019)	<a href="#">Link</a>
S-123	Marine Radio Services (Edition 1.0.0, January 2019)	<a href="#">Link</a>
S-127	Marine Traffic Management (Edition 1.0.0, December 2018)	<a href="#">Link</a>
S-129	Under Keel Clearance Management (Edition 1.0.0, June 2019)	<a href="#">Link</a>

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



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# EXPLAINING FEATURE CATALOGUE

HOME > DQWG > MISCELLANEOUS

## Miscellaneous

Data Quality Checklist for Product Specifications (S-97, Part C, Ed.1.0.0, 2019)	<a href="#">Document</a>
Data Quality Model (version July 2015, working document)	<a href="#">Document</a>
Data Quality and ISO TC 211 Standards ( <i>to be confirmed</i> )	<a href="#">Document</a>
Explaining Feature Catalogue	<a href="#">Document</a>

- Presentation created by DQWG ([link](#))
- Useful reference for understanding the concept of Feature Catalogues



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# S-101 FEATURE CATALOGUE

International  
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Organization

```
<?xml version="1.0" encoding="UTF-8"?>
- <S100FC:S100_FC_FeatureCatalogue xsi:schemaLocation="http://www.iho.int/S100FC S100FC.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:S100FD="http://www.iho.int/S100FD" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:S100CI="http://www.iho.int/S100CI"
  xmlns:S100Base="http://www.iho.int/S100Base" xmlns:S100FC="http://www.iho.int/S100FC">
  <S100FC:name>S-101</S100FC:name>
  <S100FC:scope>Ocean, Coastal, Ports and Harbors. Excludes Inland waters. Supports QualityOfBathymetricData and 2015 updates to FC model.</S100FC:scope>
  <S100FC:fieldOfApplication>Marine Navigation</S100FC:fieldOfApplication>
  <S100FC:versionNumber>1.0.0</S100FC:versionNumber>
  <S100FC:versionDate>2019-04-09</S100FC:versionDate>
+ <S100FC:producer>
  <S100FC:classification>unclassified</S100FC:classification>
+ <S100FC:S100_FC_SimpleAttributes>
+ <S100FC:S100_FC_ComplexAttributes>
+ <S100FC:S100_FC_Roles>
+ <S100FC:S100_FC_InformationAssociations>
+ <S100FC:S100_FC_FeatureAssociations>
+ <S100FC:S100_FC_InformationTypes>
+ <S100FC:S100_FC_FeatureTypes>
</S100FC:S100_FC_FeatureCatalogue>
```



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# S-102 FEATURE CATALOGUE

International  
Hydrographic  
Organization

```
<?xml version="1.0" encoding="UTF-8"?>
- <S100FC:S100_FC_FeatureCatalogue xsi:schemaLocation="http://www.iho.int/S100FC/S100FC.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:S100FD="http://www.iho.int/S100FD" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:S100CI="http://www.iho.int/S100CI"
  xmlns:S100Base="http://www.iho.int/S100Base" xmlns:S100FC="http://www.iho.int/S100FC">
  <S100FC:name>S-102</S100FC:name>
  <S100FC:scope>Global</S100FC:scope>
  <S100FC:fieldOfApplication>Marine Navigation</S100FC:fieldOfApplication>
  <S100FC:versionNumber>2.0.0</S100FC:versionNumber>
  <S100FC:versionDate>2019-03-15</S100FC:versionDate>
  + <S100FC:producer>
  <S100FC:classification>unclassified</S100FC:classification>
  + <S100FC:S100_FC_SimpleAttributes>
  + <S100FC:S100_FC_FeatureTypes>
</S100FC:S100_FC_FeatureCatalogue>
```



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# S-104 FEATURE CATALOGUE

International  
Hydrographic  
Organization

```
<?xml version="1.0" encoding="UTF-8"?>
- <S100FC:S100_FC_FeatureCatalogue xsi:schemaLocation="http://www.iho.int/S100FC S100FC.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:S100FD="http://www.iho.int/S100FD" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:S100CI="http://www.iho.int/S100CI"
  xmlns:S100Base="http://www.iho.int/S100Base" xmlns:S100FC="http://www.iho.int/S100FC">
  <S100FC:name>S-104</S100FC:name>
  <S100FC:scope>Water level data are intended to be used as stand-alone data or as a layer in an ENC.</S100FC:scope>
  <S100FC:fieldOfApplication>Marine navigation</S100FC:fieldOfApplication>
  <S100FC:versionNumber>0.0.7</S100FC:versionNumber>
  <S100FC:versionDate>2020-07-30</S100FC:versionDate>
  + <S100FC:producer>
  <S100FC:classification>unclassified</S100FC:classification>
  + <S100FC:S100_FC_SimpleAttributes>
  + <S100FC:S100_FC_FeatureTypes>
</S100FC:S100_FC_FeatureCatalogue>
```



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# S-111 FEATURE CATALOGUE

International  
Hydrographic  
Organization

```
<?xml version="1.0" encoding="UTF-8"?>
- <S100FC:S100_FC_FeatureCatalogue xsi:schemaLocation="http://www.iho.int/S100FC S100FC.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:S100FD="http://www.iho.int/S100FD" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:S100CI="http://www.iho.int/S100CI"
  xmlns:S100Base="http://www.iho.int/S100Base" xmlns:S100FC="http://www.iho.int/S100FC">
  <S100FC:name>S111</S100FC:name>
  <S100FC:scope>Navigationally Significant Surface Current which may be used alone or as an auxiliary layer of data with an ENC.</S100FC:scope>
  <S100FC:fieldOfApplication>Ocean Navigation</S100FC:fieldOfApplication>
  <S100FC:versionNumber>1.0.0</S100FC:versionNumber>
  <S100FC:versionDate>2016-12-15</S100FC:versionDate>
  + <S100FC:producer>
  <S100FC:classification>unclassified</S100FC:classification>
  + <S100FC:S100_FC_SimpleAttributes>
  + <S100FC:S100_FC_FeatureTypes>
</S100FC:S100_FC_FeatureCatalogue>
```





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# S-122 FEATURE CATALOGUE

International  
Hydrographic  
Organization

```
<?xml version="1.0" encoding="UTF-8"?>
- <S100FC:S100_FC_FeatureCatalogue xsi:schemaLocation="http://www.iho.int/S100FC S100FC.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:S100FD="http://www.iho.int/S100FD" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:S100CI="http://www.iho.int/S100CI"
  xmlns:S100Base="http://www.iho.int/S100Base" xmlns:S100FC="http://www.iho.int/S100FC">
  <S100FC:name>Feature Catalogue for S-122</S100FC:name>
  <S100FC:scope>Global coverage of maritime areas</S100FC:scope>
  <S100FC:fieldOfApplication>Marine Navigation</S100FC:fieldOfApplication>
  <S100FC:versionNumber>1.0.0</S100FC:versionNumber>
  <S100FC:versionDate>2017-08-31</S100FC:versionDate>
+ <S100FC:producer>
  <!-- Version 1.0 Raphael Malyankar 2017-03-31 V. 1.0 Build 20170504 Raphael Malyankar 2017-05-04 V. 1.0.0 RC1 20170816 Raphael Malyankar 2017-08-18 V. 1.0.0-20170831 For
  Version 1.0.0 -->
  <S100FC:classification>unclassified</S100FC:classification>
+ <S100FC:S100_FC_SimpleAttributes>
+ <S100FC:S100_FC_ComplexAttributes>
+ <S100FC:S100_FC_Roles>
+ <S100FC:S100_FC_InformationAssociations>
+ <S100FC:S100_FC_FeatureAssociations>
+ <S100FC:S100_FC_InformationTypes>
+ <S100FC:S100_FC_FeatureTypes>
</S100FC:S100_FC_FeatureCatalogue>
```





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# S-123 FEATURE CATALOGUE

International  
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```
<?xml version="1.0" encoding="UTF-8"?>
- <S100FC:S100_FC_FeatureCatalogue xsi:schemaLocation="http://www.iho.int/S100FC S100FC.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:S100FD="http://www.iho.int/S100FD" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:S100CI="http://www.iho.int/S100CI"
  xmlns:S100Base="http://www.iho.int/S100Base" xmlns:S100FC="http://www.iho.int/S100FC">
  <S100FC:name>Feature Catalogue for S-123</S100FC:name>
  <S100FC:scope>Global coverage of maritime areas</S100FC:scope>
  <S100FC:fieldOfApplication>Marine Navigation</S100FC:fieldOfApplication>
  <S100FC:versionNumber>1.0.0</S100FC:versionNumber>
  <S100FC:versionDate>2017-08-31</S100FC:versionDate>
  + <S100FC:producer>
    <!-- Version 1.0 Draft Raphael Malyankar 2017-04-30 Version 1.0.0 RC1 Raphael Malyankar 2017-08-18 Version 1.0.0 20170831 For version 1.0.0 -->
    <S100FC:classification>unclassified</S100FC:classification>
  + <S100FC:S100_FC_SimpleAttributes>
  + <S100FC:S100_FC_ComplexAttributes>
  + <S100FC:S100_FC_Roles>
  + <S100FC:S100_FC_InformationAssociations>
  + <S100FC:S100_FC_FeatureAssociations>
  + <S100FC:S100_FC_InformationTypes>
  + <S100FC:S100_FC_FeatureTypes>
</S100FC:S100_FC_FeatureCatalogue>
```



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# S-129 FEATURE CATALOGUE

International  
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```
<?xml version="1.0" encoding="UTF-8"?>
- <S100FC:S100_FC_FeatureCatalogue xsi:schemaLocation="http://www.iho.int/S100FC S100FC.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:S100FD="http://www.iho.int/S100FD" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:S100CI="http://www.iho.int/S100CI"
  xmlns:S100Base="http://www.iho.int/S100Base" xmlns:S100FC="http://www.iho.int/S100FC">
  <S100FC:name>Under Keel Clearance</S100FC:name>
  <S100FC:scope>Under Keel Clearance</S100FC:scope>
  <S100FC:fieldOfApplication>Marine Navigation</S100FC:fieldOfApplication>
  <S100FC:versionNumber>1.0</S100FC:versionNumber>
  <S100FC:versionDate>2018-06-15</S100FC:versionDate>
  + <S100FC:producer>
  + <S100FC:S100_FC_SimpleAttributes>
    <!--attributes - complexAttribute-->
  + <S100FC:S100_FC_ComplexAttributes>
    <!--features-->
  + <S100FC:S100_FC_FeatureTypes>
</S100FC:S100_FC_FeatureCatalogue>
```

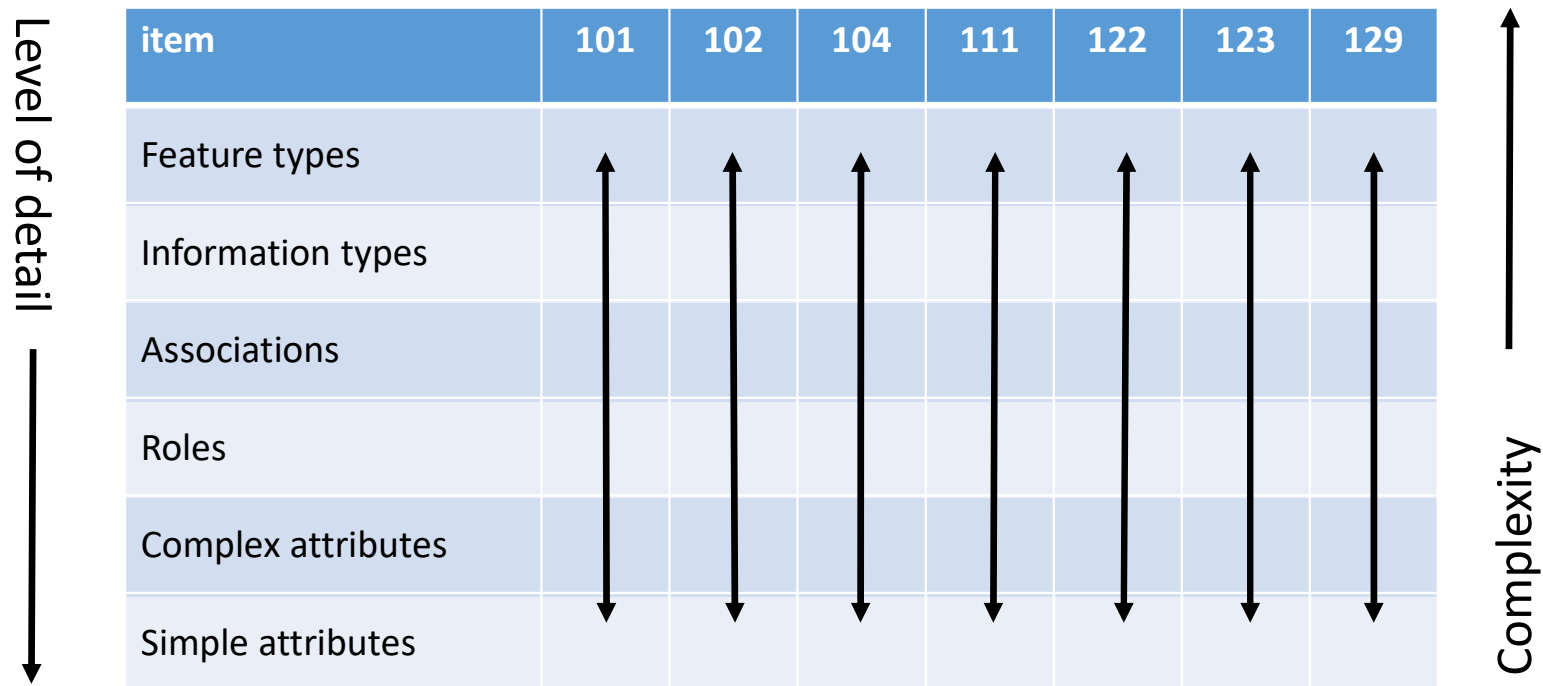


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## S-1XX FC OVERVIEW

International  
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Vertical consistency (done by S-101PT, S-102PT, NIPWG, TWCWG etc)





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## S-1XX FC OVERVIEW

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Horizontal consistency (check by DQWG to minimize interoperability issues)

item	101	102	104	111	122	123	129
Feature types	←						→
Information types	←						→
Associations	←						→
Roles	←						→
Complex attributes	←						→
Simple attributes	←						→

Level of detail ↓

↑ Complexity



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## **S-1XX FC REFERENCE DOCUMENTS**

International  
Hydrographic  
Organization

- To facilitate the checking process, S-1xx Feature Catalogues have been translated into an easier understandable format (excel).
- No special software is needed.
- Mandatory items are in normal text, *optional items are in italic.*
- Provides a clear overview of simple attributes, complex attributes, roles, associations, information types and feature types.
- Shows the relations between them.
- Allows all people to have the same level of knowledge on FCs.
- Status per 01 Feb 2021:  
S-101, S-102, S-104, S-111, S-122, S-123, S-129
- Can be found at HOME > DQWG > [REFERENCE DOCUMENTS](#)



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## EXAMPLE OF CROSS CHECK RESULT

International  
Hydrographic  
Organization

Feature Type = Quality of Non Bathymetric Data

S-101 FC

Number	Feature type	Number	Attribute	Type
8.1	Quality of non-bathymetric data	3.66	<i>categoryOfTemporalVariation</i>	S
		3.111	<i>horizontalDistanceUncertainty</i>	S
		4.8	<i>horizontalPositionUncertainty</i>	C
		3.147	<i>orientationUncertainty</i>	S
		4.28	<i>surveyDateRange</i>	C
		4.40	<i>verticalUncertainty</i>	C

optional

S-122 FC

Number	Feature type	Number	Attribute	Type
8.7	Quality of NonBathymetric Data	3.15	<i>categoryOfTemporalVariation</i>	S
		3.24	<i>dataAssessment</i>	S
		3.32	<i>directionUncertainty</i>	S
		3.42	<i>horizontalDistanceUncertainty</i>	S
		4.7	<i>horizontalPositionalUncertainty</i>	C
		4.8	<i>information</i>	C
		4.16	<i>sourceIndication</i>	C
		4.17	<i>surveyDateRange</i>	C

mandatory



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## **DQWG is invited to**

International  
Hydrographic  
Organization

- Note this presentation
- Create a subWG
- Wait for the next update of S-101 Feature Catalogue (March 2021?)
- Start the cross checking of the S-1xx Feature Catalogues against S-101
- Correspond by e-mail or VTC as considered necessary
- Report any inconsistencies found