

Agenda item C2

Report on the NSHC questionnaire results on S-100 implementation

**Submitted by:** Belgium

**Executive Summary:** This paper reports on outcomes of a questionnaire completed by NSHC Member States.

At the 35<sup>th</sup> North Sea Hydrographic Commission meeting Member States committed to be ambitious in developing a package of S-1xx products for navigational use with regional coverage, distributed through existing service channels.

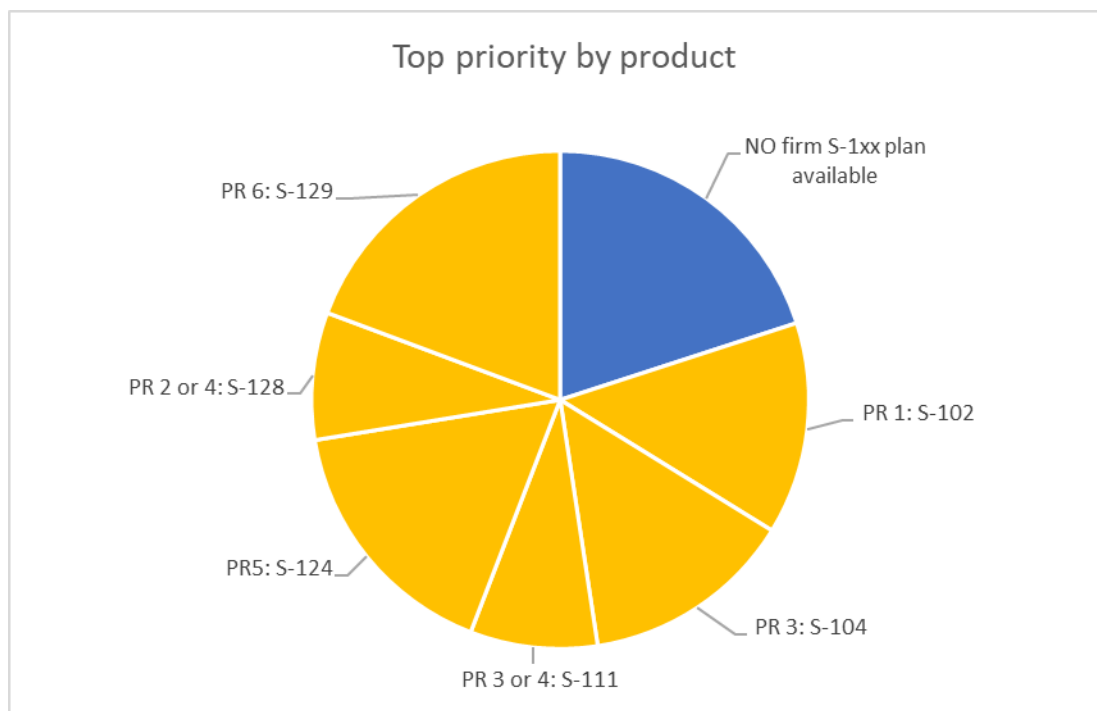
A questionnaire was launched to identify, in addition to S-101, by 2025 which other S-1xx products can be available for production, maintenance, and service provision by MS as part of a regional package. The questionnaire will help to:

1. Identify the scope of the initial package (e.g., S-101, S-104, S-111, ...)
2. Identify a regionally aligned delivery timeline

The results of the questionnaire are summarised in this report.

All MS who submitted responses are thanked for their input.

1. 80% of the NSHC Members filled out the questionnaire.
2. 62.5% (5 out of 8) of the Member organizations has a firm S-1xx plan (timeline, products) which they are working towards (YES-group) and 37,5% doesn't (NO-group).  
In the 'YES'-group , 2 Members have already a S-100 plan (UK and BE). 1 Member is updating the existing S-1xx plan (2021) by Q1-2023 (FR) and 2 Members (DK and SE) will finalize their plans in 2023.  
In the 'NO'- group 2 Members are developing a S-1XX plan which will be completed by the end of February 2023.
3. The IHO Hydrographic Standards and Services Committee identified a number of S-1xx products or services as priorities. These include: S-101 ENC, S-102 Bathymetry, S-104 Water Level, S-111 Surface Currents, S-124 Navigational Warnings, S-128 Catalogue of Nautical Products, S-129 UKC Management.  
87.5% (7 out of 8) of the 'YES'-group agrees that we should focus on the priorities set out by the IHO; 1 Member (D) suggests to exclude S-129, as it is usually managed by private companies and S-124 which is not always under the responsibility of the HO's.



4. The IHO Roadmap for the S-100 Implementation Decade version 2.0 (December 2021) included the following statement: *It is proposed to seek commitment from as many as possible IHO MS to start regular native production of S-101 ENC's in 2025 and regular availability gradually growing in the course of 2026 in parallel to regular S-57 production.* 87.5% (7 out of 8) of the 'YES'-group considered this achievable for their organization to deliver this as part of a regional ambition. 1 Member has concerns that they will not be able to achieve the proposed deadline of 2025 because the amount of time between product specifications having final approval and operational data being available, is very small. Nevertheless they are aiming as close as possible to this deadline. Other concerns are with production systems being fully ready in time and having sufficient resources as long as the Hydrographic Office needs to produce paper charts and S-57 as well as S-101 products simultaneously.
5. In general the majority of members identified S-102 Bathymetry as the priority product to develop after S-101. And a majority also considered S-124 Navigational Warnings and S-129 UKC Management as the lowest priority. For the remaining services there is no clear consensus between the Members on the outcome of the question how to prioritize the remaining S-1xx data products and services from the HSSC priority list.

<b>PRIORITY</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>GERMANY</b>	S-128 Catalogue of Nautical Products	S-102 Bathymetry	S-104 Water Level
<b>UK</b>	S-102 Bathymetry	S-104 Water Level	S-111 Surface Currents
<b>NETHERLANDS</b>	S-102 Bathymetry	S-104 Water Level	S-111 Surface Currents
<b>SWEDEN</b>	S-128 Catalogue of Nautical Product	S-102 Bathymetry	S-104 Water Level
<b>NORWAY</b>	S-102 Bathymetry	S-111 Surface Currents	S-104 Water Level
<b>DENMARK</b>	S-102 Bathymetry	S-128 Catalogue of Nautical Products	S-104 Water Level
<b>BELGIUM</b>	S-102 Bathymetry	S-128 Catalogue of Nautical Products	S-104 Water Level
<b>FRANCE</b>	S-124 Navigational Warnings	S-128 Catalogue of Nautical Products	S-111 Surface Currents

<b>PRIORITY</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>GERMANY</b>	S-111 Surface Currents	S-124 Navigational Warnings	S-129 UKC Management
<b>UK</b>	S-128 Catalogue of Nautical Products	S-124 Navigational Warnings	S-129 UKC Management
<b>NETHERLANDS</b>	S-128 Catalogue of Nautical Products	S-124 Navigational Warnings	S-129 UKC Management
<b>SWEDEN</b>	S-124 Navigational Warnings	S-129 UKC Management	S-111 Surface Currents
<b>NORWAY</b>	S-128 Catalogue of Nautical Products	S-124 Navigational Warnings	S-129 UKC Management
<b>DENMARK</b>	S-111 Surface Currents	S-124 Navigational Warnings	S-129 UKC Management
<b>BELGIUM</b>	S-111 Surface Currents	S-124 Navigational Warnings	S-129 UKC Management
<b>FRANCE</b>	S-104 Water Level	S-102 Bathymetry	S-129 UKC Management

	<b>Top priority by product</b>	<b>% of Members</b>
<b>S-102</b>	1	62.5
<b>S-104</b>	3	62.5
<b>S-111</b>	3 or 4	37.5
<b>S-124</b>	5	75
<b>S-128</b>	2 or 4	37.5
<b>S-129</b>	6	87.5

87.5% of the Members gave the priority 6 for S-129;  
75% of the Members gave the priority 5 for S-124;  
62.5% of the Members gave the priority 1 for S-102;  
62.5% gave the priority 3 for S-104;  
37.5% of the Members gave the priority 3 or 4 for S-111 and  
37.5% of the Members gave the priority 2 or 4 for S-128.

Based on the above it can be concluded that the priority, based on a majority, for the NSHC region can be as shown in the table below. The last column show the percentage of Member States allocating this product the priority shown or higher.

	<b>Priority by product</b>	<b>% of Members</b>
<b>S-102</b>	1	62,5
<b>S-128</b>	2	62,5
<b>S-104</b>	3	87,5
<b>S-111</b>	4	87,5
<b>S-124</b>	5	100
<b>S-129</b>	6	100

- Assuming that S-101 will be the first S-1xx data product to be developed, the timescale given by the Members for developing the other S-1xx products is given in the table below. The year chosen by the majority is shown in orange. Where a member specified a year prior to the majority, it is shown in green, when specifying a year after the majority it is shown in red.

	S-101	S-102	S-104	S-111	S-124	S-128	S-129
<b>GERMANY</b>	2025	2026	2027	2028	2030 or later	2025	2030 or later
<b>UK</b>	2025	2025	2025	2025	2025	2025	2025
<b>NETHERLANDS</b>	2026	2025	2025	2025	2030 or later	2025	2030 or later
<b>SWEDEN</b>	2025	2026	2027	2028	2027	2025	2028
<b>NORWAY</b>	2025	2025	2025	2025	2026	2026	2026
<b>DENMARK</b>	2026	2026	2030 or later	2030 or later	2030 or later	2027	2030 or later
<b>BELGIUM</b>	2025	2025	2026	2026	2027	2026	2030 or later
<b>FRANCE</b>	2025	2027	2026	2025	2025	2025	2027

Summarized:

- S-101: 75% of the MS did schedule the development of the S-101 in 2025; 2 MS in 2026;
- S-102: 50% of the MS did schedule the development of the S-102 in 2025; 37,5% in 2026 and 1 MS in the year 2027;
- S-104: only 37,5% of the MS scheduled this process in 2025; 25% in 2026 or 2027. 1 MS in 2030 or later;
- S-111 50% of the MS scheduled this process in 2025; 1 MS in 2026; 2 MS in 2028 and 1 MS in 2030 or later;
- S-124: 25% will develop this Standard in 2025; 37,5% in the period 2026 and 2027 and 37,5% in 2030 or later.
- S-128: 62,5% is intended to develop S-128 in 2025; 37,5% in the year 2026 or 2027.
- S-129: 50% of the MS will develop this Standard in the period 2030 or later. The other 50% in the years before that.

7. Assuming NSHC Member States want to be more ambitious than your answers above. What would be required for your organization to bring timelines forward by for example one or two years? How could other NSHC Member States support you?

Maturity of the standards and the progress of the product specifications are very important for the way forward (UK, SE and BE);

Competence building for some standards is needed (N);

Sufficient funding and resources are necessary (DK): no task for NSHC, but for agencies within the MS themselves;

Sharing experiences within NSHC (DK, BE) would be of great interest.

Projects for developing capacities in S-100 services, in particular towards EU should be initiated by the NSHC (F).

8. NSHC Member States recognized the importance of a common approach to achieve regional coverage. The obstacles for some organizations will larger than for other. If your organization can assist other NSHC Member States to achieve the ambitious plans for regional coverage in S-1xx data services, please describe below what support can be provided.

All MS want to share experience and knowledge on developing S-xx capabilities and know-how. Collaboration is strongly advised by everyone.

- Share Best Practice Experience (D, BE)
- Help form advanced MS to less advanced (UK, N).
- Sharing information regarding production methods (SE)
- Need for greater regional collaboration to harmonize (DK, F): forums, expert groups, projects building, etc.

The timelines need to be realistic and the NSHC not overly ambitious regarding regional coverage.

9. For the priority S-1xx data products, do you have a clear route to disseminate this as a data service?

	S-101	S-102	S-104	S-111	S-124	S-128	S-129
GERMANY	YES	YES	YES	YES	NO	YES	NO
UK	YES	YES	YES	YES	YES	YES	NO
NETHERLANDS	YES	YES	NO	NO	NO	YES	NO
SWEDEN	YES	YES	NO	NO	NO	NO	NO
NORWAY	YES	YES	NO	NO	NO	NO	NO
DENMARK	YES	YES	NO	NO	NO	YES	NO
BELGIUM	YES	YES	NO	NO	NO	YES	NO
FRANCE	YES	NO	NO	NO	YES	NO	NO

	<i>% of MS with 'YES'</i>
<b>S-101</b>	100
<b>S-102</b>	87
<b>S-104</b>	25
<b>S-111</b>	25
<b>S-124</b>	25
<b>S-128</b>	75
<b>S-129</b>	0

All MS (100%) have a clear route to disseminate S-101 as a data service. 87% and respectively 75% of the MS has a route to disseminate S-102 and S-128. Only 25% for S-104, S-111 and S-124 and no MS for S-129.

## **Recommendations**

Based on the outcome of the questionnaire we propose the following recommendations for NSHC Member States to discuss at NSHC36:

1. Noting the ambition and agreement about the priority S-1xx products to be developed, it is suggested that clear responsibilities should be allocated to ensure regional coordination. It is therefore proposed that the following working groups lead the coordination activities:  
NSICCWG: S-101 and S-102  
Tidal WG: S-104 and S-111  
MSIWG: S-124 and S-128  
No regional coordination is proposed for S-129.
2. The timescales suggested by MS for S-1xx product development showed quite a spread. To ensure regional alignment of products, options could include to go at the pace of the slowest, the majority or the fastest. It is recommended that MS discuss at the NSHC36 meeting what level of ambition NSHC MS want to adopt to deliver regional packages of S-100 products.