



BALTIC SEA
HYDROGRAPHIC
COMMISSION



Baltic Sea Chart Datum 2000, S-104 and S-111

BOOS Scientific Workshop

7 May 2024 Copenhagen, Denmark

Thomas Hammarklint



Baltic Sea Hydrographic Commission (BSHC)



BALTIC SEA HYDROGRAPHIC COMMISSION

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The Baltic Sea Hydrographic Commission,

which is an integral part of the International Hydrographic Organisation (IHO), promotes the technical co-operation in the domain of hydrographic surveying, marine cartography and nautical information among the neighboring countries of the Baltic Sea region.

The main objectives of the Commission are the coordination of the production of the Baltic Sea INT Charts, the coordination of hydrographic re-surveys, harmonization of chart datums, harmonization of Baltic Sea ENCs, and the exchange of information and the harmonization of practices with regard to various issues related to hydrography.

The most recent development is the [Baltic Sea Bathymetric Database](#) – accessible via this portal.

International Hydrographic Organization

The International Hydrographic Organization is an intergovernmental consultative and technical organization that was established in 1921 to support safety of navigation and the protection of the marine environment. The object of the Organization is to bring about:

- The coordination of the activities of national hydrographic offices
- The greatest possible uniformity in nautical charts and documents
- The adoption of reliable and efficient methods of carrying out and exploiting hydrographic surveys
- The development of the sciences in the field of hydrography and the techniques employed in descriptive oceanography

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Chart Datum, Water level and Currents Working Group (CDWCWG)

Chart Datum, Water level and Currents Working Group (CDWCWG)

"To implement a common reference system, S-104 and S-111 in the Baltic Sea"

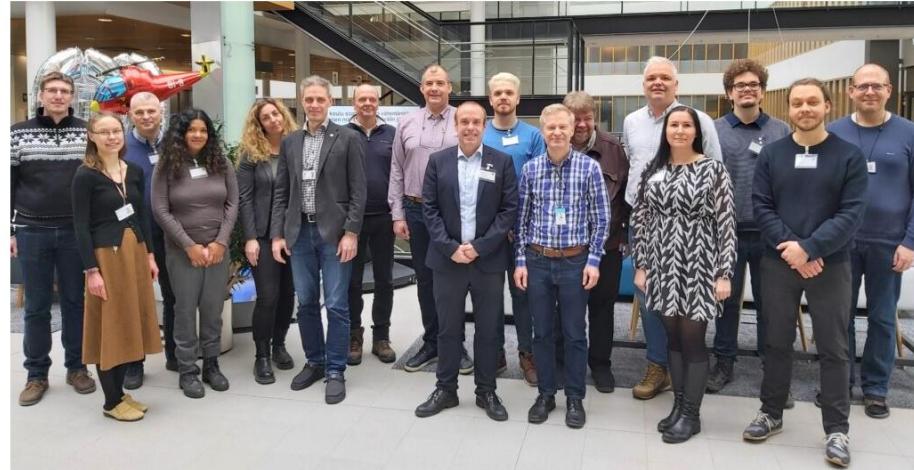


Photo: Chart Datum, Water level and Currents Working Group 1st meeting, 26-27 March 2024, Helsinki, Finland

<https://www.bshc.pro/working-groups/cdwcwg>

Members of CDWCWG:

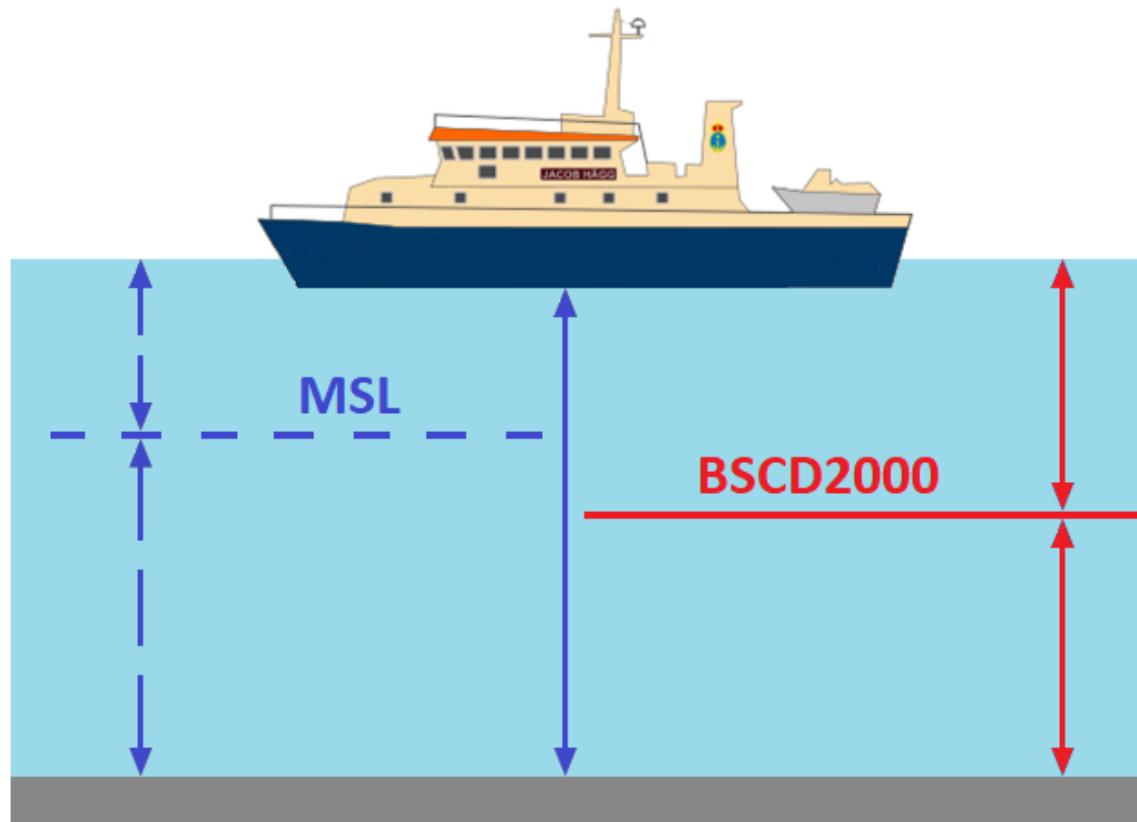
Denmark	Mr Nikolaj Møller
Denmark	Mr Kristian Villadsen Kristmar
Estonia	Mrs Gabriela Kotsulim
Finland	Mr Jyrki Mononen
Germany	Dr Patrick Westfeld
Latvia	Mr Bruno Špēls
Lithuania	Mr Mindaugas Zakarauskas
Poland	Mr Witold Stasiak
Poland	Mrs Alicja Olszewska
Russia	Mr Leonid Shalnov
Russia	Dr Sergey V. Reshetniak
Sweden	Mr Thomas Hammarklint (Chair)
Sweden	Mr Lars Jakobsson
Sweden	Mr Henrik Tengbert

Observers and Experts:

Estonia	Prof. Artu Ellmann
Estonia	Dr Sander Varbla
Estonia	Dr Nicole Camille Delpeche-Ellmann
Finland	Mr Jarmo Mäkinen
Finland	Mrs Anni Jokiniemi
Finland	Dr Jani Särkkä
Finland	Dr Mirjam Bilker-Koivula
Finland	Dr Timo Saari
Germany	Dr Gunter Liebsch
Germany	Dr Joachim Schwabe
Latvia	Mr Armands Murans
Latvia	Mr Krists Dzenis
Lithuania	Mr Emelis Tertelis
Lithuania	Mr Romuald Obuchovski
Norway	Mr Aksel Voldsund
Poland	Mr Krzysztof Pyrchla
Poland	Mrs Małgorzata Pająk
Poland	Dr Monika Wilde-Piórko
Poland	Dr Małgorzata Szelańska
Sweden	Dr Jonas Ågren
Sweden	Dr Per-Anders Olsson
Sweden	Mrs Johanna Linders



New reference level



The water depth remains!

Baltic Sea Chart Datum 2000 (BSCD2000)

➤ Definition:

The datum refers to each Baltic country's realization of the European Vertical Reference System (EVRS) with land-uplift epoch 2000, which is connected to the Normaal Amsterdams Peil (NAP).

➤ Justification:

The Baltic Sea is an international shallow, non-tidal area in the northern part of Europe with dense traffic. IHO BSHC has approved the name and the adoption of the Baltic Sea Chart Datum 2000 ([specification](#)).

➤ Height systems used as national realization of BSCD2000 (EVRS-based):

Sweden RH2000	Denmark DVR90	Germany DHHN2016
Poland PL-EVRF2007-NH	Lithuania LAS07	Latvia LAS2000,5
Estonia EH2000	Finland N2000	Norway NN2000

➤ Chart datum name to be shown in paper charts and water level information:

Mean Sea Level (Baltic Sea Chart Datum 2000^{national realization name})

Mean Sea Level (Baltic Sea Chart Datum 2000)

Baltic Sea Chart Datum 2000^{national realization name}

Baltic Sea Chart Datum 2000

BSCD2000 (national realization name)

BSCD2000

National realization name

CHART DATUM: Mean Sea Level (Baltic Sea Chart Datum 2000^{RH2000})

REFERENSNIVÅ: Medelvattenytta (Baltic Sea Chart Datum 2000^{RH2000})

SYMBOLS and ABBREVIATIONS: see INT 1

BETECKNINGAR och FÖRKORTNINGAR: se KORT 1

Referensnivå



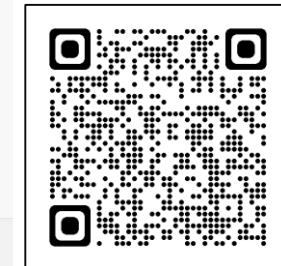
Baltic Sea Chart Datum 2000 in IHO Registry

**BSCD2000 is now included in IHO Geospatial Information (GI) Registry,
as chart datum number 44:**

The screenshot shows the IHO Geospatial Information Registry interface. The left sidebar includes links for HOME, HELP&GUIDANCE, GI REGISTERS, PROPOSAL, TEST BED, Open Online Platform, and 2nd GI Registry(Old). The main content area is titled "Data Dictionary Register" and shows a search bar with filters for Feature Type (366), Information Type (26), Attribute Type (567), Complex Type (92), Enumeration Value (2273), and Codelist Value (117). Below the search bar, there are dropdowns for Domain (ALL), Status (Valid), Type (ALL), and Category (Name), along with a search button. A table titled "[Listed Value] Dictionary Details" displays the following information for the entry "Baltic Sea Chart Datum 2000":

Domain	IHO Hydro	
Name	Baltic Sea Chart Datum 2000	
CamelCase	balticSeaChartDatum2000	
Item identifier	1213 ?	
Definition	The datum refers to each Baltic country's realization of the European Vertical Reference System (EVRS) with land-uplift epoch 2000, which is connected to the Normal Amsterdams Peil (NAP).	
Data type	Enumerated value	
Associated Attribute	Attribute type	Name
	Enumerated type	Vertical Datum
Reference		
Reference Source	Baltic Sea Hydrographic Commission	

At the bottom of the table, there is a copyright notice: "COPYRIGHT © IHO Geospatial Information Registry. ALL RIGHTS RESERVED." and a link to "KHOA Acknowledgements".



International Hydrographic Review Article

An article about the CDWCWG work and the implementation of the Baltic Sea Chart Datum 2000 has been published in the International Hydrographic Review (IHR) in May 2020: [THE BALTIC SEA CHART DATUM 2000 \(BSCD2000\) - Implementation of a common reference level in the Baltic Sea](#)

INTERNATIONAL HYDROGRAPHIC REVIEW

MAY 2020

INTERNATIONAL HYDROGRAPHIC REVIEW

MAY 2020

INTERNATIONAL HYDROGRAPHIC REVIEW

MAY 2020

Articles

4. Practical implications

New nautical products that use BSCD2000 are identified by the chart datum name BSCD2000^(*), where ^(*) denotes the respective national height system realization according to [Table 2](#) (e.g., BSCD2000^(NAP) for Sweden).

The main consequence for the mariner is that the charted depth in BSCD2000 changes by a constant value compared to the old zero level. The offset is individual per country or per map sheet, depending on the former MSL-related chart datum. In most cases, this offset will be negative, since the new zero level of the BSCD2000 is in general below the present day MSL for the Baltic Sea (see [Figure 6](#) for a generalized visualization and [Figure 7](#) for a map of the national MSL realizations currently in use). However, for charts of areas strongly affected by postglacial uplift and referring to very old MSL realizations, the change to BSCD2000 may be considerable. [Figure 1](#) gives an impression of the land uplift rates according to the model NKG2016LU (Vestal et al. 2016).

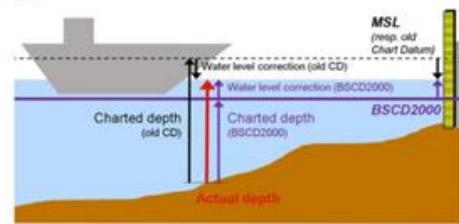


Figure 6: Schematic cartoon of the old MSL-based chart datum and the new BSCD2000

At the same time, real-time water level information (water level observations, corrections to the charted depths, forecasts, etc.) will also be changed accordingly to comply with the new chart datum. This also allows for a better and easier monitoring and prediction of the current and future sea states out at sea, since real-time oceanographic models can be simply interpolated ([Figure 8](#)), whereas switching between the sometimes far-distant mareographs and their local references may introduce a large error margin ([Figure 9](#)).

The transition from the numerous MSL-based chart datums of each country to BSCD2000 is a complex and stretched process from the first decisions to the final implementation in the chart products. In particular, paper charts need longest to be switched due to the long production cycles. Some countries, like Estonia, have already informed mariners about the changes to BSCD2000 and have published the first products. Others, like Denmark, are about to formally

adopt BSCD2000 as the name of their chart datum without having to actually change their chart depths. Therefore, this section only gives an overview about the general situation in the respective countries. [Table 2](#) summarizes the national geodetic reference frames, positioning services and HRS realizations that can be used with BSCD2000. Regularly updated details about the implementation status as well as instructions for users, e.g. leaflets, are provided via the CDWG website (<http://www.bahc-pro/working-groups/cdwg>).

In Sweden and Finland, a calculated MSL has been used as reference level (chart datum) for nautical charts and water level information. The reference level for regularly updated epochs (estimated present-day MSL) was estimated from long time series of annual mean values of mareograph observations. Depths from printed charts needed to be converted semi-automatically by means of a correction formula in order to correct for the time difference and to make the charted depth compatible with the provided water level information. As motivated in [Section 2](#), this two-step approach implied a lot of work to keep the nautical products updated and consistent. At the same time, it was not straightforward and error-prone for the mariner.

Thus, decisions to make a transition to BSCD2000 in Sweden and Finland have come a long way. In Sweden, both water level information and 50% of all nautical charts are now using BSCD2000. In Finland, part of the bathymetric and chart data have already been transformed to BSCD2000. Water level information is ready to be provided in BSCD2000 when first charts will be published in the new datum. [Figure 7](#) details the estimated height of the current calculated MSL relative to BSCD2000 for selected mareographs in Sweden and Finland.

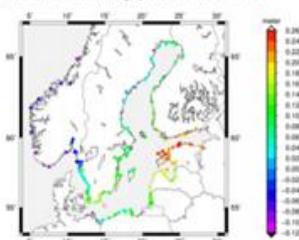
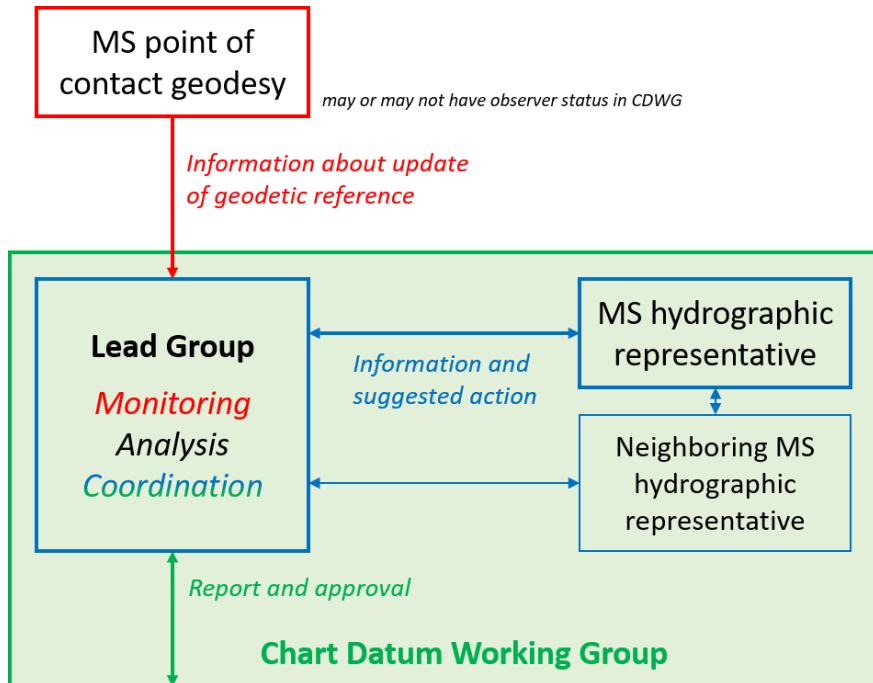


Figure 7: Differences between the reference levels of the old national chart datums with respect to Baltic Sea Chart Datum BSCD2000. In Sweden and Finland, the old chart datum is the calculated MSL in the year 2020 (according to different national conventions). The values from Norway show the MSL over the period 1996–2014, relative BSCD2000^(NAP). In Estonia, Latvia and Lithuania, the Kronstadt reference level is used as old chart datum. In Poland, the local Polish Height System Amsterdam NHu is used as chart datum. Notice how postglacial rebound reduces the magnitude of the calculated MSL relative BSCD2000 in the Bay of Bothnia. It is now just a few cm close to the location of maximum uplift. The values are taken from BODS (2020).



Continuity Management of BSCD2000

Organizational scheme and workflow



BSCD2000 height transformation grid (geoid model)

Release note:

<https://doi.org/10.58440/ihr-29-2-n11>

Landing page:

<https://www.bshc.pro/ihb-bscd2000>

Digital Object Identifier (DOI) with download

DOI: 10.58440/ihb-bscd2000

URL: <https://doi.org/10.58440/ihb-bscd2000>

The DOI has been configured as type 'database'. In perspective, we can assign any number of "datasets" to a "database". This means that each new BSCD2000 release can have its own entry.

We can also assign literature references (definition, specification, publications etc.) in the future.



Swedish Chart Improvement project

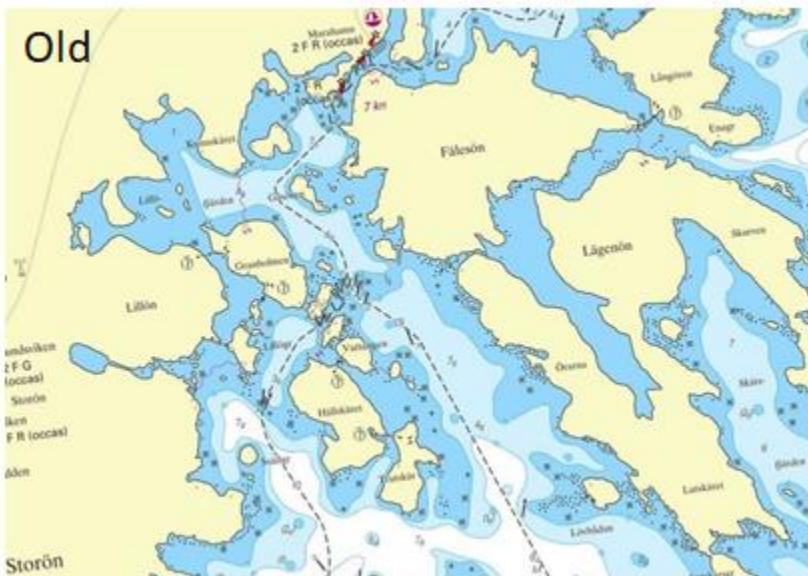


CHART DATUM: Mean Sea Level (Baltic Sea Chart Datum 2000^{RH2000})

REFERENSNIVÅ: Medelvattenyta (Baltic Sea Chart Datum 2000^{RH2000})

SYMBOLS and ABBREVIATIONS: see INT 1

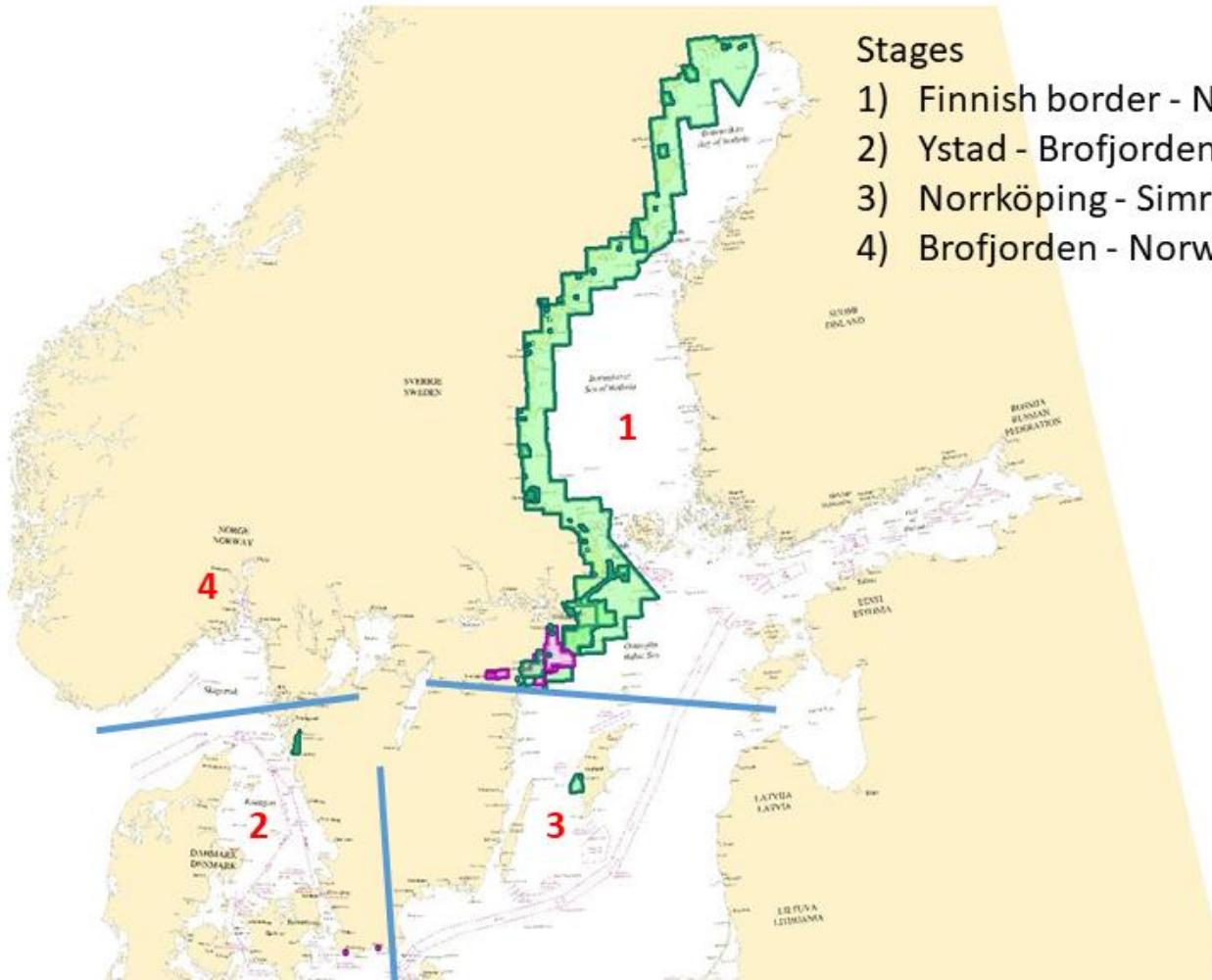
BETECKNINGAR och FÖRKORTNINGAR: se KORT 1

Referensnivå



Status transition from MSL to BSCD2000 in nautical charts

Chart Improvement Project (status 2024-03-19)



Stages

- 1) Finnish border - Norrköping
- 2) Ystad - Brofjorden
- 3) Norrköping - Simrishamn
- 4) Brofjorden - Norwegian border



New reference level in Sweden

SMA and SMHI presents sea
level data relative BSCD2000
since 3rd June 2019



SMHI oceanographic warning and forecasting service

- A transition to BSCD2000 (RH 2000) has been implemented at SMHI, where forecasts, warnings and current sea level are issued relative BSCD2000.
- A new impact-based and regional adapted warning system has also been introduced, which includes yellow, orange and red warning, where red is the most serious.

Högt vattenstånd			
Varningsnivå	Gul	Orange	Röd
Område	cm i RH 2000		
Grupp 1 (Västra Götalands län, Hallands län, Skåne län)	90	130	180
Grupp 2 (Kalmar län, Östergötlands län, Gotlands län, Södermanlands län, Stockholms län)	80	110	-
Grupp 3 (Blekinge län, Uppsala län, Gävleborgs län, Västernorrlands län)	90	130	-
Grupp 4 (Västerbottens län, Norrbottens län)	100	150	-

Lågt vattenstånd	
Varningsnivå	Gul
Område	cm i RH 2000
Skagerrak, Kattegatt, Södra Östersjön, Mellersta Östersjön, Norra Östersjön, Ålands hav	-80
Sydvästra Östersjön, Öresund, Bältan	-50
Södra Bottnahavet, Norra Bottnahavet, Norra Kvarken, Bottenviken	-90



Implementation status 2024

Summary implementation of BSCD2000, S-104 and S-111 status 2024:

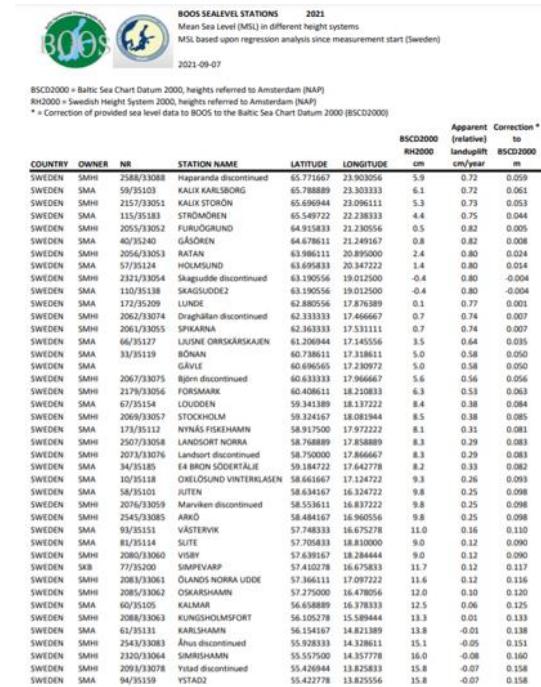
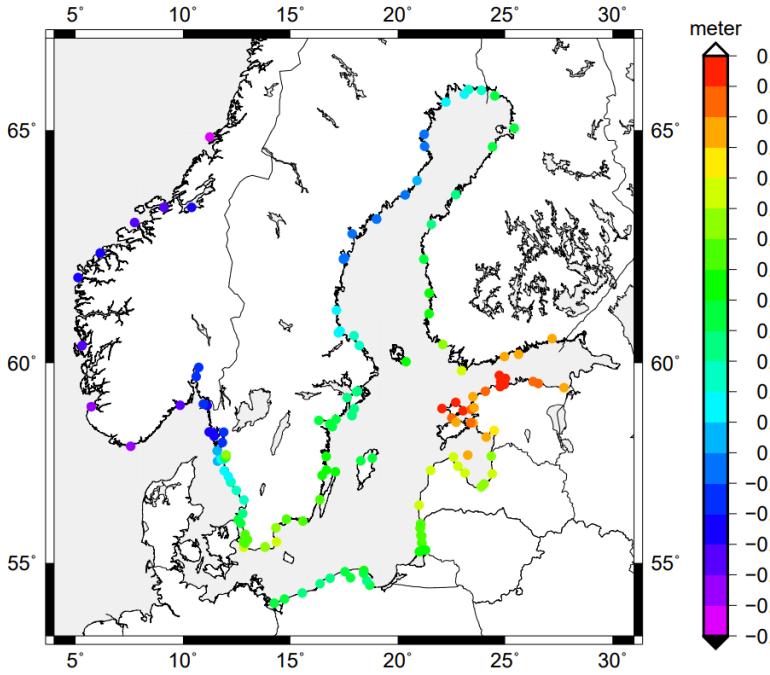
Country	Status BSCD2000 for charts	Status BSCD2000 for water level (see mwreg_boos)	Status S-104/S-111
Denmark	Chart datum in practice close to EVRS-based chart datum (DVR90). BSCD2000 is implemented in ENC and will be implemented in paper charts in the order of reprinting.	All Danish water level stations are connected to DVR90 (BSCD2000). Data distributed to BOOS/CMEMS in relation to DVR90 . Responsibility of Danish Meteorological Institute (DMI), Danish Coastal Authority (Kystdirektoratet) and Danish Environmental Protection Agency (Miljøstyrelsen).	DMI and FOOCO (Forsvaret Center for Operativ Oceanografi) is responsible for water level and current information. Aim to have a plan for S-104 and S-111 in 2024. DGA and DMI coordinates the work.
Estonia	All decisions are taken and the implementation is ongoing. Official use in charts and water level information from 2018-01-01. Notices to Mariners 2022-12-01 - Info Sheet . Web application Nutimeer displays Estonian Transport Administration's official electronic navigational charts.	All Estonian water level stations are connected to EH2000 (BSCD2000). Data distributed to BOOS/CMEMS in relation to BK77 (old system) . The difference between BK77 and EH2000 reaches up to 26 cm in the Gulf of Finland. Responsibility of Taltech Marine Systems Institute (MSI) and Estonian Environmental Agency (EEA).	Discussions are ongoing between EMA and MSI. MSI and EEA are responsible for water level and current information. EMA coordinates the work.
Finland	Ongoing. All decisions are taken already in 2008 and 2015. Approach charts from Tornio to Vaasa have been published. The publication status of N2000 charts and Finnish nautical charts portfolio . New video about the N2000 fairway and nautical chart reform.	Water level information provided in both systems, mean sea level (MSL) and N2000 (BSCD2000). The differences between MSL and N2000 is provided as a Table . Water level observations and forecasts will be available in N2000 for the public simultaneously with Traficom nautical charts. Data distributed to BOOS/CMEMS in relation to MSL . Responsibility of Finnish Meteorological Institute (FMI).	The first test products of S-104 and S-111 will be created by FMI in the Baltic Sea e-Nav-project until 2026. FMI is responsible for water level and current information. Traficom and FMI coordinates the work.
Germany	EVRS realization in use in practice. The vertical chart datum of BSCD2000 is close to the national height system of Germany (ETRS1989+DHNN2016). All published products will refer to this datum. In August 2021, BSCD2000 was officially introduced as chart datum for German waters in the Baltic Sea . The official introduction was decreed in January 2018 and is binding for all institutions coming under the jurisdiction of the Federal Waterways and Shipping Administration (WSV).	All German water level stations refers to the national height system DHNN2016 (BSCD2000). Data distributed to BOOS/CMEMS in relation to DHNN2016, but metadata refers to SNN76/Kronstadt (old system) . Responsibility of Federal Waterways and Shipping Administration (WSV).	BSH is responsible for water level and current information. BSH coordinates the work.
Latvia	Implementation continues. New national height system LAS-2000,5 (BSCD2000) into use in 2015. LAS-2000,5 to new editions of charts in a following sequence – harbour charts, coastal charts, general charts. Harbour charts are either already implemented to LAS-2000,5 or they are in progress. Differences between BHS-77 and LAS-2000,5 is well known and shown in chart notes.	All water level stations is connected to LAS-2000,5 (BSCD2000). Data distributed to BOOS/CMEMS in relation to LAS-2000,5 . Responsibility of Latvian Environment, Geology and Meteorology Centre (LVGMC).	Meeting between MAL and LVGMC officials has been held about S-104 and S-111. MAL coordinates the work.
Lithuania	National height system LAS-07 (BSCD2000) came into force 2016-01-01. BHS-77 still used. The difference between BHS-77 and LAS-07 is well known (about 13 cm) and is also written in nautical charts.	All water level stations is connected to LAS-07 (BSCD2000). Data distributed to BOOS/CMEMS in relation to BHS-77 (old system) . Responsibility of Lithuanian Hydrometeorological Service (LHMS).	Data owner has been identified. LHMS is responsible for water level information and Klaipeda University (KU) for currents. LTSA coordinates the work.
Poland	A written decision was issued by HOPN in July 2021 - Guidelines and timetable for the implementation of PL-EVRF2007-NH (BSCD2000). Bathymetric data transferred to the vertical reference system PL-EVRF2007-NH. Information campaign about the new chart datum. 2021 and onwards new editions of all INT harbour, approach and coastal charts.	All water level stations is connected to PL-EVRF2007-NH (BSCD2000). Data distributed to BOOS/CMEMS in relation to Amsterdam NN55, but metadata refers to BHS77 . The difference between the NN55 and PL-EVRF2007-NH is less than 9 cm. Responsibility of Institute of Meteorology and Water Management (IMGW-PIB).	Agreement with IMGW and Institute of Oceanology of the Polish Academy of Sciences (IO PAN) to provide observed and modelled water level and surface currents data, respectively. HOPN coordinates the work.
Sweden	Ongoing. All decisions are taken. Many charts (ca 50%) already published. Implementation is a part of the "Chart Improvement Project", to be concluded at the latest in 2030. Information campaigns are ongoing for ports, pilots and other interested parties. Notices to Mariners 2019-05-15 . Several articles written in magazines and on webpages.	All water level information is presented in relation to RH2000 (BSCD2000), since 2019-06-08. Some applications can also present data in relation to mean sea level (MSL). The differences between MSL and RH2000 is provided in this Table . Data distributed to BOOS/CMEMS in relation to BSCD2000 . Responsibility of Swedish Maritime Administration (SMA) and Swedish Meteorological and Hydrological Institute (SMHI).	Discussions started between SMA and SMHI. SMA take part in the BS e-Nav-project in cooperation with FMI on this. We will investigate this in 2024 and take further actions in 2025. SMA coordinates the work.

2024-03-26



Reference levels in the Baltic Sea

Reference levels Baltic Sea
Water level information

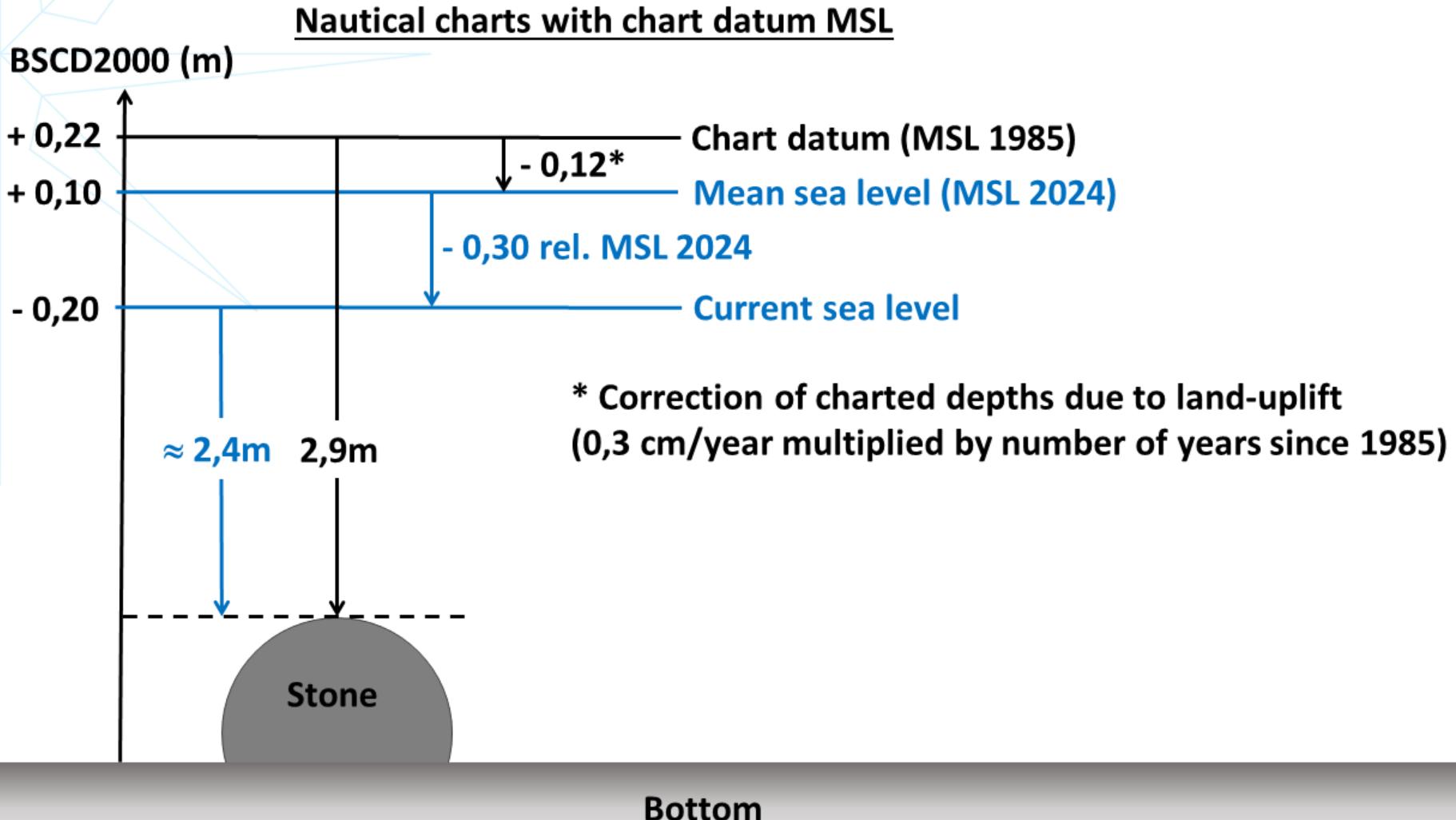


Reference levels used in the Baltic Sea, Marine Copernicus and EMODNET Data Portals and differences with respect to the Baltic Sea Chart Datum 2000 (BSCD2000). In Sweden and Finland, the old reference levels are equal to Mean Sea Level (MSL) transferred to year 2023 (according to different national conventions). The values from Norway shows the MSL over the period 1996-2014, relative BSCD2000. In Estonia, Latvia and Lithuania, the Kronstadt datum was previously used as chart datum. In Poland, the local Polish Height System Amsterdam NN₅₅ was used as chart datum. Notice how postglacial rebound reduces the magnitude of the MSL in the Bay of Bothnia. The values are shown in this [Table](#).



Nautical charts with chart datum MSL

CHART DATUM: Mean Sea Level (MSL) 1985
REFERENSNIVÅ: Medelvattenytta (MVY) 1985
LAND UPLIFT/LANDHÖJNING 0.3 cm annually / per år
SYMBOLS and ABBREVIATIONS: see INT 1
BETECKNINGAR och FÖRKORTNINGAR: se KORT 1

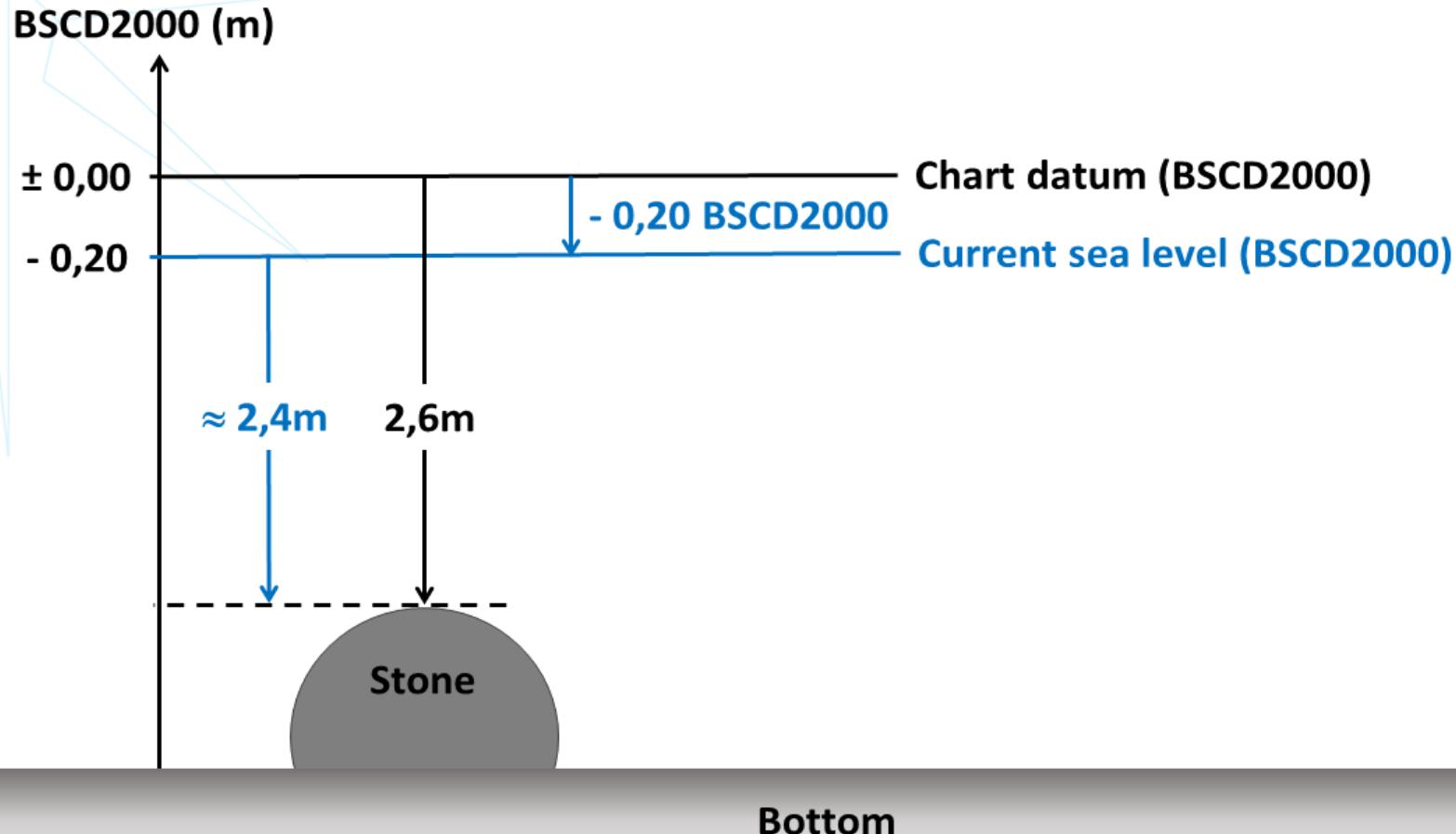


Nautical charts with chart datum BSCD2000

CHART DATUM: Mean Sea Level (Baltic Sea Chart Datum 2000)^(BSCD2000) Referensnivå
REFERENSNIVÅ: Medelvattenytta (Baltic Sea Chart Datum 2000)^(BSCD2000)
SYMBOLS and ABBREVIATIONS: see INT 1
BETECKNINGAR och FÖRKORTNINGAR: se KORT 1



Nautical charts with chart datum BSCD2000



Notices to Mariners (NtM)

* 14040

**Sweden. not area bound. New reference system for sea level, nautical charts and warnings.
BSCD2000 / RH 2000.**

Expired notices: 2019:754/13917

See: 2018:716/13140

As of June 3, 2019, the Swedish national height system 'Rikets Höjdsystem 2000', or RH 2000 (international name 'Baltic Sea Chart Datum 2000', BSCD2000) will constitute the reference level for observations and forecasts of the water level in Swedish waters.

The zero level in RH 2000 is fixedly linked to land, and is not affected by land uplift, changes in sea level or geographical variations.

The change means that observations, forecasts, and warnings in the Swedish Maritime Administration's and Swedish Meteorological and Hydrological Institute's (SMHI) viewing services from 3 June 2019, or soon thereafter, refer to the new reference level and no longer to the 'mean sea level'.

The Swedish Maritime Administration is gradually adapting the charts to the new reference system. This is a time consuming process which will take several years to complete. During the transition period, it is important to know which reference level is used in the different charts. If the text 'Baltic Sea Chart Datum 2000', or 'BSCD2000' is printed in the chart, the update has been performed.

More information: www.sjofartsverket.se/RH2000 and www.smhi.se

www.sjofartsverket.se/RH2000 www.smhi.se

SMHI och Sjöfartsverket. Publ. 15 May 2019



A uniform reference system from land to sea

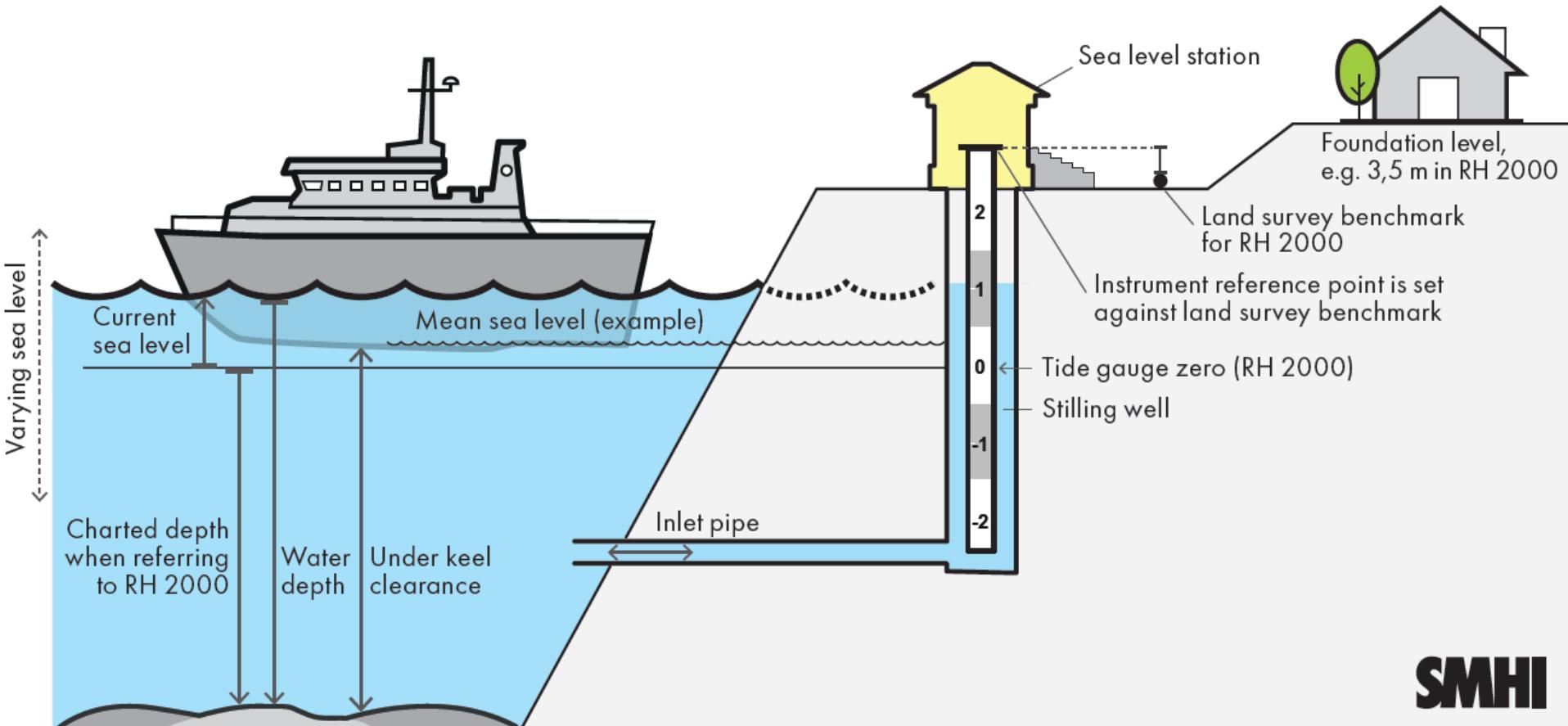


Illustration Veronica Wärn SMHI

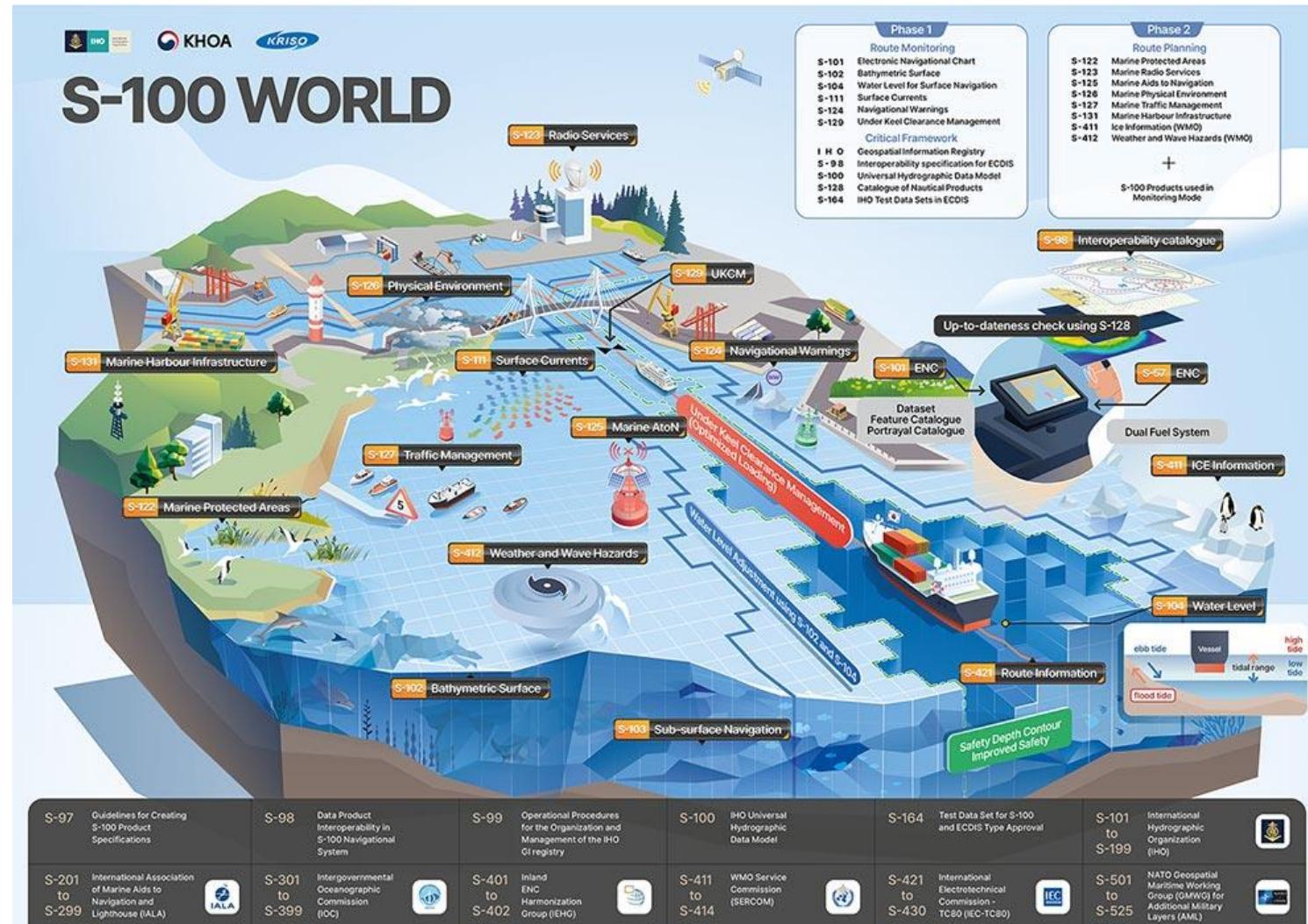
SMHI



Future Maritime Services S-100



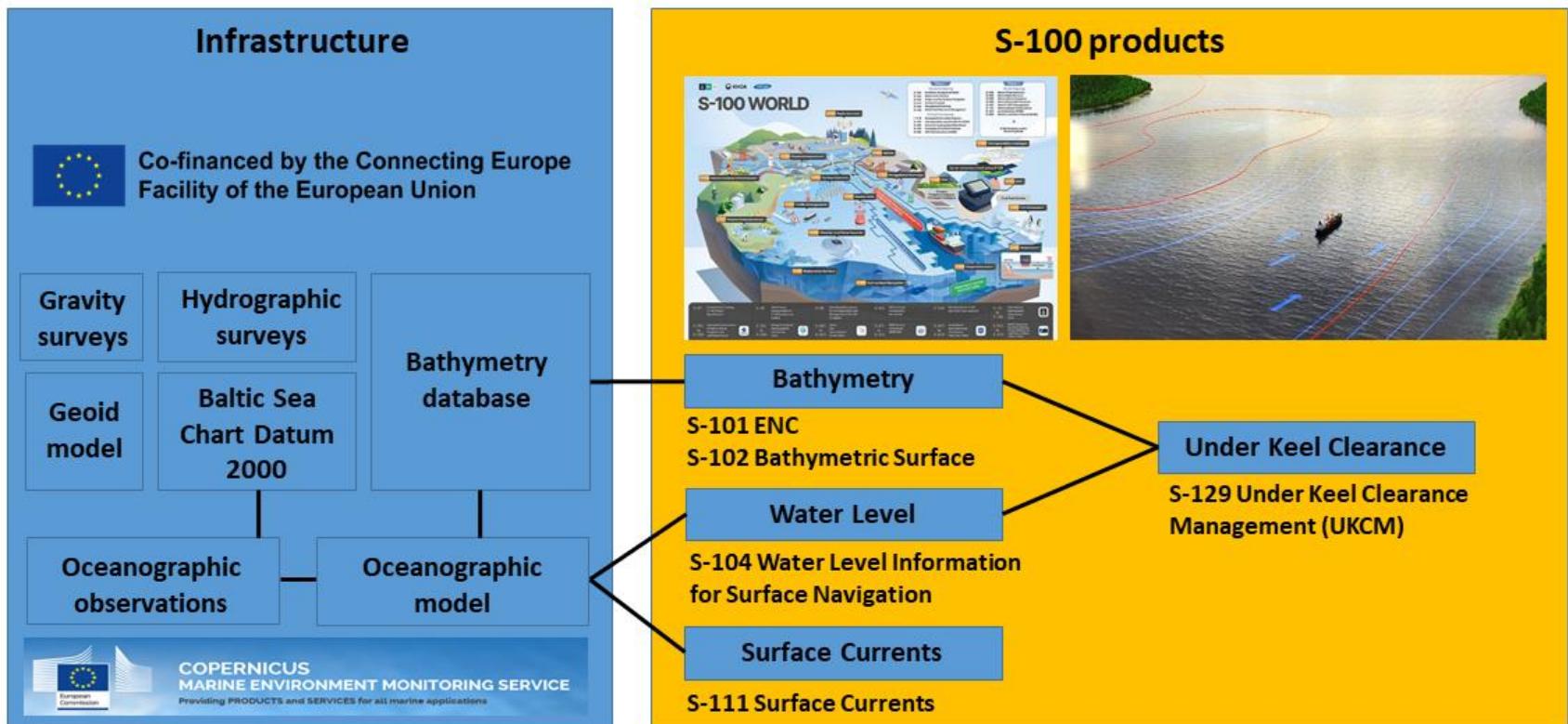
IHO



SWEDISH MARITIME
ADMINISTRATION



Real Time Hydrographic and Environmental Information Service



S-100 Implementation

IHO S-100 Implementation Strategy

Table A – IHO list of S-100 products with special focus

First step – Route monitoring mode

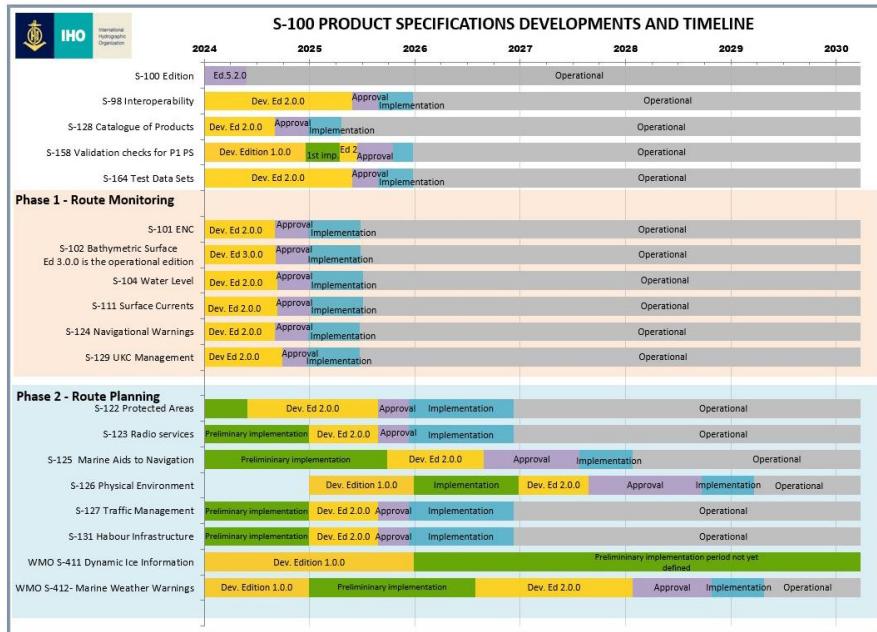
S-101	Electronic Navigational Chart (ENC)
S-102	Bathymetric Surface
S-104	Water Level Information for Surface Navigation
S-111	Surface Currents
S-124	Navigational Warnings
S-129	Under Keel Clearance Management

Critical Framework

	IHO Geospatial Information Registry
S-98	Interoperability Specification
S-100	Universal Hydrographic Data Model
S-128	Catalogue of Nautical Products
S-164	Test Data Set for S-100 and ECDIS Type Approval

Second step – Route planning mode

S-122	Marine Protected Areas
S-123	Marine Radio Services
S-125	Marine Aids to Navigational (AtoN)
S-126	Marine Physical Environment
S-127	Marine Traffic Management
S-131	Marine Harbour Infrastructure



This S-100 timeline is updated: 02.07.2024

2025

2026
Ships allowed
to use S-
products

2027

2028

2029
S-products
are
mandatory



S-100 Implementation Sweden

Products	2024	2025	2026	2027	2028	2029	2030	2031	2032
ENC S-101									
Bathymetry S-102									
Ensuring confidentiality rules for S-102									
Catalogue of Nautical Products S-128 via PRIMAR									
Water Level S-104 (in cooperation with SMHI*)									
Surface Currents S-111 (in cooperation with SMHI*)									
Navigational Warnings S-124									
Marine Protected Areas S-122 (in cooperation with SwAM*)									
Marine Radio Services S-123									
Marine Traffic Management S-127									
Marine Harbour Infrastructure S-131									

*SMHI – Swedish Meteorological and Hydrological Institute, SwAM – Swedish Agency Marine and Water Management

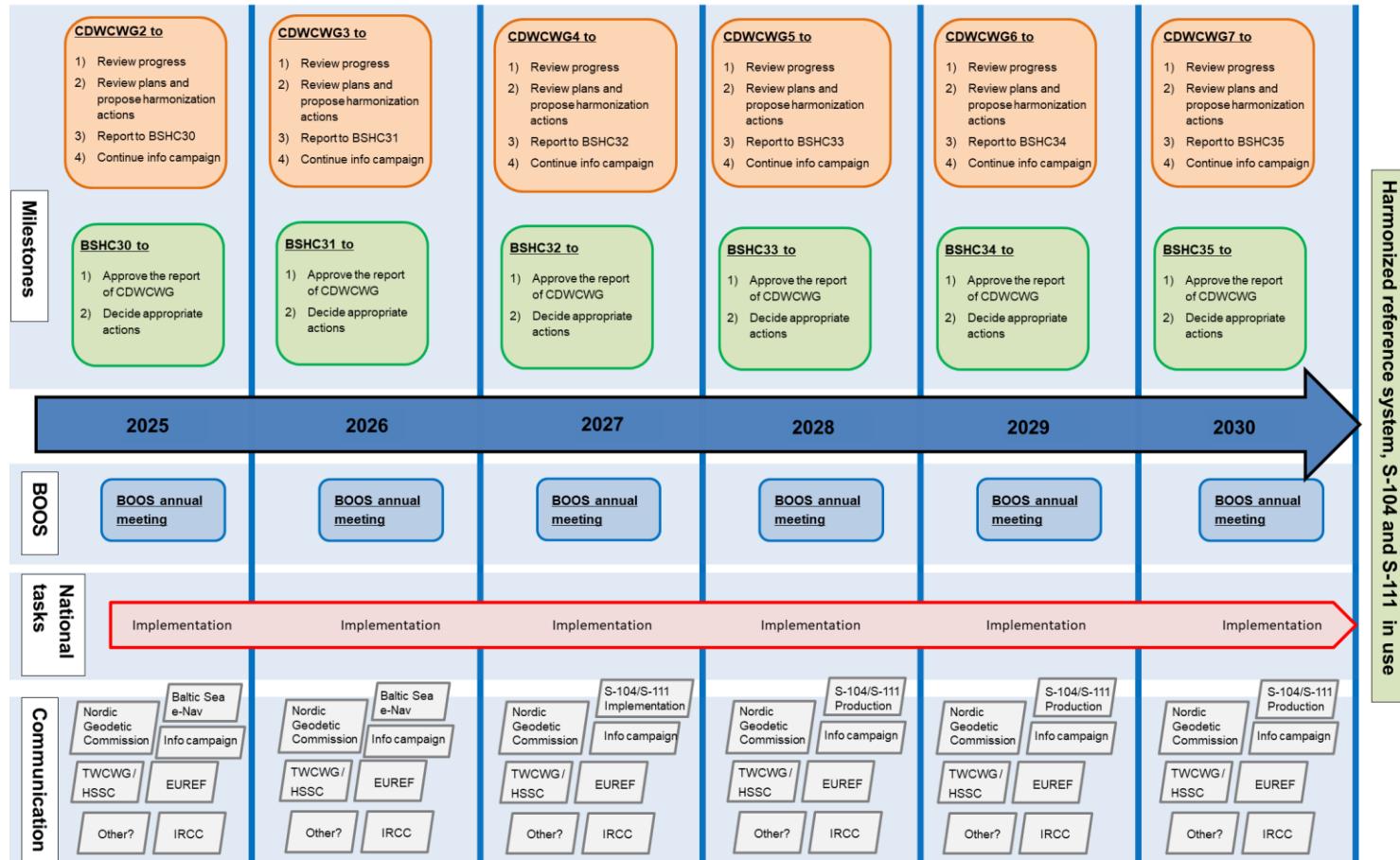


CDWCWG Roadmap

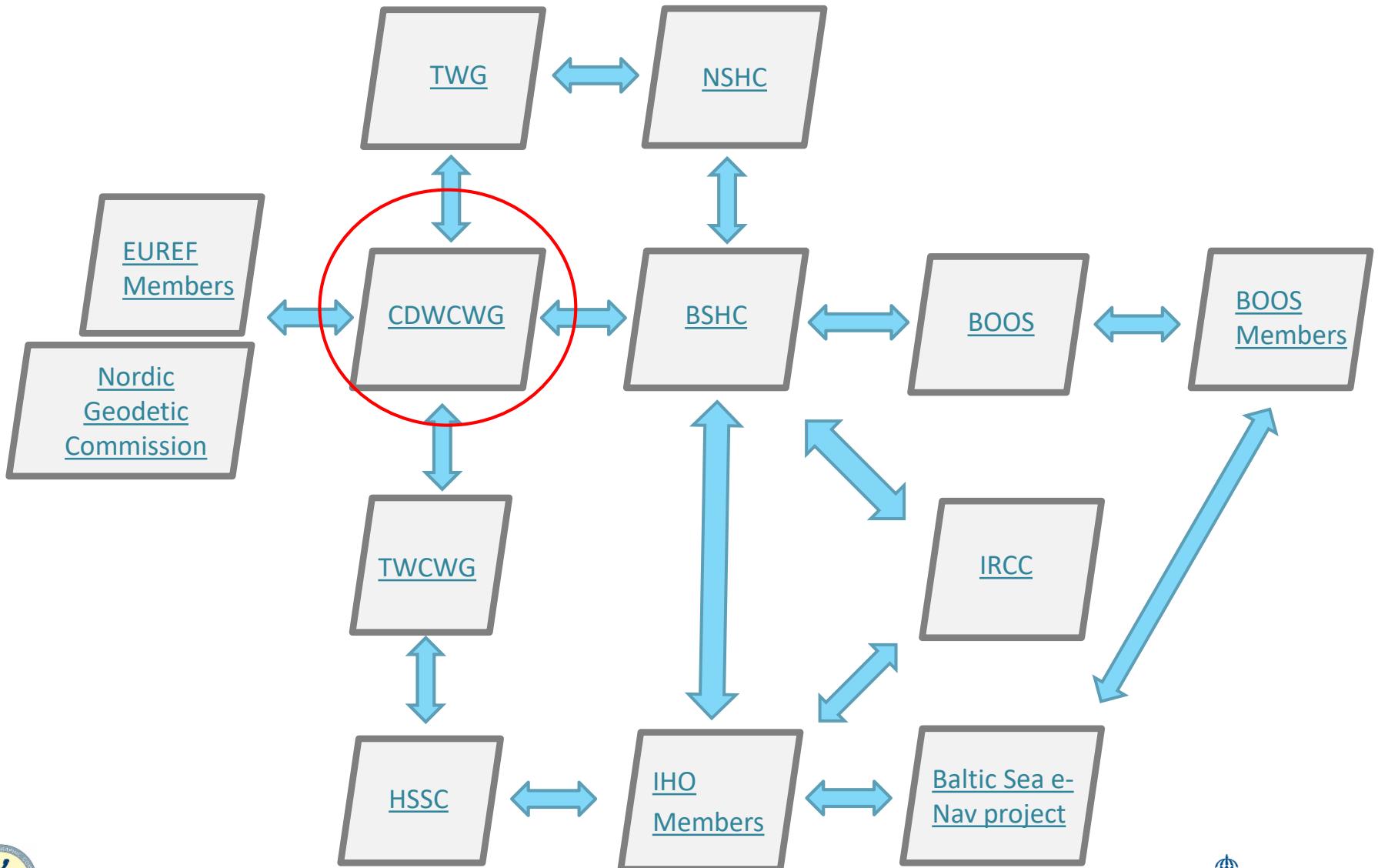
RoadMap

BSHC CDWCWG / Harmonized Reference System / S-104 and S-111 Implementation / Time Line

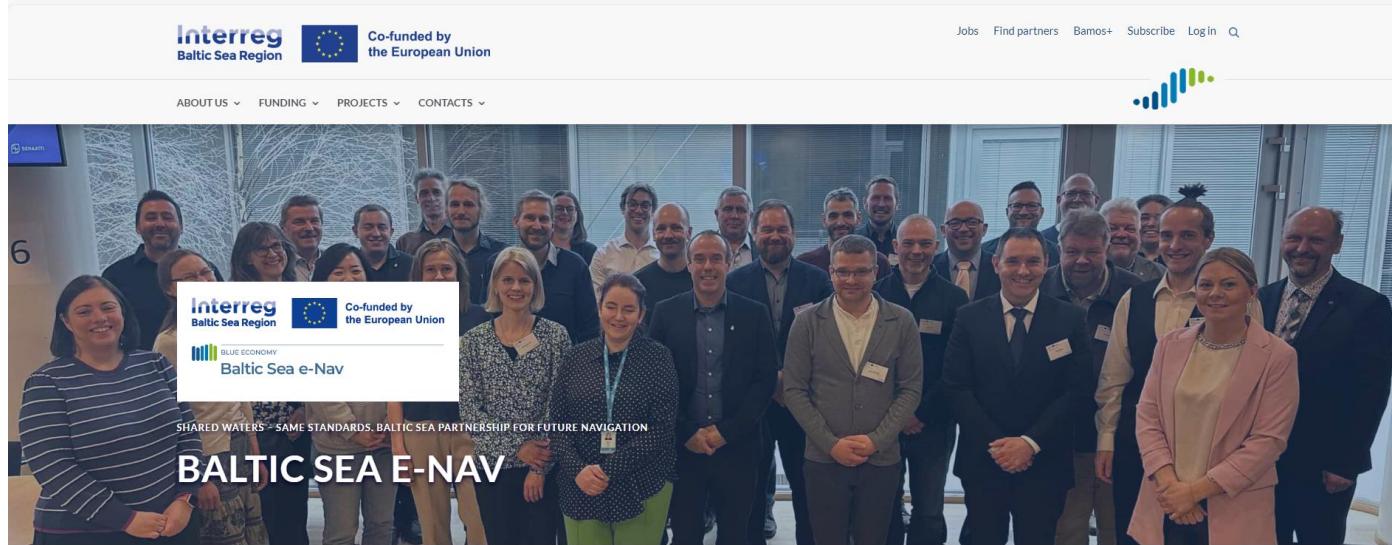
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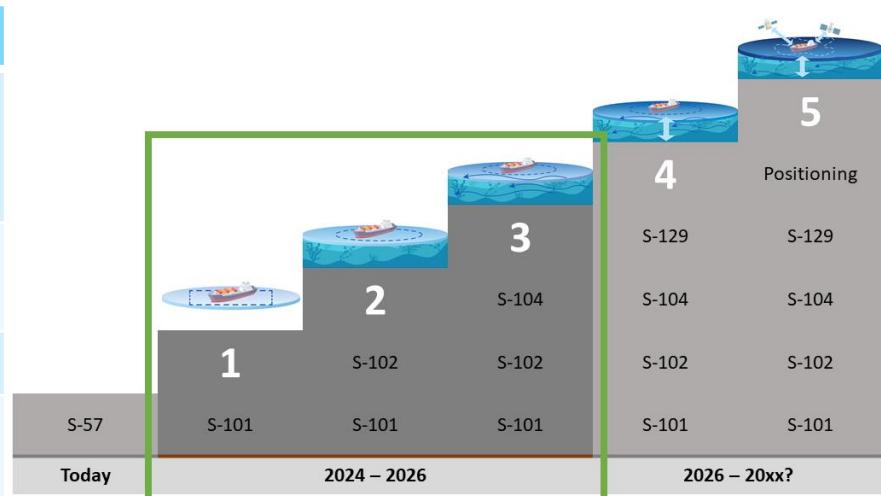
CDWCWG International relations



Baltic Sea e-Nav Interreg project 2023-2026



Goal	Period
Develop production capabilities for S-101 ENC, S-102 bathymetry and to some extent S-104 water level	2023-2025
Establish harmonization rules for S-10x-products, under the BSHC umbrella	2024-2026
Test, evaluate and refine the S-10x products	2025
Commercial rollout for S-101 and S-102 in the Baltic Sea. S-104 in parts of FI.	2026



- A project to start the implementation of the S-100 products in the Baltic Sea
- Transnational cooperation: Partners from almost all Baltic Sea countries.
 - Mainly hydrographic offices, developing S-101 (ENC) and S-102 (Bathymetry) products
 - Finnish Meteorological Institute as the only oceanographic service in the project is also responsible to arrange co-operation to other providers of oceanographic data in the Baltic.
 - Developing S-104 and S-111



Baltic Sea e-Nav – Financing

- Programme Interreg Baltic Sea Region
- Postponed with one year after rejection of the project the first attempt (September 2022)
- Financing approved (June 2023)
- Approximately 5 Meuro

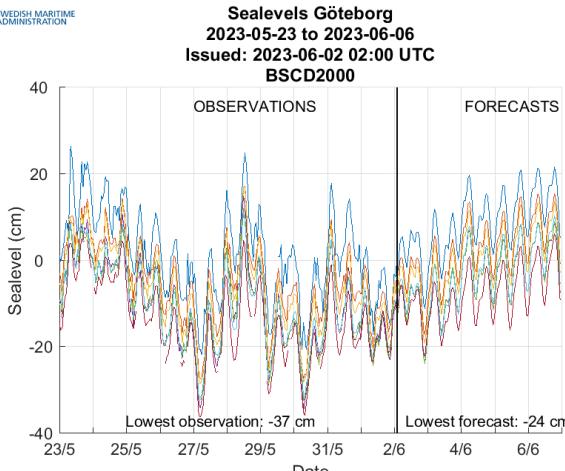
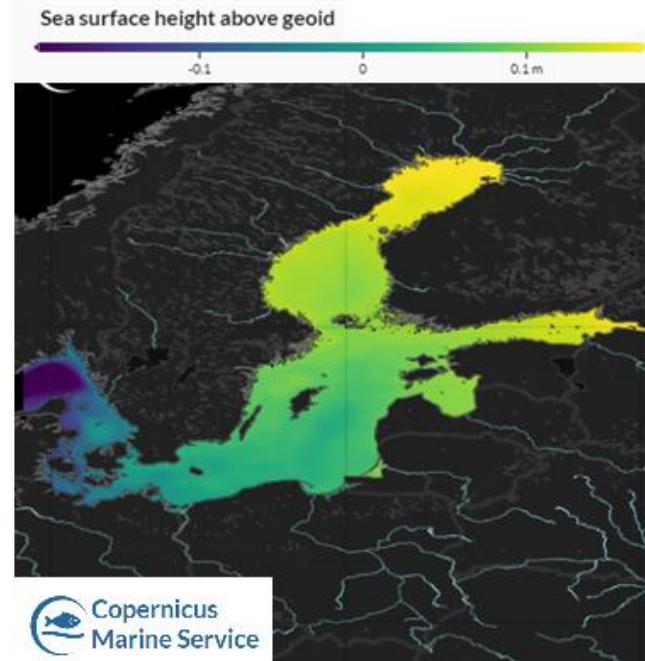
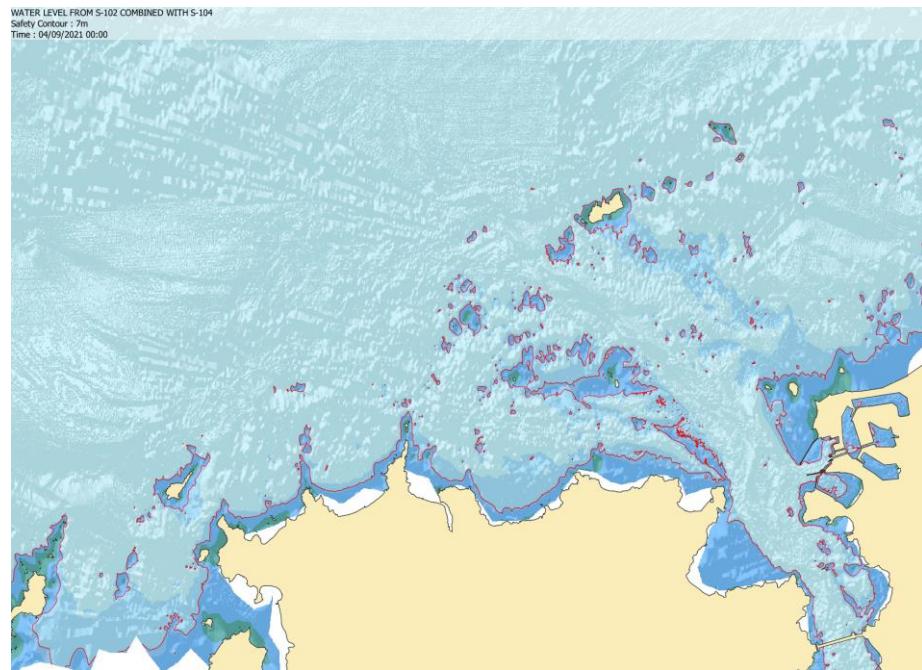
Interreg
Baltic Sea Region



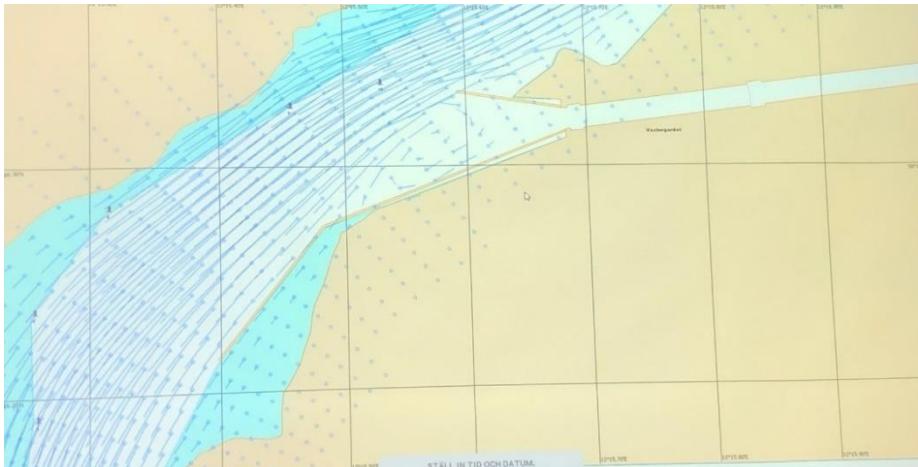
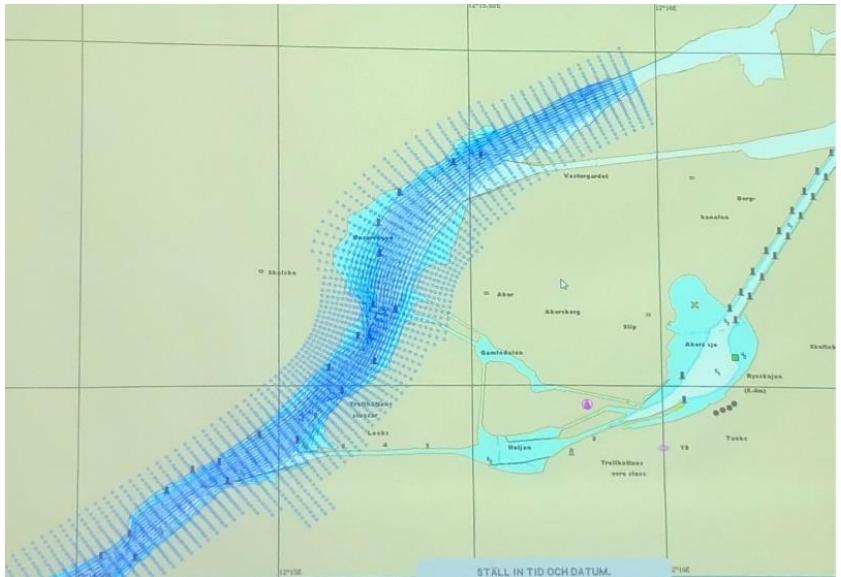
Co-funded by
the European Union



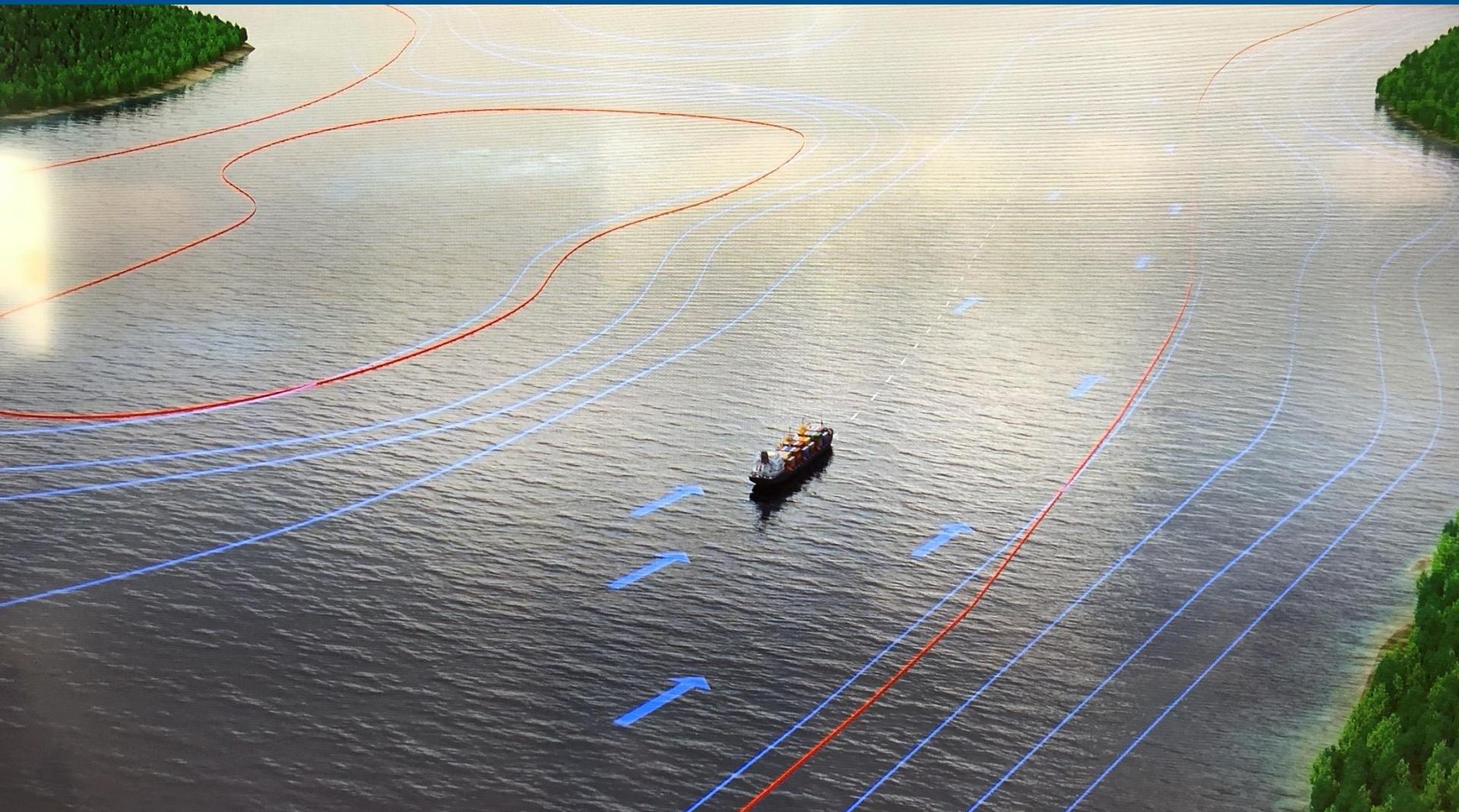
S-104 Water Level



S-111 Surface Currents



Future Navigation



Thanks!



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