

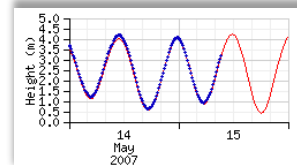


Göteborg, Sweden Swedish Maritime Administration (SMA)

6-7 February 2024

IHO Tides, Water Levels & Currents Working Group (TWCWG)

Status & Update



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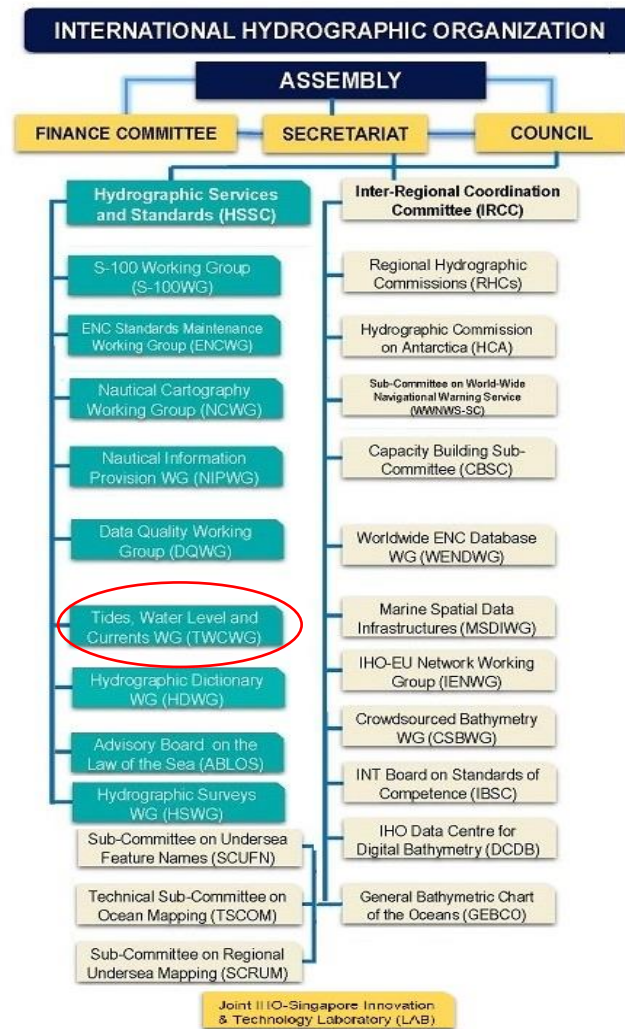
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Structure of the IHO:

Committees and Working Groups

Website

<http://www.iho.int>





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Hydrographic Services and Standards Committee (HSSC)

Objective:

“To promote and coordinate the development of standards, specifications and guidelines for official products and services to meet the requirements of mariners and other users of hydrographic information.”

<https://iho.int/en/hssc>

Main Elements:

- Programme Coordination
- Foundational Nautical Cartography Framework
- S-100 Framework
- S-57 Framework
- Support the implementation of e-navigation & Marine Spatial Data Infrastructures (MSDI)
- Hydrographic Surveying
- Hydrographic aspects of UNCLOS
- Other technical standards, specifications, guidelines and tools



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Tides, Water Levels and Surface Currents Working Group (TWCWG)

Objectives:

- To **provide technical advice** and **coordination** on matters related to tides, water levels, currents and vertical datum, including integrated water level/current data models.
- To support the **development** and **maintenance** of related **specifications** in liaison with the relevant IHO bodies and non-IHO entities.
- To develop and maintain the **IHO publications** for which the WG is responsible.



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TWCWG7

VTC: 28 Feb – 2 Mar 2023

Over **60 Delegates** representing **22 Countries**, **6 Expert Contributors / Observers** & **GLOSS representatives**.

‘Standing’ Agenda items discussed:

- [Standard Constituent List](#).
- The study of long-term data sets for the determination of global sea level rise and changes in tidal range.
- [Compare Tidal Predictions](#) generated as a [result](#) of [analysis of a common data set](#) by different analysis software (including Application for an **International Association for the Physical Sciences of the Oceans (IAPSO)** [Best Practice Study group on Tidal Analysis](#)).
- Historical data recovery/data archaeology.
- Establishment and Maintenance of VRF for High Resolution Bathymetric Surfaces.



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‘Standing’ Agenda items *continued*:

- Determining ellipsoidal height of MSL at the coast.
- [Inventory of Tide gauges](#) used by IHO Member States.
- [Actual Tides On-line Link](#) [ATOLL] status.
- [List of vertical datums](#) in use to describe Chart Datum.
- Review of relevant IHO [Resolutions](#) and [Charting Specifications](#).
- Capacity Building: Chinese and Spanish versions of the Tides course now completed.



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- Correspondence with Vice Chair of **Maritime Autonomous Surface Ships (MASS)** WG, on a '**Gap Analysis**' between S-104 & S-111 and the requirements of MASS.
- A **Survey /Questionnaire**, kindly prepared by KHOA, for circulation to TWCWG Member States, on Water Level (**S-104**) and Surface Currents (**S-111**) **Data Production Methods** and **Data Formats**.
- Correspondence with Chair of **Hydrographic Surveys WG (HSWG)**, to collaborate on **improved tidal observation uncertainty standards** within S-44.
- Correspondence with Chair of **Data Quality Working Group (DQWG)** on an opportunity to present on S-104 & S-111 at DQWG18. Also on **cross checks of DQ chapters** between S-104 & S-111, as well as **testing of S-104 & S-111 datasets**.



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TWCWG Project Teams (PT)

S-104: Water Level Information for Surface Navigation

Why?

The development of electronic navigation with high resolution bathymetric data, and the drive to increase mariners' safety are now demanding temporal data such as tidal heights to be available.

What?

S-104 describes the **provision of tidal height data** as single entity irrespective of whether they are observations, or model derived predictions.

S-104 may be used **alone** or it may be **combined** with ENC or other S-100 compatible data.

S-104 describes **one of a number of additional information** that could be integrated with other 'S-100' products for use with ENC.

S-104 defines a **content model** and an **exchange file format** for the exchange of tidal height entity data. There currently are no recognized standards on the exchange of tidal height single point data.



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TWCWG Project Teams (PT) S-111: Surface Currents

Why?

With the advent of electronic navigation, surface current data and updates are more accessible and easier to integrate into navigation displays. This integration of the chart with other supplemental data improves decision making and results in more efficient navigation.

What?

S-111 describes all the **features**, **attributes** and **relationships** of surface currents and their **mapping** to a dataset.

S-111 includes general information for data **identification** as well as for data **content** and **structure**, **reference system**, data **quality** aspects, data **capture**, **maintenance**, **encoding**, **delivery**, **metadata** and **portrayal**.

S-111 defines the 'data coverage'; most commonly a regular grid, or also a point set.



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TWCWG7: S-104 & S-111

- Extensive development (by correspondence of the TWCWG Project Teams) of both the S-104 & S-111 Product Specifications (PS).
- **S-104 Ed. 1.1.0** & **S-111 Ed 1.2.0** were both finalised at TWCWG7 and subsequently passed to the [GI Registry](#) for publication.
- Both PS are fully aligned to S-100 Ed 5.0.0 (S-100 Part 17).



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TWCWG8: S-104 & S-111

- Main work now is to publish Eds. 2.0.0 of S-104 and S-111.
- To be conformant with S-100 Ed. 5.2.0.
- S-104 will need to be revised following outcome of [S-100WG8](#):

6.17	Water level on ECDIS	[Decision 8/27] S-100WG8 recommended that the S-104 PS should focus on the initial scope of S-104, which is for water level adjustment to be applied in conjunction with S-102.
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TWCWG8 +

Next meetings:

TWCWG8, VTC 20th - 22nd February 2024

TWCWG9, Monaco (IHO), 19th - 21st November 2024