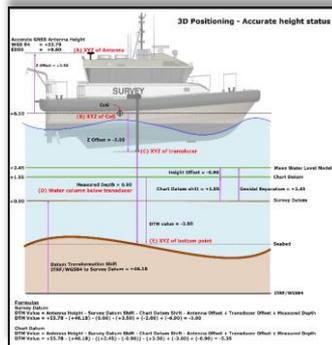




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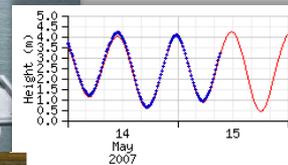
23rd NSHC Tidal Working Group Meeting

Landhelgisgæsla Íslands *Icelandic Coast Guard*

4-5 February 2020

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

Status & Update



Chris Jones, UKHO Tides Technical Lead
christopher.jones@ukho.gov.uk



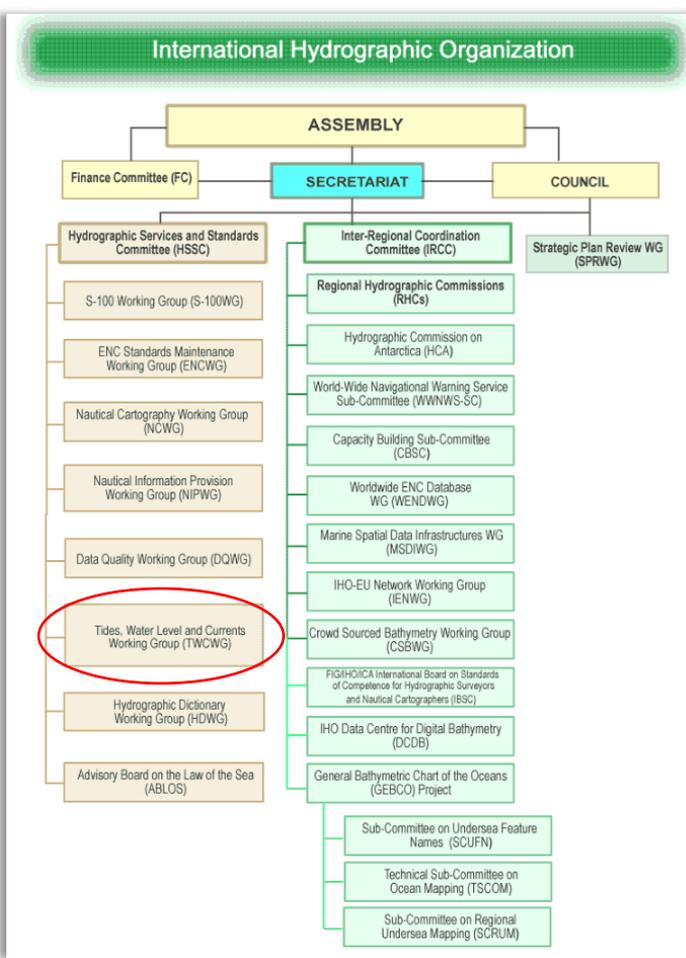
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Structure of the IHO:

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.”

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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TWCWG4

Busan, Republic of Korea

8 to 12 April 2019

Joint meeting with **GLOSS** (Global Sea Level Observing System) (11th April 2019)

49 Delegates representing 21 Countries

Joint session discussions:

- **Data Exchange:** Long term data sets for determination of global sea level rise/variation
- Communicating long term **sea level changes**
- Determining **ellipsoidal height of MSL** at the coast
- **Capacity Building/Development** (IHO Tides, Water Levels and Currents Workshop training material)
- Historical **data recovery/data archaeology**



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TWCWG4

Main Topics and Actions

- **S-10x Development of Product Specifications (PS)**
- **S-104:** Water Level Information for Surface Navigation
- **S-111:** Surface Currents (originally developed by SCWG)
- *(S-112: Dynamic Water Level Data Transfer; now a part of S-104)*



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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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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.



TWCWG4

Also discussed

- **“Standard” for Digital Tide Tables** – this has taken the form of a Resolution. It is more a list of ‘fundamental attributes’ that should form the basis of a digital ‘tide table’.
- **Comparison of Tidal Predictions** – common data set taken and analyzed independently – results compared. Expanded to now consider the methods of harmonic analyses used to derive the constituents.
- **Inventory of tide gauges** – a list of types of gauges used by MS for both long-term (e.g. MSL-rise, coastal modelling / flood prevention) and short term (e.g. hydrography).



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TWCWG4

Also discussed

- Establishment and maintenance of **Vertical Reference Frameworks (VRF)** for high resolution bathymetric surfaces.
- **Actual Tides On-Line Links (ATOLL)** – a resource (Excel spreadsheet) which attempts to provide links to available water-level and current (stream) (predictions and/or observations) for ports on a global scale.
- **Review of relevant IHO resolutions and Charting Specifications** – Ongoing review.



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TWCWG5

Next meeting: TWCWG5, Norwegian Hydrographic Service,
Kartverket, Stanvanger, Norway, 25th -29th May 2020.