

**18<sup>TH</sup> MEETING OF THE DATA QUALITY WORKING GROUP (DQWG)  
Video-teleconference (VTC), IHO Secretariat, Monaco, 7 – 9 February**

Contribution to the IHO Work Programme 2023	
Task 2.1.2.6	Organize, prepare and report meetings of DQWG
Task 2.4.9	Maintain S-67 – Mariner’s Guide to Accuracy of Depth Information in ENC’s

The 18<sup>th</sup> meeting of the Data Quality Working Group (DQWG) was held as a remote video-teleconference (VTC) event from the IHO Secretariat, Monaco, from 7 to 9 February. The event was initially planned as a face-to-face meeting, but the Chair was unable to be physically present due to administrative reasons and it was decided at short notice to arrange the meeting as a simple VTC meeting. In the end, seven Members were physically present in Monaco, facilitating the exchanges and discussions on very technical issues in the margins of the meeting sessions.

The meeting was chaired by Mr Lingzhi Wu (China). Twenty-five registered delegates representing 14 Member States (Canada, China, Denmark, Egypt, Finland, France, Germany, India, Italy, Netherlands, Norway, Sweden, United Kingdom and United States), two representatives of the RENCs (IC-ENC<sup>1</sup>, PRIMAR), the Chairs of the S-101 Project Team, ENCWG<sup>2</sup>, TWCWG<sup>3</sup>, MASS PT<sup>4</sup>, and HSWG<sup>5</sup>, four expert contributors (IEHG<sup>6</sup>, Geomod, Portolan Science, and University of New Hampshire) attended the meeting. The IHO Secretariat was represented by Director Abri Kampfer, Technical Standards Support Officer Jeff Wootton and Assistant Directors Yong Baek and Yves Guillam.

Director Abri Kampfer opened the meeting highlighting the importance of the work of the DQWG in support of the other working groups and project teams in the development of the data quality components (including validation checks) of their product specifications. Reporting that the IMO recently approved the IHO proposed amendments to the ECDIS Performance Standards, he also stated that the unique transverse role of the DQWG was even more critical now than before, due to the strategic change in S-100 ECDIS with interacting navigational data layers enabled by the Interoperability Specification S-98. The Chair echoed these statements and noted that the continuation of the DQWG was however at stake since the calls for nominations of office bearers (Vice-Chair, Secretary) had remained unfruitful so far.

<sup>1</sup> Also Chair of the S-101 Project Team.

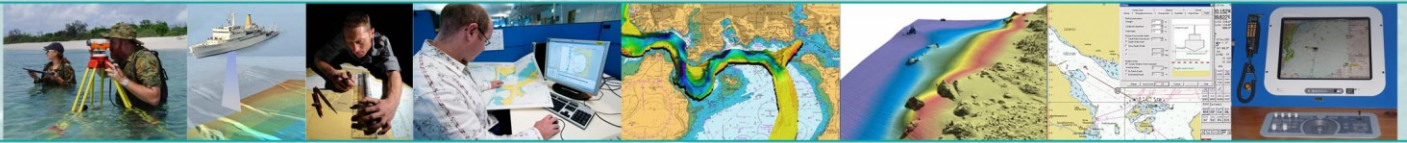
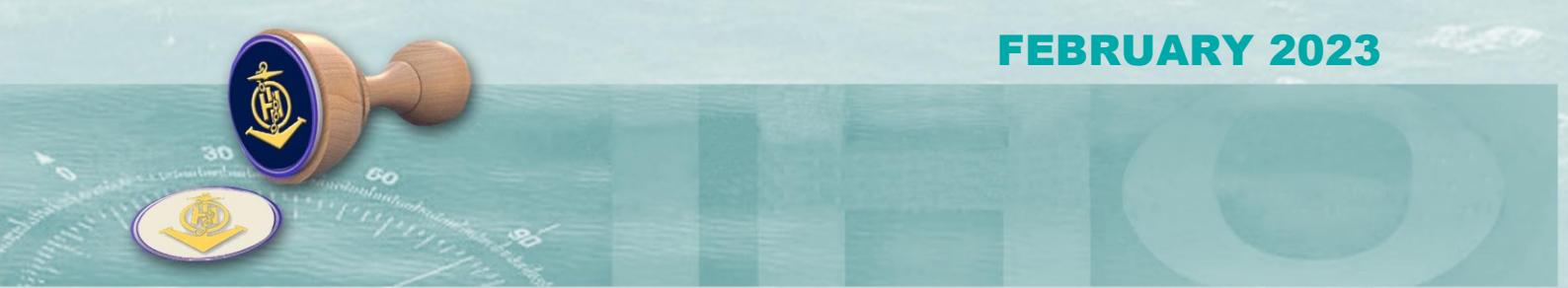
<sup>2</sup> ENC Standards Maintenance Working Group.

<sup>3</sup> Tides, Water Levels and Currents Working Group (recorded presentation).

<sup>4</sup> Maritime Autonomous Surface Ships (MASS) Navigation Project Team (PT) (recorded presentation).

<sup>5</sup> Hydrographic Surveys Working Group.

<sup>6</sup> Inland ENC Harmonization Group.



The DQWG addressed a significant number of complex technical topics at the meeting and reported in particular on the outcome of the cross-check review of data quality elements in S-100 based products specifications. The meeting participants commended the TWCWG Chair for his recorded well-structured presentation on the progress made with S-104 and S-111.

**IHO S-111 Product Specification Development**  
 Key elements / considerations of the S-111 Product Specification, *continued*

Display & Portrayal  
 Current Arrow

Speed Band	Minimum Speed (kt)	Width of Band (kt)
1	0.00	0.50
2	0.50	0.50
3	1.00	1.00
4	2.00	1.00
5	3.00	2.00
6	5.00	2.00
7	7.00	3.00
8	10.00	3.00
9	13.00	08.00

Speed Band	Colour	Colour Scale Intensity	Hex RGB	Standard Colour	
1	white	110	255	255	255
2	light blue	120	200	211	488252
3	light blue	87	200	238	413803
4	light green	100	180	181	488252
5	light green	100	200	131	848200
6	yellow-green	200	180	131	132100
7	orange	200	160	84	484718
8	red	200	80	50	484820
9	red	200	30	30	484818

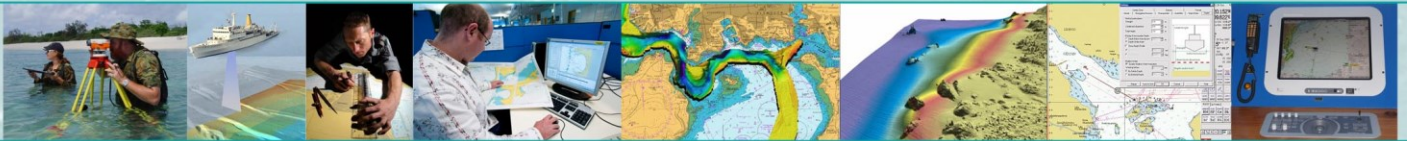
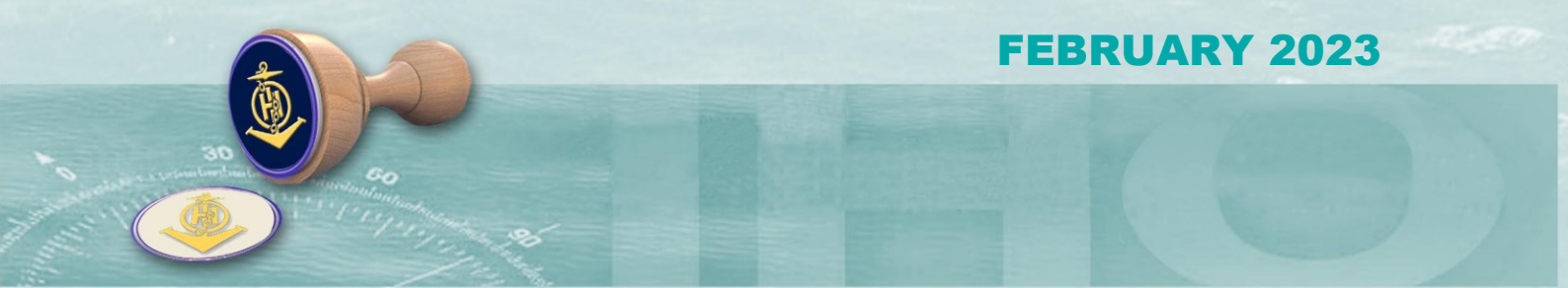
**Report by the TWCWG on S-104 and S-111 product specification development: Why? What? How?, Sources, Key elements, Display & Portrayal, Testbeds, Data Quality aspects**

Before any involvement of some DQWG members, the DQWG Chair was invited to liaise with the S-100WG Chair on the proposed action plan related to the possible revision of data quality elements in overarching S-100 documents (S-97 Part C, S-100 Part 4c, Appendix D of S-100 Part 11). It was recommended to limit the actions, if any, to those considered critical for the future adoption of Edition 2.0.0 of the S-100 based product specifications for Route Monitoring as endorsed by the Council.

Following up on a decision made by HSSC, the DQWG established a sub-group to consider the proposal from the ENCWG to submit Edition 2.0.0 of S-67 at HSSC-15 for endorsement. This new Edition of S-67 - *Mariners Guide to use of ENC Data in ECDIS*<sup>7</sup> aims to amalgamate into one single publication: S-66 - *Facts about Electronic Charts and Carriage Requirements*, S-67 Edition 1.0.0 - *Mariners' Guide to Accuracy of Depth Information in Electronic Navigational Charts (ENC)*, Basic information for ECDIS users on ECDIS mandate and electronic charts ENC & RNC, ENCWG Information Papers, ENC and ECDIS Cyber Security Guidelines.

With a focus on data quality elements, the Chair of the S-101 PT reported on the progress made in the development of the S-101 Product Specification, also monitored by the IHO HSSC ISO 9001 Cell. As part of the discussion and following a strong recommendation from HSSC, the RENCs were invited to provide statistics on the progress made by ENC producers on the encoding of two major S-57 data quality attributes<sup>8</sup>, currently optional in S-57 and mandatory in S-101, to facilitate the smooth conversion from S-57 to S-101 data.

<sup>7</sup> Proposed new title at the date of publication of this Bulletin Report.  
<sup>8</sup> POSACC and SOUACC.



Thanks to the support provided by the HSWG since the last meeting and thanks to the national best practices shared by some Member States<sup>9</sup>, the DQWG endorsed at the meeting the proposed Edition 1.0.0 of a new IHO publication: *Guidelines and Recommendations for Hydrographic Offices for the Allocation of CATZOC/QoBD<sup>10</sup> from Survey Data*.

**IHO 3. CONVERSION MATRICES**

*Summary of the valid CATZOCs for the Survey Orders*

Survey ZOC/QoBD	Exclusive	Special	1a	1b	2	Unknown
A1/1			d ≤ 145m			
A2/2			d ≤ 300m			
B/3					d > 300m	
C/4						
D/5						
U/6						
-/Oceanic						

d=depth

**Notes:**  
It is pointed out that the presented matrices represent a direct comparison between CATZOC/QoBD and S-44 Survey Orders minimum standards, however, hydrographic offices may follow different practices in particular cases.

This is a significant achievement from the DQWG which will be submitted to HSSC-15 seeking the agreement of the committee on the publication of Edition 1.0.0 “as is”, while acknowledging existing limitations in the document, as well as justified national reservations and some cartographic aspects that need to be addressed in further editions.

**Coming soon, a long-awaited new IHO Publication: Guidelines and Recommendations for Hydrographic Offices for the Allocation of CATZOC/QoBD from Survey Data**

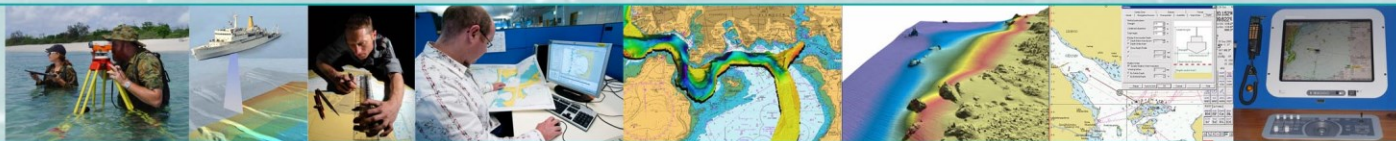
The DQWG thanked the Netherlands, and Mr Rogier Broekman in particular, former DQWG Chair, still active in geospatial information, for their very useful “gift” to the DQWG: a comprehensive and very practical dictionary (spreadsheet) of the definitions used in ISO 19xxx geospatial standards.

ISO 19109:2015	Geographic information — Rules for application schema
Terms, definitions, and abbreviated terms	
4.1 application	manipulation and processing of data in support of user requirements
4.2 application schema	conceptual schema (4.5) for data required by one or more applications (4.1)
4.3 complex feature	feature (4.9) composed of other features
4.4 conceptual model	model (4.15) that defines concepts of a universe of discourse (4.19)
4.5 conceptual schema	formal description of a conceptual model (4.4)
4.6 coverage	feature (4.9) that acts as a function to return values (4.20) from its range for any direct position within its spatial, temporal or spatiotemporal domain (4.8)
4.7 dataset	identifiable collection of data
4.8 domain	well-defined set
4.9 feature	abstraction of real-world phenomena
4.10 feature association	relationship that links instances of one feature (4.9) type with instances of the same or a different feature type
4.11 feature attribute	characteristic of a feature (4.9)
4.12 feature operation	operation that every instance of a feature (4.9) type may perform
4.13 geographic data	data with implicit or explicit reference to a location relative to the Earth
4.14 metadata	information about a resource
4.15 model	abstraction of some aspects of reality
4.16 observation	act of measuring or otherwise determining the value (4.20) of a property (4.17)
4.17 property	facet or attribute of an object referenced by a name
4.18 quality	degree to which a set of inherent characteristics fulfils requirements
4.19 universe of discourse	view of the real or hypothetical world that includes everything of interest
4.20 value	element of a type domain (4.8)

**The ISO 19xxx Dictionary – Example with definition in ISO 19109**

<sup>9</sup> Australia, Brazil, China, Finland, France, Italy, Japan, Netherlands, Norway, United Kingdom and USA.

<sup>10</sup> Quality of Bathymetric Data.



The participants welcomed the provisional offer from the Chair of the DQWG to host the next meeting from 6 to 8 February 2024 in China (dates, location and venue still to be confirmed).



*To be or not to be physically present in Monaco at the DQWG-18 meeting? that is the question. Well, who can do more, can do less!*

