

5th MEETING OF THE HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE
Shanghai, China, 5-8 November 2013

Report of the Data Quality Working Group

Submitted by:	Chairman, DQWG
Related Documents:	None
Related Projects:	None
Chair:	Chris Howlett, UK
Vice-Chair:	Leendert Dorst, NL
Secretary:	Eivind Mong, Jeppesen
Member States:	Australia, Brazil, Canada, Denmark, Ecuador, Finland, France, Indonesia, Italy, Japan, Korea (Rep of), Netherlands, Norway, Slovenia, Sweden, Turkey, United Kingdom, USA.
Expert Contributor Organisations:	CARIS, Fugro-Pelagos, Fugro Survey Ltd, Jeppesen, University of New Hampshire, University of Southern Mississippi, Warsash Maritime College
<i>See Annex A for full details</i>	

Meetings Held During Reporting Period

DQWG 7 16-18 July 2013, Fredericton, Canada

Next Meeting

DQWG 8 25-27 March 2014, Sydney or Wollongong, Australia

Work Program

Since HSSC4 the principle activities have been:

DQWG 7

The 7th meeting of the DQWG took place at the University of New Brunswick, Fredericton, Canada from 16 – 18 July 2013 and was hosted by the University of New Brunswick. The meeting was attended by 21 representatives from 8 Member States, 5 Expert Contributor Organisations and the IHB.

Between DQWG 6 and DQWG 7 an MSc student studying at the University of Southern Mississippi had been working on the most suitable method for depicting the data quality of charted data. Unfortunately the student was unable to attend DQWG 7 but Dave Wells, of UNB/USM presented the findings. Essentially these confirmed that the concept of representing data quality by a colour wash overlay of red for poor, yellow (amber) for medium and green (or clear) for good is the most intuitive and clearest means of doing so. This was gained from mocking up certain test scenarios and testing these against serving mariners. Although the depiction is now largely confirmed, how the indicators combine to form the composite requires more work.

HICUP sub group

Following discussions at DQWG 7 of a paper presented by Sam Harper and Chris Howlett showing how the individual data quality indicators could be combined to form the single, composite, indicator required to give the colour wash overlay the group elected to form a sub working group to study this problem. The sub group, chaired by Australia, and christened the HICUP group (Hierarchical Indicator of Composite Uncertainty Propagation) will define the algorithm for combining data quality elements and, in doing so, will also confirm the requirement of those indicators that have been identified. The group will report to TSMAD 27 in Monaco (December 2013) and will deliver its final report via DQWG

8 to TSMAD 28 planned for Wollongong or Sydney in March 2014. It is for this reason that DQWG 8 is also planned for March 2014 in Sydney or Wollongong so as to fall adjacent to the TSMAD and associated DCEG meeting.

Training of Mariners in Data Quality Matters

In addition to the work on the algorithm for combining the data quality indicators and the method of portraying this to the mariner the DQWG has been seeking ways to improve the education of the mariner (this also meets Action HSSC4/30). To this end a number of initiatives have been started notably papers on data quality to be presented at various conferences as well as articles in relevant journals e.g. Seaways of the Nautical Institute. A Circular Letter (CL 51/2013) has been written asking Member States to supply copies of those documents that they maintain which have a data quality element. The intention being to produce a standardized document from all those tendered that may reside on the IHO web site and either be referred to directly by other documents or used as the basis for the data quality parts. In this way it is hoped that the mariner will get a more consistent message on data quality which will reinforce its importance and relevance.

Progress on HSSC Action Items

Action HSSC4/30. CL 51/2013 has been raised inviting all Member States to provide copies of any documents that deal with data quality matters to the DQWG. The group intended to use these to create a harmonised data quality document that can reside on the IHO web site and either be referenced to directly or used as a source for national documents. Contact has been made with the Nautical Institute who are keen to be involved and an article will be published in the Institute's 'Seaways' journal shortly. Similarly plans are developing for further articles in other Nautical Institute journals and on their discussion forums.

Problems Encountered

None

Any Other Items of Note

None

Conclusions and Recommended Actions

None

Justification and Impacts

Justification for the continued activity of this WG is the requirement to have a meaningful method of portraying data quality within S-101 and the wider S-1xx series of formats.

The main impact is the resource required from participating HOs both in working on work elements within their own offices and attending the meetings to ensure the work is kept moving.

Action Required of HSSC

The HSSC is invited to:

- Note this report
- Endorse the continued activity of this WG
- Approve the Work Plan at Annex B.

Annexes:

- A. Membership of DQWG (September 2013)
- B. DQWG Work Plan 2013-2014

**MEMBERSHIP OF DQWG
(September 2013)**

Member States	Name	E-mail
Australia	Mike PRINCE	mike.prince@defence.gov.au
Brazil	Sebastião SIMÕES DE OLIVEIRA	sebastiao@chm.mar.mil.br
	Aluizio MACIEL DE OLIVEIRA Junior	aluizio@chm.mar.mil.br
Canada	Jon GRIFFIN	Jonathan.Griffin@dfo-mpo.gc.ca
Denmark	Jesper VEDEL Berit HOLSE (Mrs)	jesve@kms.dk bes@kms.dk
Ecuador	Carlos ZAPATA Cortes	sec-hidrografia@inocar.mil.ec carlosklever@hotmail.com
Finland	Antti CASTREN	antti.castren@fta.fi
France	Gaël MORVAN	gael.morvan@shom.fr
Indonesia	Capt SAMIYONO	infohid@dishidros.go.id samiyono@dishidros.go.id samiyono@yahoo.com
Italy	Carlo MARCHI	carlo.marchi@marina.difesa.it
Japan	Satoshi SATO	chart@jodc.go.jp
Korea (Rep of)	Bong Seok PARK	bong1510@korea.kr
Netherlands	Leendert DORST (Vice Chair)	ll.dorst@mindef.nl
Norway	Kjetil WIRAK	kjetil.wirak@statkart.no
Slovenia	Igor KARNICNIK	igor.karnicnik@gis.si
Sweden	Kennet GUSTAFSSON Ulf OLSSON	kennet.gustafsson@sjofartsverket.se ulf.olsson@sjofartsverket.se
Turkey	Eşref GÜNSAY	egunsay@shodb.gov.tr
United Kingdom	Chris HOWLETT (Chair) Sam HARPER	Chris.Howlett@ukho.gov.uk samuel.harper@ukho.gov.uk
USA	Sean LEGEER Brian HEAP	sean.legeer@noaa.gov brian.r.heap@nga.mil
IHB	Michel HUET	adcs@iho.int
Expert contributors	Name	E-mail
CARIS	Karen COVE	karen.cove@caris.com
Fugro-pelagos	Don VENTURA	DVentura@fugro.com
Fugro Survey Ltd	Weronika SOCHA	w.socha@fugro.com
Jeppesen	Eivind MONG (Secretary)	Eivind.Mong@jeppesen.com
University of New Hampshire	Lee ALEXANDER	leealex@ccom.unh.edu
University of S. Mississippi	David WELLS Kandice GUNNING	David.Wells@usm.edu kandice.gunning@eagles.usm.edu
Warsash Maritime College	Gordon MEADOW	Gordon.meadow@solent.ac.uk
Contact	Name	E-mail
Australia	Jeff WOOTTON	Jeff.wootton@defence.gov.au
Netherlands	Jan APPELMAN	Jcp.appelman@gmail.com
USA	Shepard SMITH	Shep.smith@noaa.gov

ANNEX B

DQWG Work Plan 2013 – 2014

A	Review ISO 19113, Geographic Information-Quality Principles, ISO 19114, Geographic Information-Quality Evaluation Procedures, and ISO 19115, Geographic Information - Metadata and propose relevant enhancements and amendments for incorporation in S-100 “IHO Universal Hydrographic Data Model” (IHO Task 2.5.2 refers)
B	Monitor and further develop quality indicators for hydrographic data (IHO Task 2.5.2 refers)
C	Maintain and extend as needed existing quality indicators in S-57 “IHO Transfer Standard for Digital Hydrographic Data”, including the education of both the mariner and the cartographer, and the development of documentation (IHO Task 2.5.2 refers)
D	Maintain and extend as needed the presentation of data quality, as provided in S-52 “Specifications for Chart Content and Display Aspects of ECDIS” and its Presentation Library (IHO Task 2.5.2 refers)
E	Investigate ways of ensuring that ECDIS displays provide a clear warning or indication to the mariner on the quality of the underlying survey data, through appropriate use of the attribute CATZOC and/or improvement of the existing display capabilities (IHO Task 2.5.2 refers)
F	Propose new data quality topics and other applications for consideration by HSSC (IHO Task 2.5.2 refers)
G	Maintain and extend data quality related elements of S-100 “IHO Universal Hydrographic Data Model” (IHO Task 2.5.2 refers)
H	Maintain and extend data quality related elements of S-101 “ENC Product Specification” and other S-100-based Product Specifications (IHO Task 2.5.2 refers)
I	Conduct the 2013 and 2014 meetings of DQWG (IHO Task 2.5.1 refers)

Task	Work Item	Priority H-High M-Medium L-Low	Next Milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed	Contact Person(s)	Related Pubs / Standards	Remarks
A	Review ISO 19113, 19114, 19115 and 19157 and make recommendations for inclusion in S-100	M		2010		O	DQWG	S-100	Ongoing task to keep S-100 data quality in line with ISO standards.
B.3	Draft S-101 data quality	H	DQWG7		2013	C	USM	S-101	Assess USM input to DQWG7 for impacts on model.

B.4	Develop the hierarchy approach by formalizing the hierarchy and the algorithm that drive the display	H	TSMAD 27	2013	2014	O	Mike Prince	S-101	To be completed for submission to TSMAD 28.
C.4	Investigate possible methods for how to educate practicing mariners on data quality issues.	H	DQWG8	2010		O	DQWG		Investigate in liaison with training institutions the adequacy of existing HOs' documentation on the quality aspects of the practical use of ENCs. IHO CL 51/2013 issued on this topic.
E.1	Develop logic for indicators in current and proposed approaches.	H	DQWG8	2010	2014	O	Mike Prince	-	To be completed for submission to TSMAD 28.
E.2	Demonstrate methods to mariners.	H	Follows S-100 demonstrator	2012	2014	P	DQWG	S-101	Build possible methods into ENC and ECDIS to demonstrate effectiveness.
F.1	Investigate areas of quality concern (other than survey / bathymetry)	M	DQWG8	2010	-	O	Eivind Mong	-	SNPWG has responded, liaison is ongoing.
H.1	Establish contact with other working groups to investigate scope of data quality items for the S-10x standards (e.g. TSMAD for S-102)	M				P			