Minutes from the 8th IHO Data Quality Working Group meeting

Item 1

Mike Price (MP) gave us the domestics

Chris Howlett (CH) welcomed everyone to sunny Australia and opened the meeting.

Introductions were given by all in attendance. List of Participants is in Annex A.

Item 2

Agenda was approved with minor editorial changes.

Item 3

Minutes from DQWG7 were reviewed and accepted with minor spelling corrections.

Item 3.1

Review of actions from DQWG7;

Action ID	Action	Status (March 2014)
DQWG3-8A:	*Education of mariners and cartographers*; CH has started preliminary discussions with UK maritime colleges. Work continues as the S-101 ENC Prod Spec is evolving. UKHO is working on a course for mariners in the use of ENC	Ongoing. UKHO offer a course to mariners in how to intrepid data quality. UKHO/IHO is also in dialogue with the University of Plymouth, Hydrographic Academy, on establishing an e-learning module. Funding is currently an issue. AHO provides quarterly training for marine pilots. This training gets good reviews. IHO-CSPCWG is planning an enhanced section V of INT1 to contain all data quality items for paper charts.
DQWG4-3A:	*Display of quality indicators*; USM is involved, deadlines to be discussed during agenda item 8.	Closed, taken over by work by the HICUP sub group.
DQWG4-5A:	*Amending UOC §2.2 on the use of M_QUAL and CATZOC*; LD developed a list of 15 types of mobile seafloors.	Closed, taken over by DQWG7-10
DQWG6-5A:	CH to inform the DIPWG chair of the DQWG intentions.	Ongoing. CH has been in continuous liaison with DIPWG chair.
DQWG6-5B	SH and EM will produce first draft portrayal, and further input may be gained from the USM work. S-52 review did not have the scope to provide	Ongoing: EM to report to DQWG on the progress of S-100 Part 9

	data quality display changes. S-100 Part 9 is still being developed.	
DQWG6-6D	SH to capture the drawing from the discussion and write up further instructions of the use of the proposed features and attributes.	Closed, taken over by work by the HICUP sub group.
DQWG6-8A	DW to progress the investigation into visualization of data quality.	Closed, taken over by work by the HICUP sub group.
DQWG6-9A	DQWG membership to become more familiar with the ISO documents, with particular focus on ISO 19115 and ISO 19157. Developments by DQWG should be tested and validated against ISO 19157.	Closed. EM sent out an e-mail announcement to the DQWG membership regarding the release of ISO 19157:2013. MH distributed a FDIS (content wise equal to final version) to DQWG membership. It is also available on the protected area of IHO website. To be added as an item of the work program.
DQWG6-10B	*SNPWG on data quality*: EM to liaise with SNPWG on data quality.	Ongoing, SNPWG17 meets two weeks after DQWG8. Paper there to inform SNPWG about DQWG comments to SNPWG proposals to the quality data model.
DQWG7-4.6A	SL to revise the data quality parts of the DCEG and distribute to DQWG for comment, before sending back to TSMAD-DCEG subgroup.	Done, submitted to DCEG meeting in November 2013.
DQWG7-4.6B	CH to report the concerns over the concept of a feature being mandatory at a larger scale but not in a smaller scale (scale dependent, e.g. CATZOC mandatory at larger scales), to TSMAD.	Done, discussed at DQWG8 between DQWG chair and CSPCWG chair.
DQWG7-4.6C	MP to propose a revision to the enumerated lists of QUAPOS and QUASOU, which reduce the number of similar items to the bare minimum. Proposal will be circulated to DQWG for comment, and then submitted to TSMAD-DCEG by SL.	Ongoing.
DQWG7-4.6D	EM to report the outcome of paper DQWG7-04.6B discussion to TSMAD before UOC comment deadline (Aug 9, 2013).	Done, SL submitted DQWG comments on Aug 5, 2013.
DQWG7-4.7	EM to report on any progress made by SNPWG on the data quality model at DQWG8	Ongoing, SNPWG has not met since DQWG7.
DQWG7-5	All to collect examples of past accidents and	Ongoing. A first version of the

	incidents, and send to LD, who will combine all to a list for future use as examples to run tests against.	list was distributed by LD on 21 August 2013. LD will review document to finalize a distributable list. Jeff Wootton (JW) proposed that DQWG have a standing item on the agenda of lessons learned from marine incidents since last meeting. Suggested that the list be regularly maintained with updated cases.
DQWG7-6A	HICUP sub group to develop the hierarchy and the algorithm that drive the data quality display.	Done. LD provided HICUP with a paper based on his DQWG7 input on 8 August 2013. See also paper DQWG8-06A.
DQWG7-6B	EM to present a progress report on the development of the hierarchy and algorithm to TSMAD27	Done.
DQWG7-7	All to consider the merit of including the impact of generalization on quality of non bathymetric data as raised in paper DQWG7-07A and report back at next meeting.	Closed. Discussed during DQWG8 and it was agreed that the impact of cartographic generalization should not be included in the quality statement.
DQWG7-8	Extend action 6-9A to include ISO 19115.	Done
DQWG7-9A	SH and CH will put together a presentation for Southampton Digital Hydrography and the Maritime Web Conference (end of October). KC (EM backup) may re-use the presentation at the Mariners Workshop (February 2014). The e-Navigation workshop in Seattle may be another venue where the presentation can be used.	SH put in an abstract that wasn't accepted.
DQWG7-9B	LD to submit an article on data quality for the eNav International.	Closed. LD did submit an article to Lighthouse, a draft version was sent out for comments on 19 November 2013.
DQWG7-9C	CH to draft a circular letter requesting any existing training materials relating to data quality, that DQWG can review.	Done. Issued by IHB as CL51/2013. Significant response received. Action: CH to review and report back.
DQWG7-10	LD and SL to submit a proposal to Jeff Wootton, for adding the guidance to the draft UOC 4.0 as	Done: SL submitted the proposal on 8 August 2013.

	well as review, and comment if needed, the added bullet on extreme events by Aug 9, 2013.	Feedback was incorporated into UOC 4.0

Item 4 – Evaluation of events since DQWG7

The group discussed the upcoming meeting with DCEG and it was advised that there are expectations from TSMAD that there will be outcomes from the meeting that allow TSMAD to bring S-101 to a testing stage.

The group further discussed the display of data quality and there was a bit of discussion regarding the meaning of what is being communicated to the mariner. There is some concern about the generation of go/no-go areas and the liability of this. The group concluded that the go/no-go areas was an aspect that might come with dynamic under keel clearance systems, and it was concluded that this is a different topic than what DQWG focus should be, which is pure data quality.

There was a discussion regarding the portrayal of data quality, and it was agreed that it can only be portrayal based on what is known at the time, and that potential unknowns should not downgrade portrayal.

Antti Castren (AC) brought up the need to consider the impact on display of two adjacent caution/go-slow areas that are labeled as such for different reasons. Will it be necessary to visually communicate that there is a difference. For example, two areas may be visualized the same way, but upon selection, only the one is selected, thus communicating that there is differences between the two.

Action DQWG8-4A: HICUP subWG to evaluate the visualization of adjacent areas which show the same level of data quality but due to difference reasons. [E]

The outcome of the discussion has been that the direction of DQWG to de-construct CATZOC into its discrete elements has been correct.

Mike Prince (MP) had discussions with Carnival Cruise lines and they had expressed that they did not want point symbology, but shaded/coloured areas. They could also see that data quality indicators would periodically turn on based on some kind of alert, or be turned on/off by the user.

Jeff Wootton (JW) reported that CSPCWG had a review of the use of the term maintained depth. The word maintained has been made optional, and the use of date indicates the latest time a dredged depth was maintained, and the lack of a date means that the depth is regularly maintained. The group found that man-altered/maintained depths might have an impact on data quality encoding.

Action DQWG8-4B: SL to follow up the discussions within TSMAD/DCEG on the outcomes of the CSPCWG change to the term maintained depth. [H]

Item 5 – Educating the mariner

CH has an invitation from Nautical Institute to write an article on data quality in Seaways, a magazine which targets all the mariners, from the engineer to the navigator. The contact at Nautical Institute, Harry Gale, also runs a blog, which can be a more appropriate venue for data quality information as it is more frequent.

MP explained about the training he gives every 3 months. It was suggested that his presentation could be shorted down to a 15min presentation.

Action DQWG8-5A: MP to draft a standard DQWG presentation by June-2014. [C.4]

SH brought up that IMO has a capacity building fund and suggested that there might be a way to request help from these funds to broaden the reach of DQWG education of the mariner efforts. Michel Huet (MH) suggested that SH contact IHB Capacity Building Assistant Director Alberto Costa Neves for help.

Action DQWG8-5B: SH to contact IHB Capacity Building Assistant Director for help with access to capacity building funds for the increased distribution of DQWG materials.

Item 7 – HICUP paper

Mike Prince (MP) went through the premises for the HICUP subWG paper on ways of representing data quality. The group discussed the relevance of ships safety depth on the data quality, and it was considered that when it comes to portrayal of the data quality, it would be necessary to use the ships safety depth to allow the user system to select the information relevant to the user. Particularly in areas where there is specific quality information associated with specific bathymetric data (e.g. stacked quality of bathymetric data information).

The group discussed the question of a limit to how deep the expression of data quality should go. The conclusion was that there should not be a limit as there are parts of the world, particular areas considered to be Deep Ocean, where it would be necessary to express data quality.

The discussions moved into how to capture the decision process that allows an ECDIS to express the level of data quality in an area. The group agreed that the temporal factor was the most important factor; the second most important factor was completeness of the seafloor coverage.

The hierarchical models of LD and SH were discussed at length and it was agreed that the HICUP sub group would work overnight to develop a new, more data model true decision tree. This decision tree will then form the basis for further discussion.

LD proposed that the list of mobile seafloor conditions be considered for impact on the categoryOfTemporalVariation enumerated list. The HICUP group agreed to check the model for any impacts of this and if necessary to extend the list.

Action DQWG8-7A: EM to incorporate decisions of the HICUP subWG into the modelling. [E]

Action DQWG8-7B: SL to discuss with DIPWG chair about portrayal methods for data quality. [E]

A breakout group was formed by the HICUP subgroup members present to review the hierarchy needed to drive portrayal from the S-101 data quality model. To enable the model to support pre-S-44 surveys an amendment was done to the remark on the Significant Features Detected attribute. This amendment is below figure 1. A draft data quality decision tree was made and presented to the wider group. There was agreement that the draft formed a good start and EM agreed to work on finalizing the tree and distribute result via mail for review and testing.

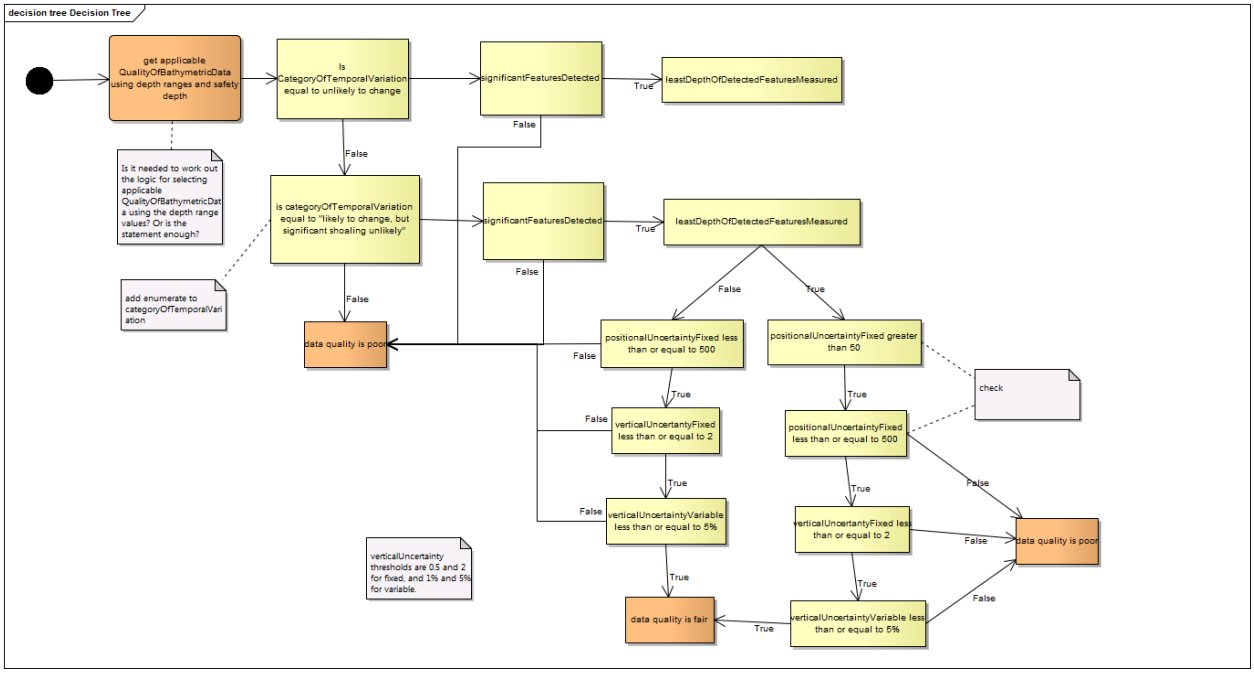

Figure 1 – 1st draft decision tree

The original remark:

A feature in this context is meant to be any object, whether manmade or not, projecting above the sea floor, which may be a danger for surface navigation. (Ref. IHO document S-44) significantFeaturesDetected does not describe if significant features were actually detected during a survey, but whether the survey had the capacity to detect significant features. The word significant should be understood in the context of the feature detection requirements of IHO document S-44.

The amended remark (from memory):

A feature in this context is meant to be any object, whether manmade or not, projecting above the sea floor, which may be a danger for surface navigation. (Ref. IHO document S-44) significantFeaturesDetected does not describe if significant features were actually detected during a survey, but whether the survey had the capacity to detect significant features. The word significant should be understood in the context of the feature detection requirements of IHO document S-44 or equivalent for surveys predating S-44.

Action DQWG8-7C: EM to complete the decision tree draft and distribute via mail. [E]

Item 8 – Joint meeting with TWLWG

Some DQWG members joined with the TWLWG for a joint session and to hear a presentation on Under Keel Clearance work done by a commercial company – OMC International. OMC run a dynamic under keel clearance system in several ports and has a great deal of experience in assessing and predicting what depth of water will be available for projected ships passages. Their presentation indicated the need for both predictive and real time calculations as the system has to cope with unexpected changes to passage plans etc.

Following the OMC presentation DQWG members and TWLWG members discussed the application of uncertainty to tidal predictions. This amounted effectively to an uncertainty on water level heights since phase uncertainty equated to a height difference and this is of more value to the mariner. OMC expressed a desire for phase uncertainty to be retained as it is of use to their process although how the phase uncertainty can be assessed, remained unclear.

Action DQWG8-8A: CH to maintain liaison to TWLWG on quality issues.

Item 9 – Review work plan (Item 10 – Review of action prior to HSSC6)

Work plan was reviewed and changes captured for CH to revise the document for submission to HSSC6.

Action DQWG8-9: CH to update work plan.

Item 11 – Any other business

In response to action DQWG7-9C, an IHO circular letter was issued (CL51/2013). There was significant feedback from member states with information about data quality in various publications. CH will review response in greater detail and report back at next meeting.

Action DQWG8-11A: CH to review feedback from CL51/2013 and report back at DQWG9. [C.4]

SH reported from Southampton Digital Hydrography that there was a long discussion on data quality and that he had the impression that the concept of data quality was poorly understood by surveyors, chart makers and users. In particular he found that the use of CATZOC to report status of survey in IHO publication C-55 had a substantial risk of resulting in over-inflation of the CATZOC values in an effort to give a good impression to the status of survey in a particular nation.

Action DQWG8-11B: SH to draft paper to IHB to highlight the concerns regarding misuse of CATZOC.

Papers by Sean Leger (SL) on the discussion between DQWG and TSMAD DCEG subWG were discussed. The group concluded that QualityOfBathymetricData can overlap horizontally, but not vertically. The vertical dimensions must be controlled by the attributes depthRangeValue1 and depthRangeValue2. The group reviewed the relevant parts in DCEG and concluded what the DQWG points of views were for the upcoming joint meeting with TSMAD DCEG subWG. SL revised the diagrams to show historical chain of events on the encoding if a new better survey is added to an area.

MP raised a concern over the potential use of the new data quality model on paper charts. Would it be suitable like ZOC diagrams that can be derived from CATZOC. The discussion concluded that this was outside the scope of DQWG.

Next meeting is suggested to be in conjunction of Hydro14 hosted by UKHO in UK October 22-24, 2014.

Antti Castren of Finland elected new vice-chair as Leendert Dorst has stepped down. Antti thanked all for the vote of confidence and especially thanked Leendert and Rob Hare as his predecessors.

CH thanked all for their contributions and closed the meeting.

Joint TSMAD DCEG/DQWG meeting

DQWG and TSMAD DECG meet Friday March 28, 2014, to review progress on the data quality model and hierarchy. There was agreement that there was made good progress. DQWG also assisted the DCEG subgroup in reviewing some of the comments received for the data quality section of the latest DCEG draft review.

The good discussions resulted in a number of actions to move the DCEG work forward.

Action: TSMAD vice-chair to send DQWG chair a request of actions needed from DQWG regarding review of DCEG.

Action: DQWG to review the enumeration list of techniqueOfVerticalMeasurement and add as needed at DQWG9.

Action: DQWG to review what needs to be encoded in an ENC when an area is truly unsurveyed during DQWG9. Consider the encoding and how it may affect the data model and decision tree.

Action: DQWG to review DCEG and S-101 for data quality relevant parts at DQWG9.

Annex A - List of Participants

Country / Service	Name	Email
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Annex B – List of actions

Action ID	Action	Work Plan Item	Status (March 2014)
DQWG3-8A:	*Education of mariners and cartographers*; CH has started preliminary discussions with UK maritime colleges. Work continues as the S-101 ENC Prod Spec is evolving. UKHO is working on a course for mariners in the use of ENC	C.4	Ongoing. UKHO offer a course to mariners in how to intrepid data quality. UKHO/IHO is also in dialogue with the University of Plymouth, Hydrographic Academy, on establishing an e-learning module. Funding is currently an issue. AHO provides quarterly training for marine pilots. This training gets good reviews. IHO-CSPCWG is planning an enhanced section V of INT1 to contain all data quality items for paper charts.
DQWG6-5A:	CH to inform the DIPWG chair of the DQWG intentions.	H.1	Ongoing. CH has been in continuous liaison with DIPWG chair.
DQWG6-5B	SH and EM will produce first draft portrayal, and further input may be gained from the USM work. S-52 review did not have the scope to provide data quality display changes. S-100 Part 9 is still being developed.	E	Ongoing: EM to report to DQWG on the progress of S-100 Part 9
DQWG6-10B	*SNPWG on data quality*: EM to liaise with SNPWG on data quality.	H.1	Ongoing, SNPWG17 meets two weeks after DQWG8. Paper there to inform SNPWG about DQWG comments to SNPWG proposals to the quality data model.
DQWG7-4.6C	MP to propose a revision to the enumerated lists of QUAPOS and QUASOU, which reduce the number of similar items to the bare minimum. Proposal will be circulated to DQWG for comment, and then submitted to TSMAD-DCEG by SL.	E.1	Ongoing.
DQWG7-4.7	EM to report on any progress made by SNPWG on the data quality model at DQWG8	H.1	Ongoing, SNPWG has not met since DQWG7.
DQWG7-5	All to collect examples of past accidents and incidents, and send to LD, who will combine all to a list for future use as examples to run	C.4	Ongoing. A first version of the list was distributed by LD on 21 August 2013. LD will review document to finalize a

	tests against.		distributable list. Jeff Wootton (JW) proposed that DQWG have a standing item on the agenda of lessons learned from marine incidents since last meeting. Suggested that the list be regularly maintained with updated cases.
DQWG8-4A	HICUP subWG to evaluate the visualization of adjacent areas which show the same level of data quality but due to difference reasons.	E	
DQWG8-4B	SL to follow up the discussions within TSMAD/DCEG on the outcomes of the CSPCWG change to the term maintained depth.	H	
DQWG8-5A	MP to draft a standard DQWG presentation by June-2014.	C.4	
DQWG8-5B	SH to contact IHB Capacity Building Assistant Director for help with access to capacity building funds for the increased distribution of DQWG materials.	C.4	
DQWG8-7A	EM to incorporate decisions of the HICUP subWG into the modelling.	E	
DQWG8-7B	SL to discuss with DIPWG chair about portrayal methods for data quality.	E	
DQWG8-7C	EM to complete the decision tree draft and distribute via mail.	E	
DQWG8-8A	CH to maintain liaison to TWLWG on quality issues.	H.1	

DQWG8-9	CH to update work plan.		
DQWG8-11A	CH to review feedback from CL51/2013 and report back at DQWG9.	C.4	
DQWG8-11B	SH to draft paper to IHB to highlight the concerns regarding misuse of CATZOC.	C.4	
	Actions from the joint DQWG/TSMAD-DCEG meeting held the day after DQWG8: **Action:** TSMAD vice-chair to send DQWG chair a request of actions needed from DQWG regarding review of DCEG. **Action:** DQWG to review the enumeration list of techniqueOfVerticalMeasurement and add as needed at DQWG9. **Action:** DQWG to review what needs to be encoded in an ENC when an area is truly unsurveyed during DQWG9. Consider the encoding and how it may affect the data model and decision tree. **Action:** DQWG to review DCEG and S-101 for data quality relevant parts at DQWG9.	H.1	