

Hydrographic Services and Standards Committee

Proposal by the

DQWG

Portrayal of bathymetry quality in S-101



Principal activities and achievements

- HSSC task to DQWG to “Investigate ways of ensuring that ECDIS displays provide a 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.”
- Paper NCWG03-08.4A: the DQWG to revise the principles of data quality classification resulting in a less complex and more intuitive solution



Principal activities and achievements

- S-52 Quality indicator = CATZOC
- S-101 Quality indicator = Quality of Bathymetric Data
- There is also quality of non-bathymetric data, out of scope at this paper as bathymetry is the most important item.
- Once methodology for bathymetry is established, non-bathymetry may follow with adjustments
- The basic question: how do we get the most important information on screen? This is user sensitive!



Principal activities and achievements

- From S-57 to S-101
- Oceanic = no risk area



CATZOC	QoBD
No equivalent	Oceanic
A1 (6 stars)	1
A2 (5 stars)	2
B (4 stars)	3
C (3 stars)	4
D (2 stars)	5
U (U-sign)	U



Principal activities and achievements

- Guidance to establish the appropriate quality level for each coverage of bathymetric data

Item	Data quality level
Data assessment	1to5, oceanic, unassessed
category of temporal variation	1to5
significant features detected	1to5
least depth of sign.ftr detected	1to5
full seafloor coverage achieved	1to5
vertical uncertainty	1to5
horizontal uncertainty	1to5



Principal activities and achievements

- Mechanism of safety contours
- User sets a value in meters for safety contour -> draft+margin
- Outcome is a visualisation in colour relative to draft:

Color	Depth	Risk assessment
Very light blue	Deep water	No risk at all
Light blue	>safety contour	Safe to go
Blue	<safety contour, >shallow water	Take caution
Dark blue	< shallow water	navigation at risk



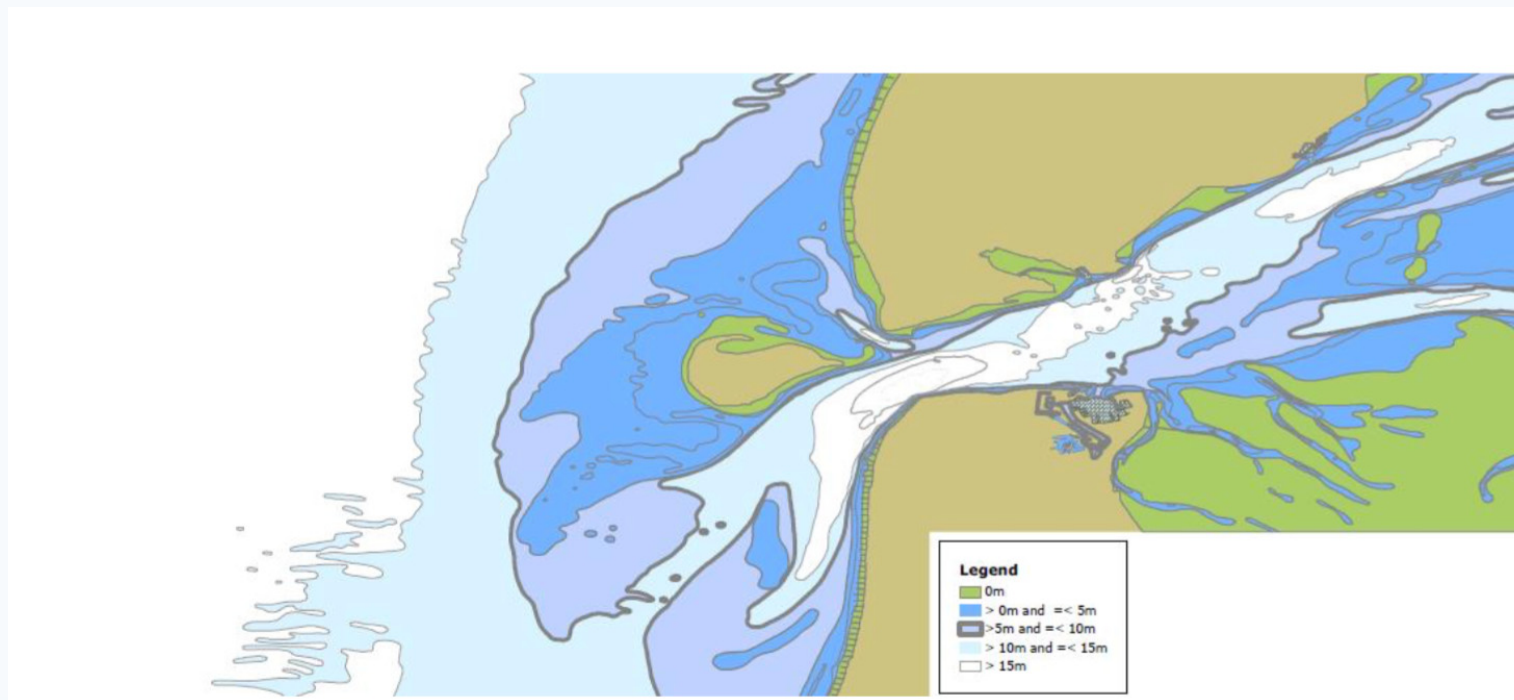
Principal activities and achievements

- Safety contour mechanism does not take into account:
- temporal variation?
- all significant features detected?
- full coverage achieved?
- vertical uncertainty?
- horizontal uncertainty?
- So combine this mechanism with additional criteria:



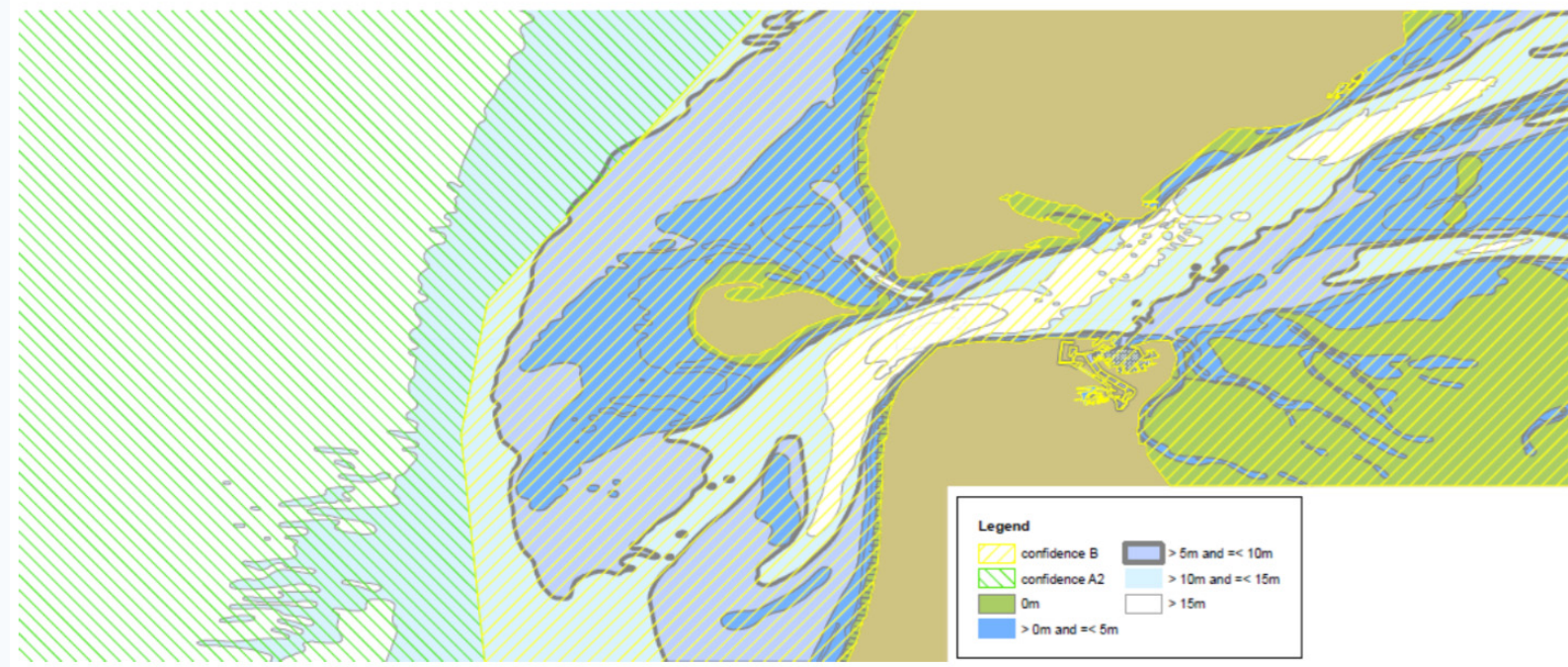
Principal activities and achievements

- Classic view



Principal activities and achievements

- Quality levels



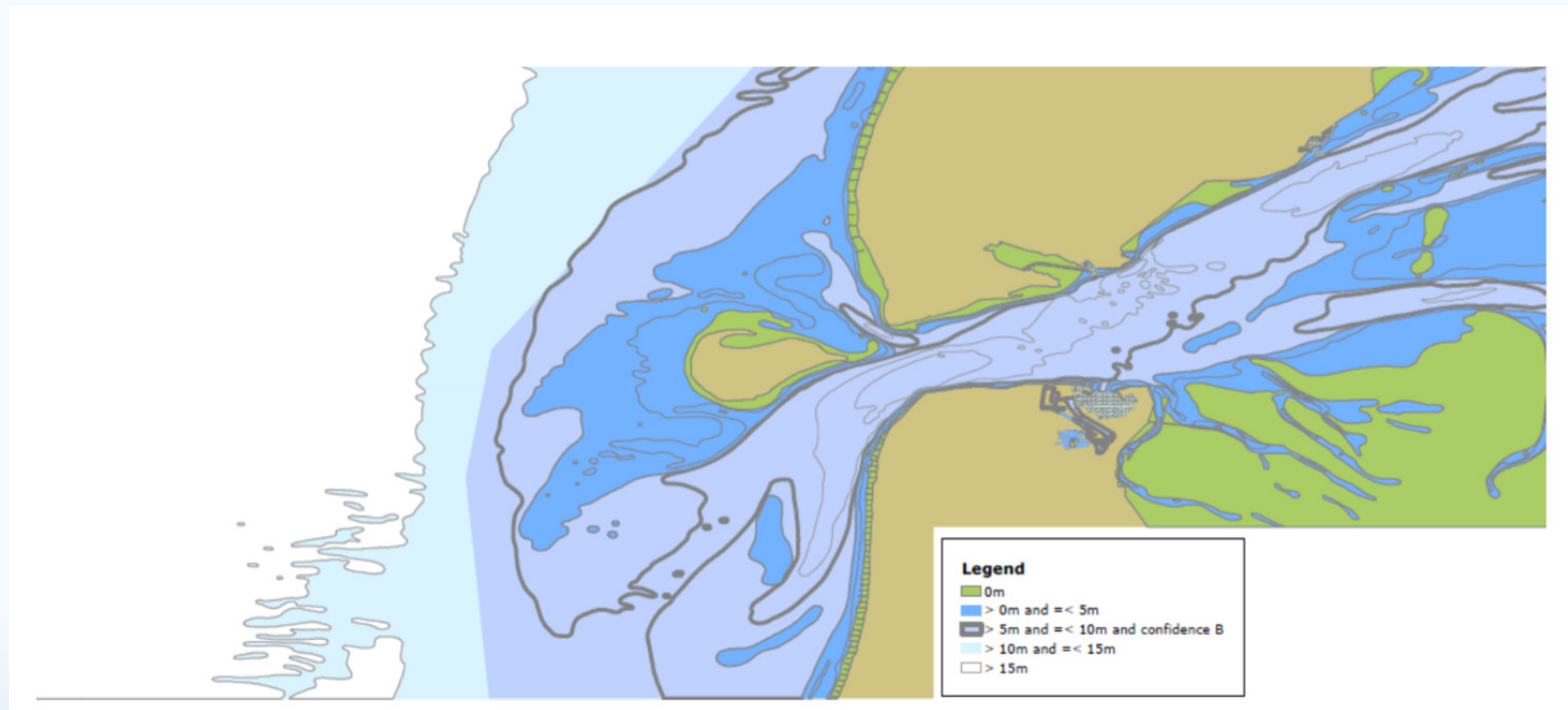
Quality level = A2 (=2)

Quality level = B1 (=3)



Principal activities and achievements

- Combination of depth and quality levels



Problems or outstanding issues

- Possible misunderstanding due to synoptic view
- Follows the model order of assessment, temporal variation, significant features, least depth, full coverage, vertical/horizontal uncertainty
- Should be simple to use (ON/OFF) option, but limits the possible choices to be made by the user
- Default values can be used, but may be altered by user if he is comfortable with a lower quality level
- Evaluation of methodology is to be done by other HSSC WG's



Future work programme

- Joint action by multiple WG's to go from concept to implementation
- Liaise with HSPT on other datasets to confirm to quality assessment and portrayal
- Investigate if mixed grid solution and color patterns are the way forward, depending on the display mode in ECDIS
- Investigate if displaying areas of different qualities only by color is to be used, with the hull of area as primary source for symbolisation



Action requested of HSSC

- Approve by HSSC if this method (conditional visualization) is further to be developed by joint effort from multiple WG's

