

# **DQWG4-04A Analysis of Responses to IHO DQWG CL17/2010**

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## 1.0 Introduction

This document serves as a report to the DQWG detailing the analysis of the responses to IHO CL 17/2010 (Annex 7.1).

A principle focus of DQWG is to recommend appropriate data quality indicators for inclusion in S-101 and to develop improved methods of displaying data quality in S-101 ENC. In order to do this the DQWG must determine whether existing S-57 data quality indicators will be appropriate or whether new indicators will need to be developed.

CL17/2010, was sent to all ENC producing IHO member states and included a reporting form designed to ascertain which S-57 data quality meta-objects and attributes are currently being populated.

## 2.0 Timeline

Table 1 shows the timeline of CL17/2010

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<b>Date</b>	<b>Action</b>
	Draft CL sent to members of DQWG
08/02/2010	CL17/2010 sent to ENC producing member states by IHO
31/03/2010	Responses received by DQWG Chairman (CH)

## 3.0 Aims and Structure of CL17/2010

The aim of CL 17/2010 was to establish which S-57 quality meta-objects and attributes that are routinely populated by ENC producing Hydrographic Offices.

The reporting form attached to CL 17/2010 consisted of a list of all S-57 quality meta-objects and their attributes, a field to indicate whether each object/attribute was currently used and a free type space for additional comments.

A nomination for membership of the DQWG was included at Annex D of CL17/2010. The responses to this have been actioned and the membership list on the DQWG website is now up to date.

CL17/2010 can be found at Annex A.

## 4.0 Results

The results from CL17/2010 were tabulated in Excel format with individual fields annotated with verbatim comments as provided by each responding member state. The Excel table can be found at Annex B.

Figures 1 to 4 show the percentages of member states that routinely populate each of the S-57 quality attributes that normally exist under M\_ACCY. We can see that these attributes are rarely used, with HORACC being populated by 10% of member states, SOUACC being populated by 13% of member states, VERACC being populated by 10% and POSACC being populated by 20%.

Thirty nations responded to CL17/2010 making each response equal to 3.33%.

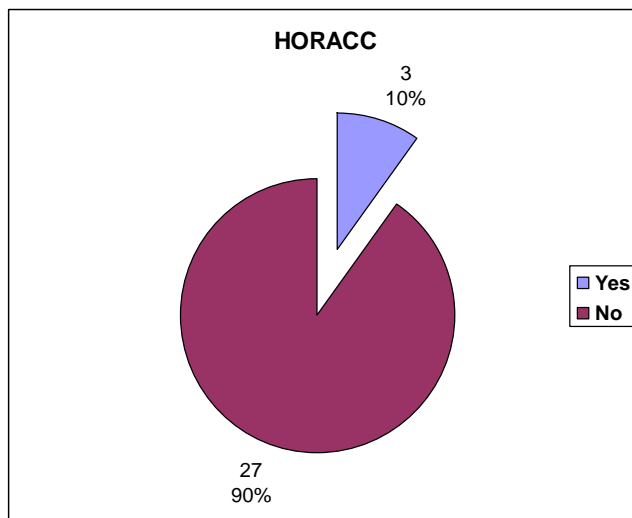


Figure 1 Percentage of member states that populate HORACC

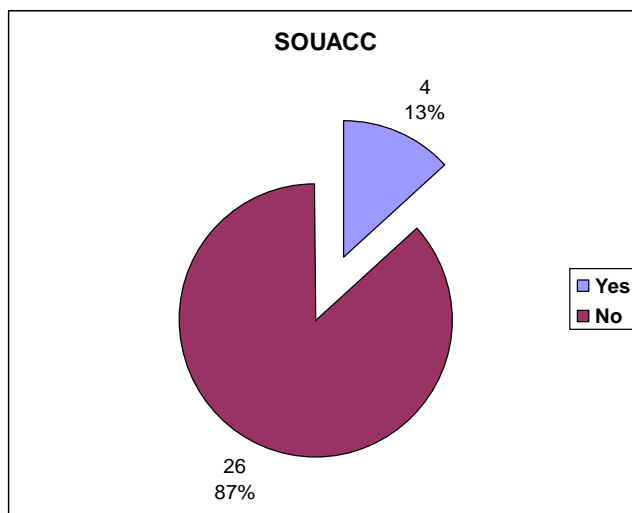


Figure 2 Percentage of member states that populate SOUACC

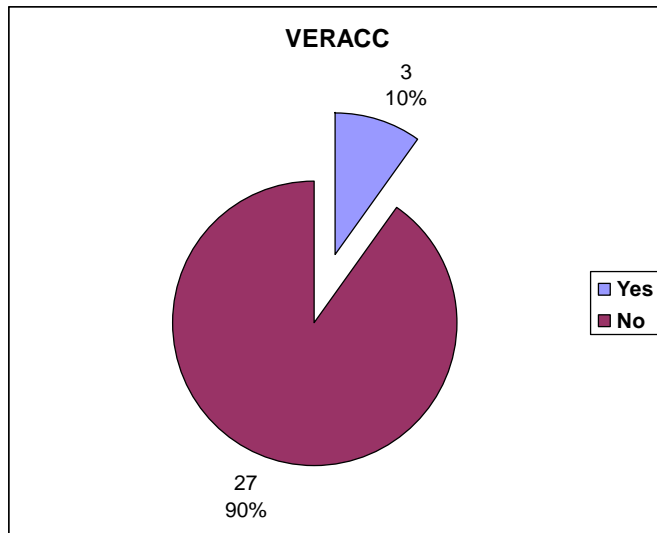


Figure 3 Percentage of member states that populate VERACC

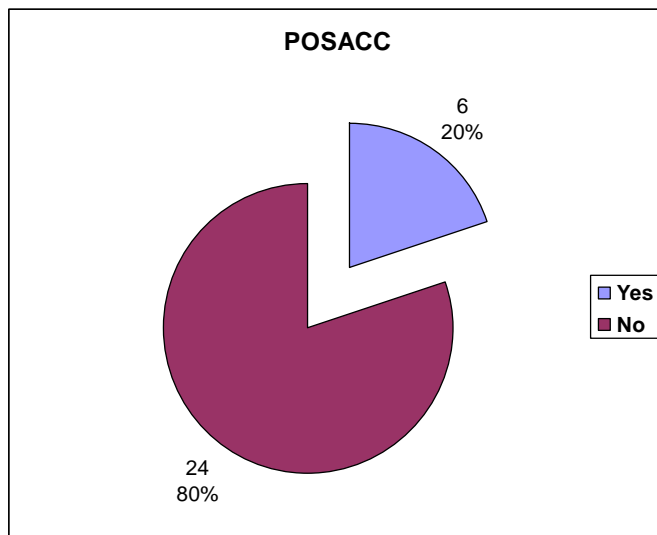


Figure 4 Percentage of member states that populate POSACC

Figure 5 shows the percentage of member states that routinely populate the S-57 quality attribute CATZOC which exists under M\_QUAL. The population of CATZOC is mandatory and is used by all but one member state, Iceland. However, supporting comments made by member states suggest that although many populate CATZOC, they only do so by using the classification 'U'.

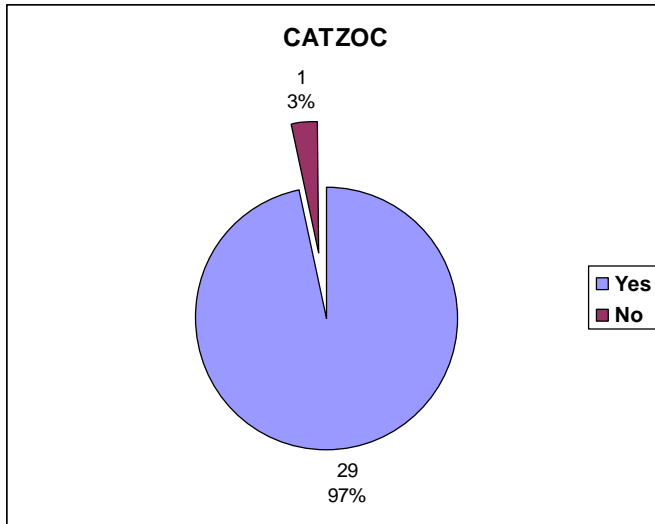


Figure 5 Percentage of member states that populate CATZOC

Figures 6 to 8 show the percentages of member states that routinely populate each of the S-57 quality attributes that normally exist under M\_SREL. We can see that these attributes are more regularly used than those existing under M\_ACCY, with SURSTA being populated by 37% of member states, SUREND being populated by 43% of member states, and TECSOU being populated by 63%.

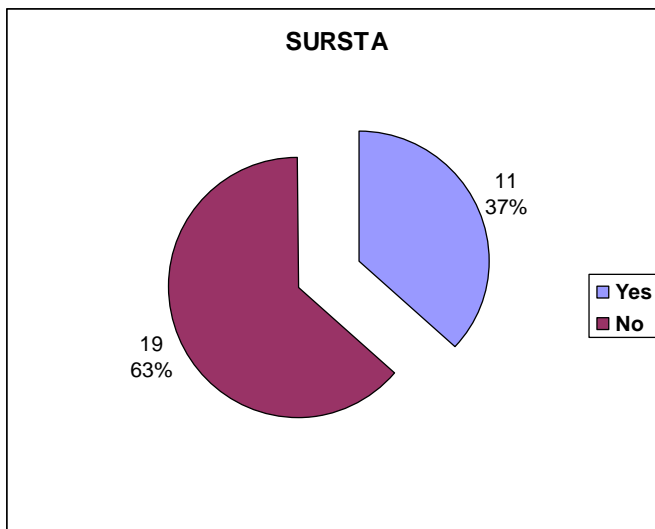


Figure 6 Percentage of member states that populate SURSTA

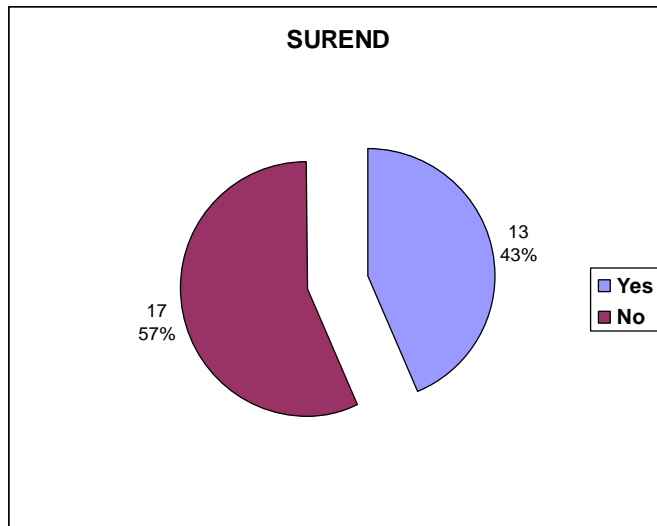


Figure 7 Percentage of member states that populate SUREND

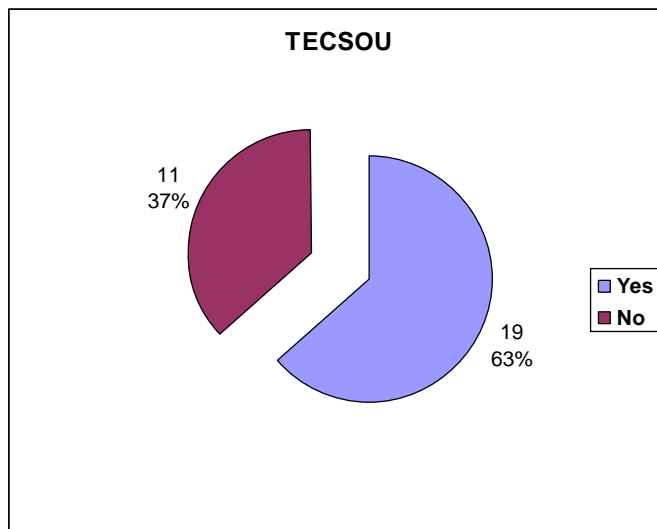


Figure 8 Percentage of member states that populate TECSOU

Figures 9 and 10 show member states that populate S-57 quality attributes that exist under M\_ACCY and M\_SREL respectively. Whilst there are no obvious regional trends it is worth noting that very few states populate attributes under both M\_ACCY and M\_SREL.

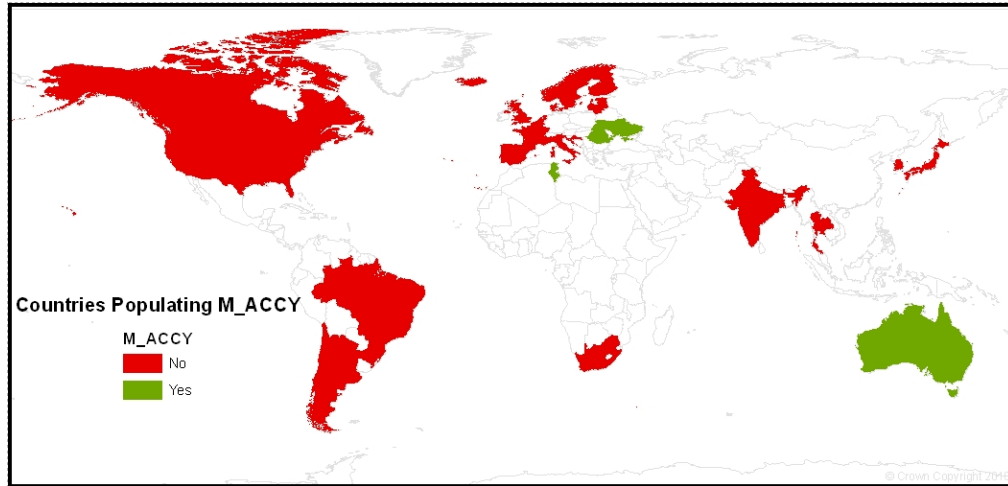


Figure 9 Distribution of member states that populate M\_ACCY quality attributes

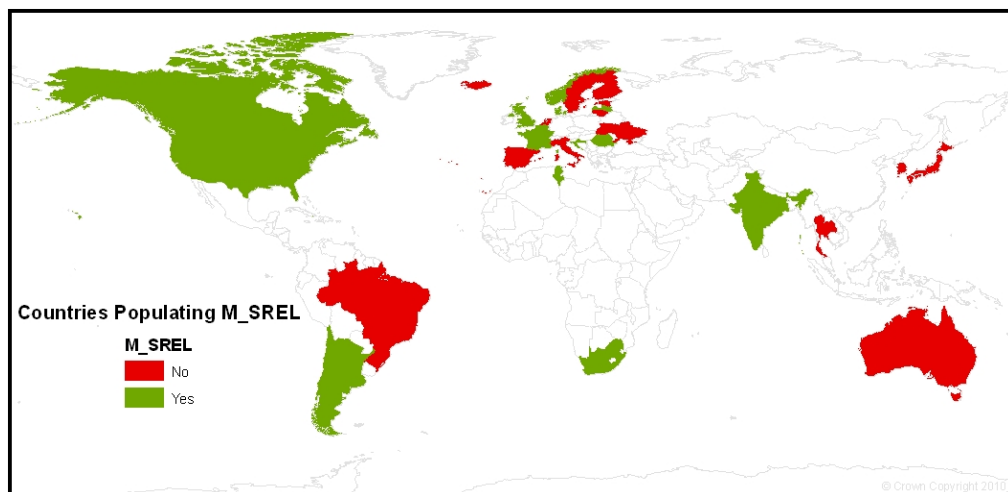


Figure 10 Distribution of member states that populate M\_SREL quality attributes

## 5.0 Conclusions

In general ENC producers seem to prefer populating the attributes under M\_SREL rather than those that exist under M\_ACCY. The M\_ACCY attributes are quantitative in nature as apposed to the M\_SREL attributes which are qualitative. Their population therefore requires a much more rigorous assessment of the raw data; a task that would require significant resource to complete.

It is worth noting that the attributes under M\_SREL (SURATH, SURSTA, SUREND and TECSOU) mirror the information that is included in the Source Diagram or ZOC diagram on paper charts. This means that there would need to be less assessment of individual surveys needed to populate quality information when producing an ENC from a paper chart. TECSOU is the most used attribute after CATZOC with 63% of respondents populating it. This suggests that it is both easy to populate and deemed useful to the mariner. This assumption will be investigated within the replies to the Mariner's questionnaire.

Many member states reported that they felt that because populating M\_ACCY and M\_SREL attributes had no direct affect on the ECDIS display, M\_QUAL and CATZOC had to be the primary means of depicting quality to the mariner. It was suggested that the M\_ACCY and M\_SREL attributes were only populated where the CATZOC value was not representative of a particular element. For example, TECSOU may be populated for an individual object such as a wreck, if its depth was determined by a diver or wire sweep.

M\_ACCY attributes, with the exception of SOUACC are only allowed over land. As a consequence some ENC producers limit their use to large scale or band 6 ENCs where berthing operations may be undertaken. In addition an M\_ACCY object can not overlap an M\_QUAL object, which poses a problem in areas of complex coastline. As M\_QUAL and CATZOC are mandatory, it is M\_ACCY which is not used.

Out of the M\_ACCY attributes POSACC is the most used with 20% of respondents populating it. This may reflect a preference for composite quality indicators like CATZOC and POSACC.

Finally it was suggested that only M\_QUAL/CATZOC are readily available to mariner. In order to see other attributes, one has to run a query, requiring a familiarity with the ECDIS that few operators have.

## **6.0 Recommendations**

DQWG to consider the following points when developing new methods of representing data quality to the mariner:

- Resources HOs have available to populate new attributes are limited
- There may be a preference towards composite quality indicators
- There should be no limitations in terms of a quality object overlapping with any other meta object
- Any quality information should be easily discoverable
- The implications of producing ENCs from existing paper charts and the re-assessment of the source data
- There should be a clear distinction between quality attributes relating to bathymetry and those relating to topography