

## Paper for Consideration by S-101PT

### Adopting the term “mechanical sweep” to S-101

<b>Submitted by:</b>	Sweden
<b>Executive Summary:</b>	It is proposed to add “mechanically sweep” as a new enumeration for the attribute technique of vertical measurement and remove the current enumeration value 6 (swept by wire-drag) from that attribute.
<b>Related Documents:</b>	S-101, S-65 Annex B (S-57 ENC to S-101 Encoding Guidance)
<b>Related Projects:</b>	S-101, ENCWG S-57 to S-101 Conversion Sub-Group

#### Introduction / Background

Since the 4<sup>th</sup> edition of S-44 (1998), the term “wire-sweep” is removed and the term “mechanical sweep” was introduced. “Mechanical sweep” is a more generic term that include all kind of surveys where a mechanical object (e.g. a bar or wires) is swept over the sea floor to determine a least depth in the area. A modern mechanical sweep can, under right circumstances, be a high precision method but the term “mechanical sweep” also include historical sweeping surveys (e.g. wire-sweep) with lower precision.

#### Analysis/Discussion

Currently, S-101 FC/DCEG edition 1.0.2 use the term “wire-sweep” in the same way as it is used in S-57 ENC’s.

To make it possible to encode high precision mechanical sweep in a proper way, there is a need to distinguish it from wire-sweep that is a low precision method. By changing the terminology to “mechanical sweep” instead of “wire-sweep”, a proper encoding for high precision mechanical sweeps can be achieved for individual features. To inform the mariner about the quality differences between old and new sweep methods, both encoded as mechanical sweep, the regular methods to encode data quality (Quality of Bathymetric Data feature and the spatialQuality attribute) can be used.

In S-32, the term “sweeping” is defined as a generic term for all kind of mechanical sweeping including both wire-sweep and bar sweeping.

When adopting the term “mechanical sweep”, all text relating to wire-drag in the DCEG needs to be changed accordingly.

#### Recommendations

1. Add a new enumeration value to the attribute technique of vertical measurement named “mechanical sweep”. The definition of that attribute value should be “The process of towing a line or object below the surface, to determine whether an area is free from isolated submerged dangers to vessels and to determine the position of any dangers that exist, or to determine the least depth of an area”. This definition is the same definition as for the word “sweeping” in S-32 (DCEG SubWG)
2. Remove enumeration value 6 (swept by wire-drag) as a permitted value from attribute technique of vertical measurement (DCEG SubWG)
3. In addition to the changed in DCEG based on the recommendations above, the following changes is need to be done:
  - 3.7.1 Paragraph 9 – Change ‘a wire swept area’ to ‘a mechanically swept area’
  - 13.5.1 Table 13.3 – Change ‘Depth measured and swept by wire drag’ to ‘Depth measured and mechanically swept’
  - 13.6.1 Table 13.4 – Change ‘Swept by wire to the depth shown’ to ‘Mechanically swept to the depth shown’
  - 13.7.1 Table 13.5 – Change ‘Swept by wire to the depth shown’ to ‘Mechanically swept to the depth shown’

4. Amend all portrayal rules that use technique of vertical measurement value 6 to portray the features encoded with the new enumeration in recommendation 1 (Portrayal SubWG)

**Justification and Impacts**

As a consequence of this proposal, the conversion guidance from S-57 to S-101 needs to be changed so that all instances with TECSOU = 6 (swept by wire-drag) is mapped to the proposed new attribute value.

**Action Required of S-101PT**

The S-101PT is invited to:

Discuss and agree on this proposal