

**Paper for Consideration by TSMAD****Tidal Information in S-101**

<i>Submitted by:</i>	UK
<i>Executive Summary:</i>	This paper proposes that detailed Tidal Information is not included in S-101 ENCs as it will be catered for in a separate product specification. It also encourages TSMAD/DIPWG to consider the impacts of the development by TWLWG of a Tidal Data product specification.
<i>Related Documents:</i>	1. S-57
<i>Related Projects:</i>	1. S-101 2. TSMAD21-4.2.2 TWLWG draft Tidal Data Object and Attribute Catalogue

**Introduction / Background**

1. Currently S-57 includes objects and attributes for encoding tidal information beyond that included on a paper chart. However the use of these objects is optional and even if the information was encoded systems may not be able to use it. This paper considers how Tidal information should be dealt within the S-100 Framework and the impacts on the S-101 Feature Catalogue specifically. It continues to consider the TWLWG Tidal Data Object and Attribute Catalogue and how this will interact with S-101 to support dynamic tides in ECDIS.

**Analysis/Discussion**

2. Apart from Tidal Stream Panels and Tidal level information paper charts generally do not show detailed Tidal Information. Separate publications which are updated periodically usually contain this information although currently these can take various different forms. The TWLWG is currently working on a product specification to support the dynamic application of Tides in ECDIS this will include Tidal information which would have been encoded in ENCs. Therefore as a separate Product Specification is to be developed there is no need to include this information within ENCs. The objects TS\_PAD and TS\_FEB would be retained along with any applicable attributes in order to ensure tidal stream information can still be incorporated.

3. In order to support dynamic tides in ECDIS both bathymetric and tidal height information will be required. The dynamic combination of the two must be presented to the mariner in a useful way. The Tidal Data product specification will provide the tidal element, ENCs could provide the bathymetry but to do so they would need to contain more detailed bathymetric information e.g. more depth contours, where under keel clearance is critical. TSMAD will need to assist TWLWG with the product specification and provide guidance on the requirements for ENCs to support dynamic tides. TSMAD will also need to consider how the functionality and display of dynamic tides will work in future ECDIS, this should be done in cooperation with DIPWG.

## **Conclusion**

4. As detailed Tidal Information will be included in a separate product specification it is not appropriate to include it in S-101 ENC. This paper recommends that the relevant Tidal Objects and Attributes are omitted from the S-101 Feature Catalogue. In order to assist the TWLWG with their Tidal Data product specification and deliver dynamic tides in future ECDIS TSMAD needs to consider the requirements for bathymetry and work with DIPWG to ensure this functionality is appropriately incorporated into new systems.

## **Action Required of TSMAD**

- Consider whether to omit the relevant Tidal Objects and Attributes from the S-101 Feature Catalogue.
- Consider how the Tidal Data Product Specification will interact with S-101 ENCs to support dynamic tides in ECDIS
- Support the TWLWG in the development of their Tidal Data Product Specification