Tidal Data and S-57 Tide Aware ENCs

Introduction

One of the conclusions and recommendations of the S-101 ECDIS stakeholders workshop that took place at the IHB between the 4th and 6th of March 2008, was that "*dynamic tides should be implemented A.S.A.P (with appropriate safeguards)".*

This paper is based on a discussion that took place at the IHB on 17 February 2009, and proposes how tidal information could be used within ECDIS using ENCs based on the S-57 ENC Product Specification. (Participants: Barrie Greenslade, Dan Pillich, Steve Shipman, and Tony Pharaoh.

Issues for TWLWG

If digital tidal predictions are to be delivered to an ECDIS, a suitable data exchange format must be developed. The data format should include comprehensive metadata and should be based on existing IHO /industry specifications (e.g.S-100 / XML). The data formats presently being used for real time tide gauges should also be taken into account so that both predicted and real time tidal data can be used. It is recommended that this be done in close cooperation with the TSMAD, SNPWG and DIPWG Working Groups.

Issues for TSMAD

The IMO Performance Standard for ECDIS states at clause 4.3 that ***"****It should not be possible to alter the contents of the ENC or SENC information."* It is argued that the inclusion of tidal data in ECDIS does not violate this clause as changes are only made to the portrayal of data, and not the data itself.

In order to implement the dynamic portrayal of tides within ECDIS, it will be necessary to increase the number of depth areas within a "tide aware" ENCs. A greater number of depth areas will result in smaller depth intervals and finer granularity in portraying the influence of the tide. It will however also significant increase the size of ENC datasets. Some issues that will have to be considered when preparing specifications for tide aware ENCs would include:

- What cells should be "tide aware" (approaches, harbour, berthing)?
- What should the ideal depth area interval be?
- What level of "line smoothing" should be applied to depth areas?
- What will be the impact on ENC cell sizes?
- Can semi automated methods of producing depth areas (e.g. gridding or tin derived depth areas)?
- How can you reconcile tidal data with a precision of say, 0.1m with ENC contour intervals of say, 1m or 0.5m?

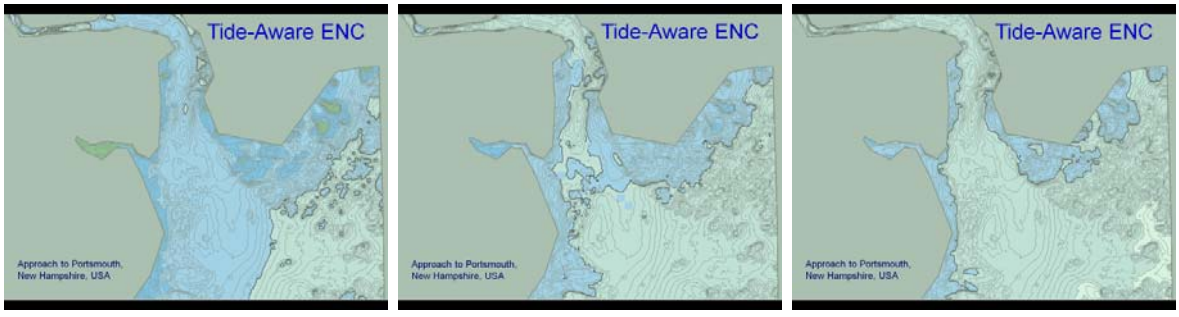

Figure 1 – Tide Aware ENC