

HARMISING ENCS

Situational Centric™ Marine Cartography

The increasing use of ENCs on SOLAS ships and the envisioned migration towards e-Navigation needs a new view on how hydrographic data is composed for the use by the mariner. To support Situational Awareness in future, available hydrographic data needs to allow a Situational Centric™ Marine Cartography.

The journey from analog to electronic navigation leads to drastic changes in how hydrographic data is utilised by the mariner. The development of ENCs was the necessary next step to migrate from paper charting to electronic marine cartography, but the current ENCs, are not reaching far enough. These ENCs are 'cell based', which means they are still looking at a certain 'chart', a defined rectangle on the globe. As a consequence, what is available today is not a real 'Hydrographic Database', but rather a collection of associated charts in a central data repository. The HOs are trying to harmonise the cells to create a kind of 'seamless' appearance in the ECDIS display.

But as the view of each cell in the creation is still most often a 'chart by chart' view, this harmonisation is not always successful. Regional ENC Coordination Centers (RENCs) are also trying to help in harmonising the ENCs, but with limited success, given the complexity of the task. Data conflicts and as such display conflicts are the result of moving from cell to cell or from one independently developed scale band to another.

The current focus on ENC production has a limited view on coverage within scale bands and on datum code. While this allows concentrated efforts to produce the necessary country coverage to meet the timeframe of the IMO ECDIS mandate, future mariners will require a more solid basis of chart data.

The issues are well known and endless discussions around the globe have taken place and are currently still being conducted to find solutions. S-100, fully developed, will help mitigate some of those risks. S-100 will move the hydrographic data collection towards a GIS (Geographical Information System) oriented data concept, away from cell-based thinking. The future concept will move more and more data sets from scale dependent data storage towards the scale independent data concept. In this concept, a natural object, like a buoy or a shallow area, will be stored in its real-world location and dimensions. The database will contain the object only once and the rendering engine will compose the display, based on detail rendering and deconfliction rules, rather than using an artwork-like cartographic view.

In a full database centric hydrographic data collection, cell boundaries may still exist, but they are created to break up the data sets in manageable pieces, but will no longer be developed as individually composed data sets. The hydrographic data will be managed as a complete set, rather than individual puzzle pieces, which are stitched together like a patchwork quilt to create an individual coverage. This underlying data layer will be rendered based on situational needs and as such will result in a situational centric display.