Paper for Consideration by HSSC
Paper chart 2.0, automated paper chart from ENC databases

Submitted by:	Canada, UK
Executive Summary:	Automation of paper chart creation from ENC databases is now possible with technology. Paper chart creation process must be adjusted so HO's can start using that technology, respect IHO standards and reallocate resources toward ENC coverage and the transition to S-100 implementation.

Introduction / Background

With S-100 on the rise there are numerous parallel products a typical HO needs to create and maintain (Paper charts (vector or raster based), Raster, ENC, S-101). Paper chart specifications are still being fine-tuned under the S-4 standard, latest edition being 4.8 issue in November 2018. Paper chart specifications originates from when charts were drawn by hand. With the use of GIS systems HO's are now trying to create efficiencies respecting S-4 specifications. Ultimate goal is to fully automate the creation of paper products from fully populated ENC vector databases.

Analysis/Discussion

The latest edition of S-4 for paper publication will be the last one that Canada and UK will implement unless it supports portrayal that is easily generated automatically from ENC data. Even in adopting version 4.8 of S-4 and using Print-On-Demand principles, it will take decades to have new symbology making its way onto the vast portfolio HO's are supporting. The future being digital, data-centric HO's have to limit their investments on the paper chart products in order to fill the gaps to support the digital world, autonomous navigation being a prime example. The key aspect is to have paper chart specifications that will fit the purpose required for the paper product (Planning and ultimate backup) and will enable full automation of paper chart creation.

NCWG has being working on a Future of Paper chart document since 2014 and has paused the development of a future S-4 in their latest work plan. NCWG does not have a clear task from HSSC to start the development and testing of automated paper chart production from ENC databases using adapted specifications.

Conclusions

Automation of paper chart creation from ENC databases will help HO's get out of the tremendous efforts needed to create an update a paper chart that respects IHO paper charts specifications. These resources could be redirected toward ENC and S-100.

Recommendations
- Task NCWG to develop and test automated paper chart creation and maintenance from ENC databases.
- Task NCWG to create adapted specifications to support automation.

Justification and Impacts
- HO's cannot transform if resources are allocated to traditional paper chart production and maintenance.
- NCWG tasks, terms of reference and work programme will be impacted.
- Proposed priority =high

Action Required of HSSC
The HSSC is invited to:
- review this proposal
- consider endorsement
- instruct NCWG as appropriate