

35th Meeting of the NSHC

Future of the Paper Nautical Chart - outcome

Agenda Item C2



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BACKGROUND

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- Future of the Paper Chart Final Report from NCWG presented at HSSC12 (Oct 2020)
- Outcome and analysis of a comprehensive survey among Member States leading to....
 - ... a set of combined and consistent recommendations for development of a way forward under existing IHO standardization framework presented by HSSC at A-2:
 - Guidance for Hydrographic Offices to produce paper charts or raster chart images directly from S101
 - Maintenance of S-4, Chart Content specifications, and INT-1 remains an ongoing activity
 - Focus on ENC schemes and less on INT-chart coverage.
 - No separate specification for simplified or back-up paper charts
- Agreed upon at A-2 and C-4 tasked HSSC/NCWG to implement the recommendations on the Future of the Paper Nautical Chart as appropriate

NSHC35, Reykjavik Iceland, 5 - 6 April 2022



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THE CHALLENGE

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- The sales of paper nautical charts is declining
- The sales of ENCs is increasing

- Benefit-cost ratio of the raster charts is getting too low to produce
- Demand for paper charts still exists

- Each HO is affected differently



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POSSIBLE SOLUTIONS (NON-EXCLUSIVE)

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- As presented in HSSC11 (2019)

Optimize portfolio	Optimize content	Optimize portrayal	Optimize production
Reduce the number of charts available.	Reduce number of features in each chart.	Reduce manual cartographic editing.	Reduce duplicated work and parallel workflows.
May be done through reduced geographical coverage or reduced scales produced.	May be done through reduced level of detail or number of feature classes.	May be done with rule based cartography.	May be done through single source chart production database or similar solution.
Extreme case: Stop producing paper charts.	Extreme case: Reduce content to the minimum level still acceptable to IMO.	Extreme case: Chart creation if fully automated with no human interaction needed.	

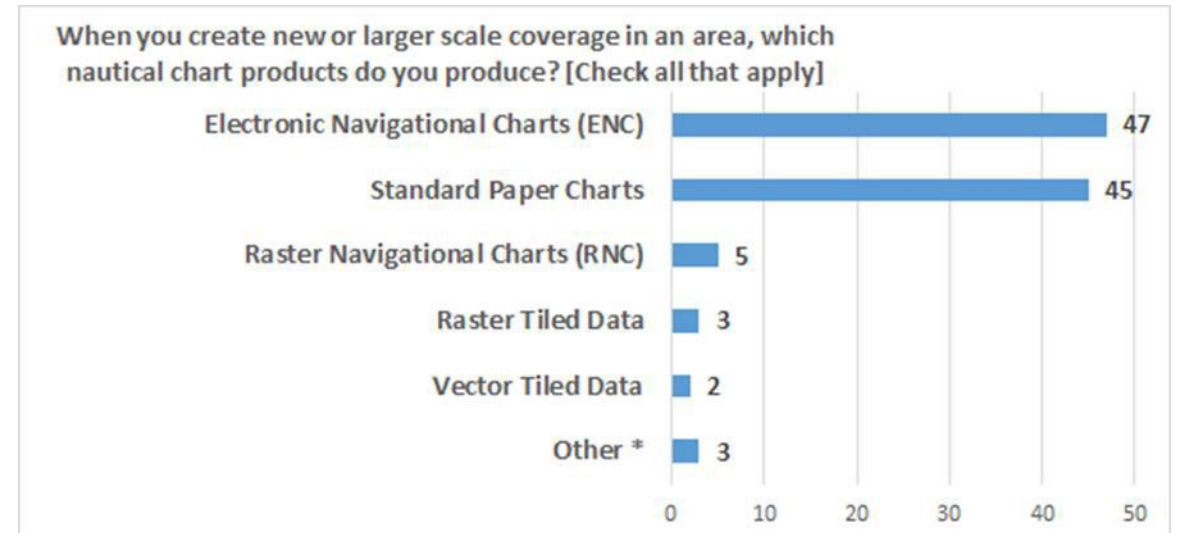
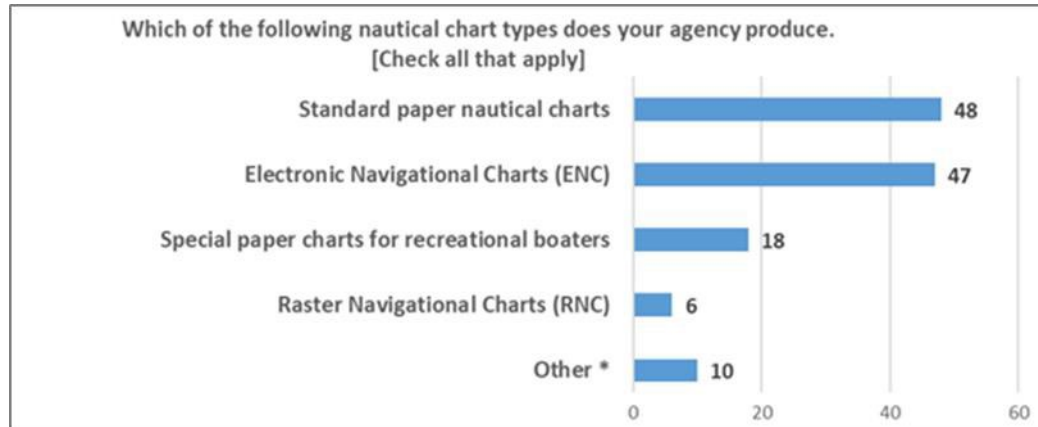


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OPTMIZING PORTFOLIOS

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- Scheming is based on national and regional consideration
- Paper Charts still have a strong position in the available products
- Member States still see needs to publish paper charts





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OPTMIZING CONTENT

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- S-4 is flexible on content selection
 - Must support safe navigation
 - National consideration is already allowed
- Simplified products
 - May be produced with current specifications



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OPTMIZING PORTRAYAL

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- Current S-4 portrayal at times poorly automatable
- Production software developers see it practically impossible to provide HO's with an out-of-the-box symbolization
 - Rule-based portrayal would make this possible
- For rule-based portrayal some revision of existing symbols would also be needed
- S-52 portrayal is designed and optimized for on-screen use and therefore not recommended to be used in paper products



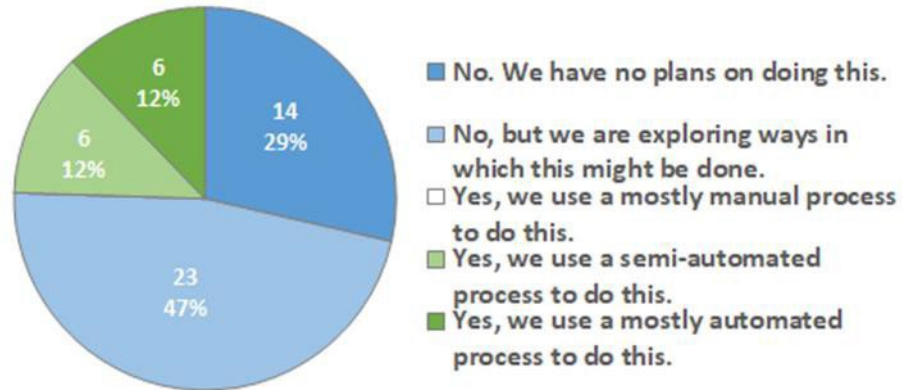
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OPTMIZING PRODUCTION

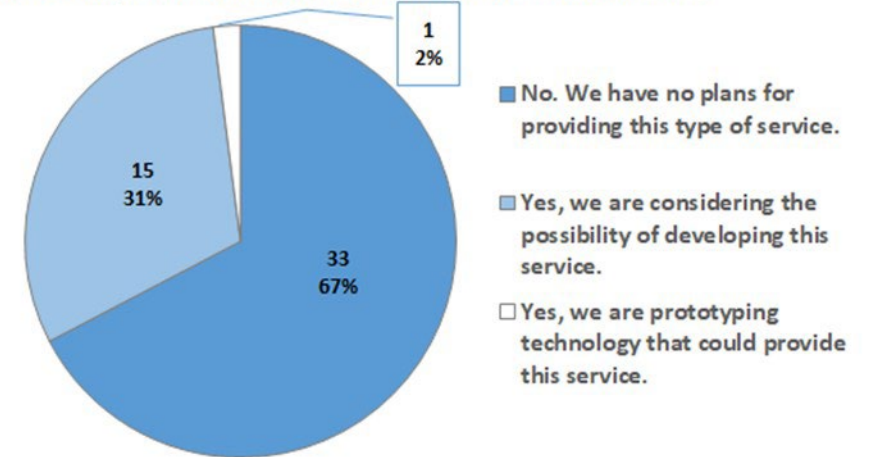
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- Reduce overlapping and manual work
- User-side creation of paper charts?

Are you using or planning to use any technology that would print paper charts directly from ENC data? [Check the closest answer]



Are you using, or planning to use, any technology that enables users to define their own paper chart extent and scale to output their own customized chart? [Check the closest answer]





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POSSIBLE SOLUTIONS (NON-EXCLUSIVE)

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Optimize portfolio	Optimize content	Optimize portrayal	Optimize production
<p>Reduce the number of charts available.</p> <p>May be done through reduced geographical coverage or reduced scales produced.</p> <p>Extreme case: Stop producing paper charts.</p> <p>→ At national or regional discretion</p>	<p>Reduce number of features in each chart.</p> <p>May be done through reduced level of detail or number of feature classes.</p> <p>Extreme case: Reduce content to the minimum level still acceptable to IMO.</p> <p>→ At national or regional discretion</p>	<p>Reduce manual cartographic editing.</p> <p>May be done with rule based cartography.</p> <p>Extreme case: Chart creation if fully automated with no human interaction needed.</p> <p>→ Currently challenging due S-4 portrayal specifications</p>	<p>Reduce duplicated work and parallel workflows.</p> <p>May be done through single source chart production database or similar solution.</p> <p>→ Currently challenging due to portrayal challenges</p>



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RECOMMENDATIONS

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1. Guidance for Hydrographic Offices to produce paper charts or raster chart images directly from S101
 - The goal is to create a ‘Common IHO Baseline Symbology’ including basic symbol sets and rules
 - The resulting Baseline Symbology may then be used
 - by the production software developers as basis for further development
 - by HO’s to provide simplified products

2. Maintenance of S-4, Chart Content specifications, and INT-1 remains an ongoing activity
 - S-4 is the foundation document for all nautical chart content, including ENCs.
 - Paper Charts are still widely used by the non-SOLAS market and an IHO standard for paper charts is relevant for these stakeholders

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RECOMMENDATIONS

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3. No separate specification for simplified or back-up paper charts
 - There is no sufficient international need for such product. The results of recommendation 1 may be utilized by HOs to provide such a product if needed.

4. Focus on ENC schemes and less on INT-chart coverage
 - Though HOs willing to produce or re-print INT charts, or national paper charts:
 - a. should be in accordance with IHO Resolution 7/1919 (HOs arrangements on exchange and reproduction of nautical products), as amended
 - b. must comply with S-4 regulations
 - c. must maintain the procedures (such as NtMs) to ensure that the final product is kept up-to-date
 - There is still a need for the INT concept to be maintained.



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Current status, recommendations on the Future of the Paper Nautical Chart

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- The NCWG has continued to work on the implementation of the recommendations given in the Future of the Paper Nautical Chart report.
- A sub-WG to develop a Baseline Symbology to support automated production of paper charts from S-101 data.
- Regional Hydrographic ICCWGs, to focus on ENC schemes. Agreed upon at IRCC 13 in June 2021.

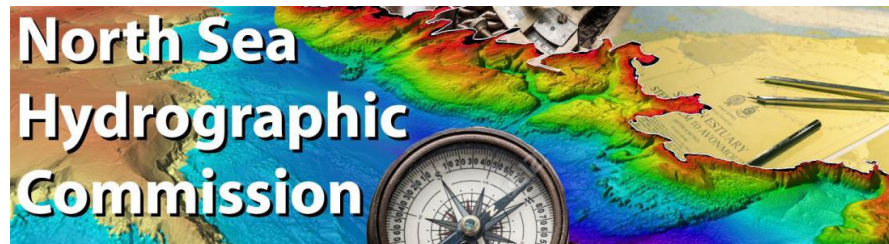


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ACTIONS REQUESTED FROM NSHC35

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- Note the Report
- Take any other action as it may consider appropriate.



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