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Input paper for the following Committee(s): check as appropriate Purpose of paper:

**X** ARM **□** ENG **□** PAP **□** Input

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Agenda item [[2]](#footnote-2) n.n

Technical Domain / Task Number 2 …………………………………

Author(s) / Submitter(s) …………………………………

Portrayal of sector lights in S-201

# Summary

During ARM2 a liason note was received from ENAV committee regarding development of S-201-209 product specification regarding AtoN’s.

NCA wish to contribute to the process and highlight some concerns regarding presentation of visual aids to navigation on ENC charts today that NCA consider not fully adequate.

## Purpose of the document

*In Norwegian waters sector lights are the backbone of visual aids to navigation, due to the nature of the coastline. Within our fairways sector lights are not minor lights to the navigator, they are his most valuable tool for safe navigation and the ENC chart and database handling should support this. Therefore it is essential that makers of ECDIS software are given the best tools and data (within standards) from national HO’s to be able to present sector lights in the best possible way.*

NCA belive that traditional paper charts, figure1, portrays visual aids better than modern ENC charts, figure 2, (at least in some aspects). NCA have approx. 1950 sector lights, which forms the backbone of visual navigation in Norwegian waters. With increasing numbers of vessels using ENC charts only (vessels complies with dual-ECDIS carriage requirements) visual aids get less prominent to the modern navigator. Best practice seamanship, combining paper charts/visual aids and radar/log/GPS is in jeopardy to be replaced by use of ENC charts and radar/log/GPS, which is not the same concept. In 2012 NCA conducted a survey among norwegian navigators which is relevant to this issue. It showed that mariners consider visual aids to be very important. NCA strategy is to maintain the visual aids as the primary source for inshore safe navigation and that also is independent from satellite navigation systems.

For the mariner it is most vital to understand where the sector boundarys are, and which dangers they are meant to shelter him from. This particular information is not sufficiently portrayed in modern ENC as they only display nominal light range of the sectors (individually for each colour). As seen in the attached appendix sector boundaries are carefully positioned by NCA with visual reference where possible and each sector boundary is given a unique length.

NCA is in the process of finalizing a product specification for AtoN’s (Q2 2016). This is based on a SOSI/ISO-19100 standard in joint cooperation with Norwegian HO (KSD). This specification is in compliance with S-57 ed.3 requirements. Further work is due to be started to develop the database handling between NCA and KSD, enabling fully automatic dataflow between the two respective authorities database’s regarding AtoN’s (phase 2).

With rise of new product specifications in the wake of S-10(n) all means should be taken to ensure the best possible portrayal of visual AtoN’s in the future ENC, also with regard to possible 2D/3D presentation.

Further figures with examples are attached in Annex A.

## Related documents

Input from NCA on IHO stakeholder conference in Korea (7th meeting) November 2015.

# Background

ANM18 output-20, gives some background to the paper.

# Discussion

NCA propose ARM3 discuss how to best proceed at making S-201 product specification sufficiently flexible and detailed in order to meet AtoN authorities current and future requirements. By nature some future requirements are unknown, flexibility in S-201 should reflect this fact.

# Action requested of the Committee

TBD after ARM3 discussions.

1. ........

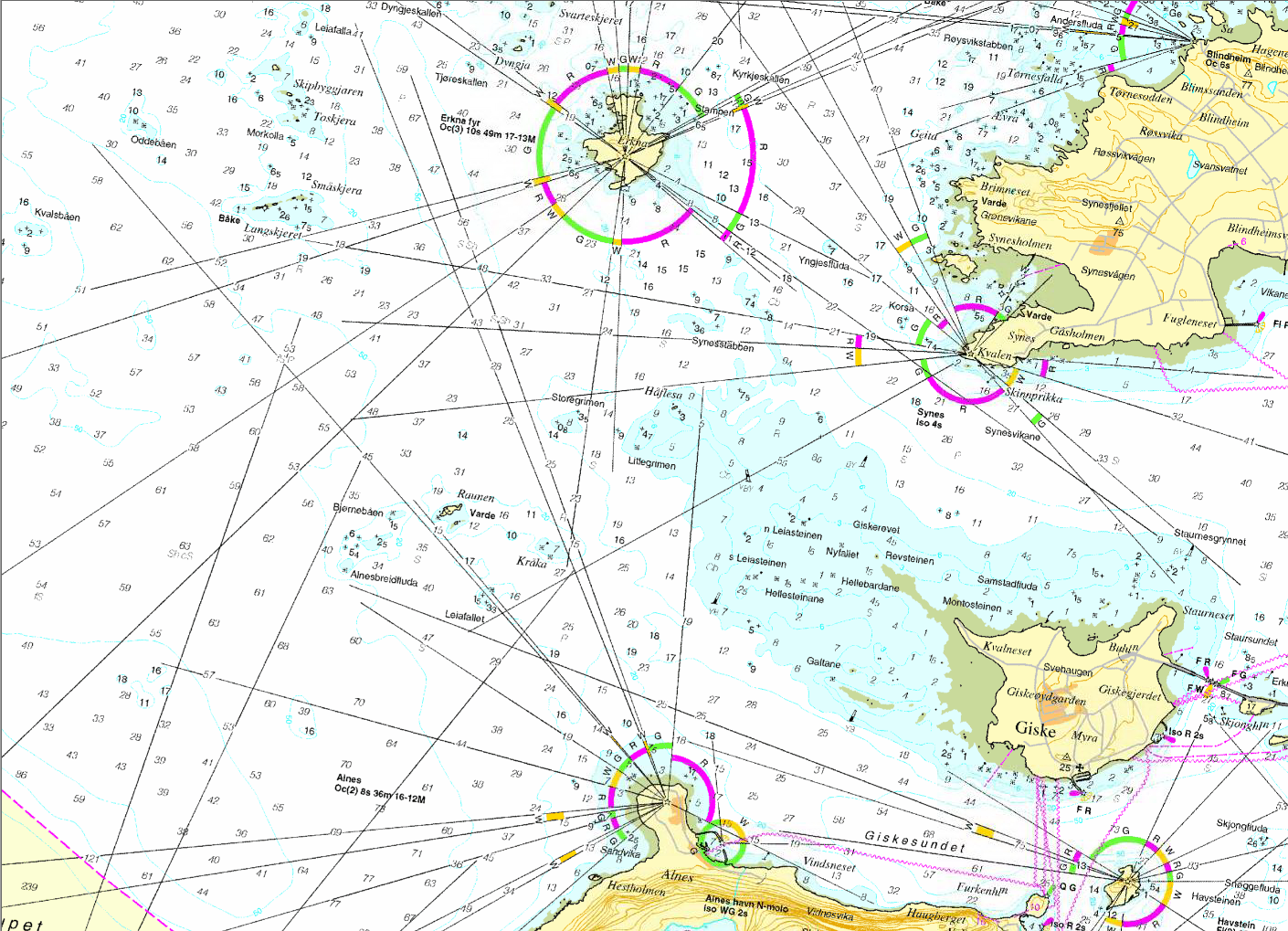


Figure 1 Portrayal of light sectors in a 'paper chart'.

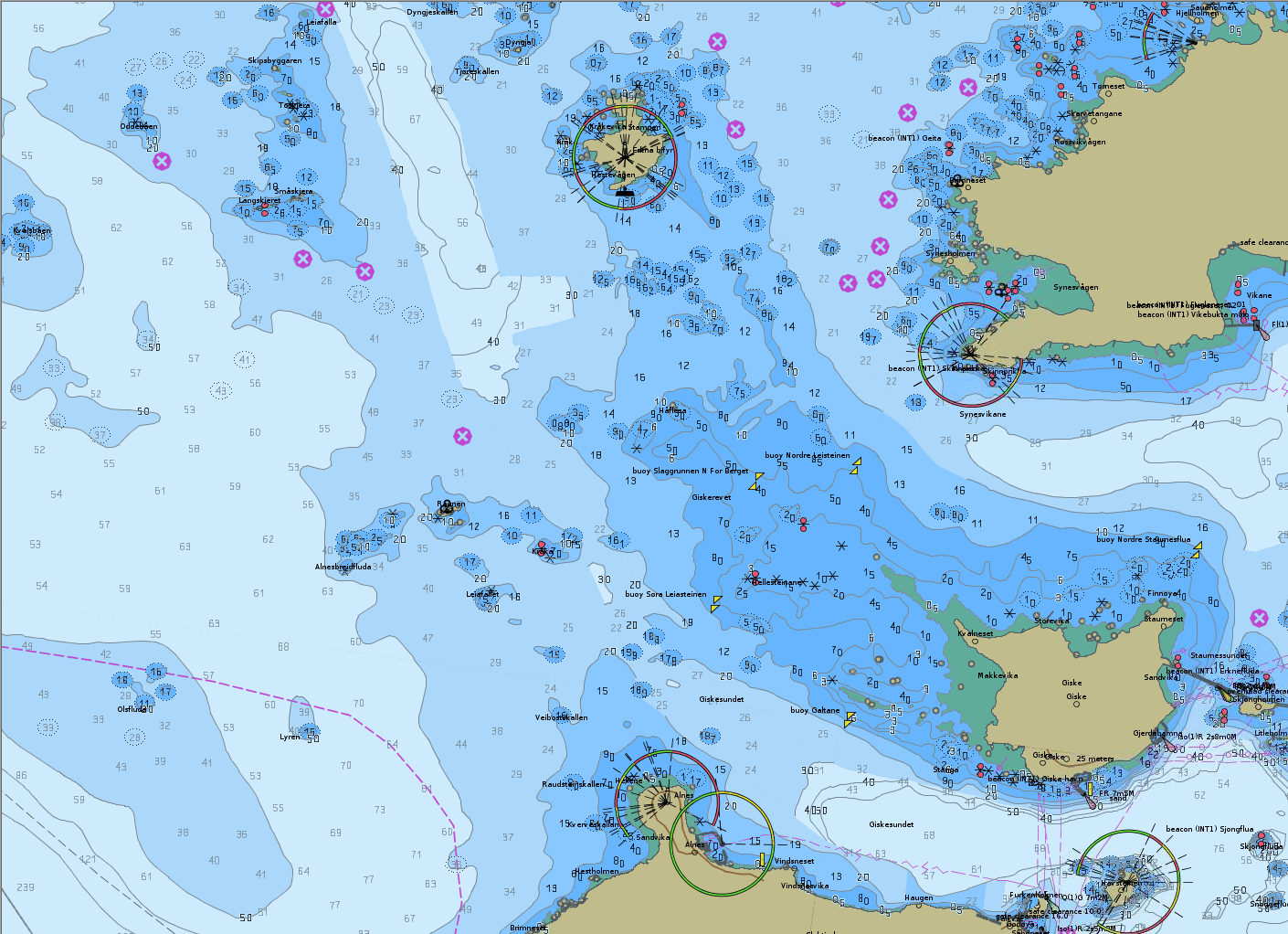


Figure 2 Portrayal of light sectors in an ENC chart.

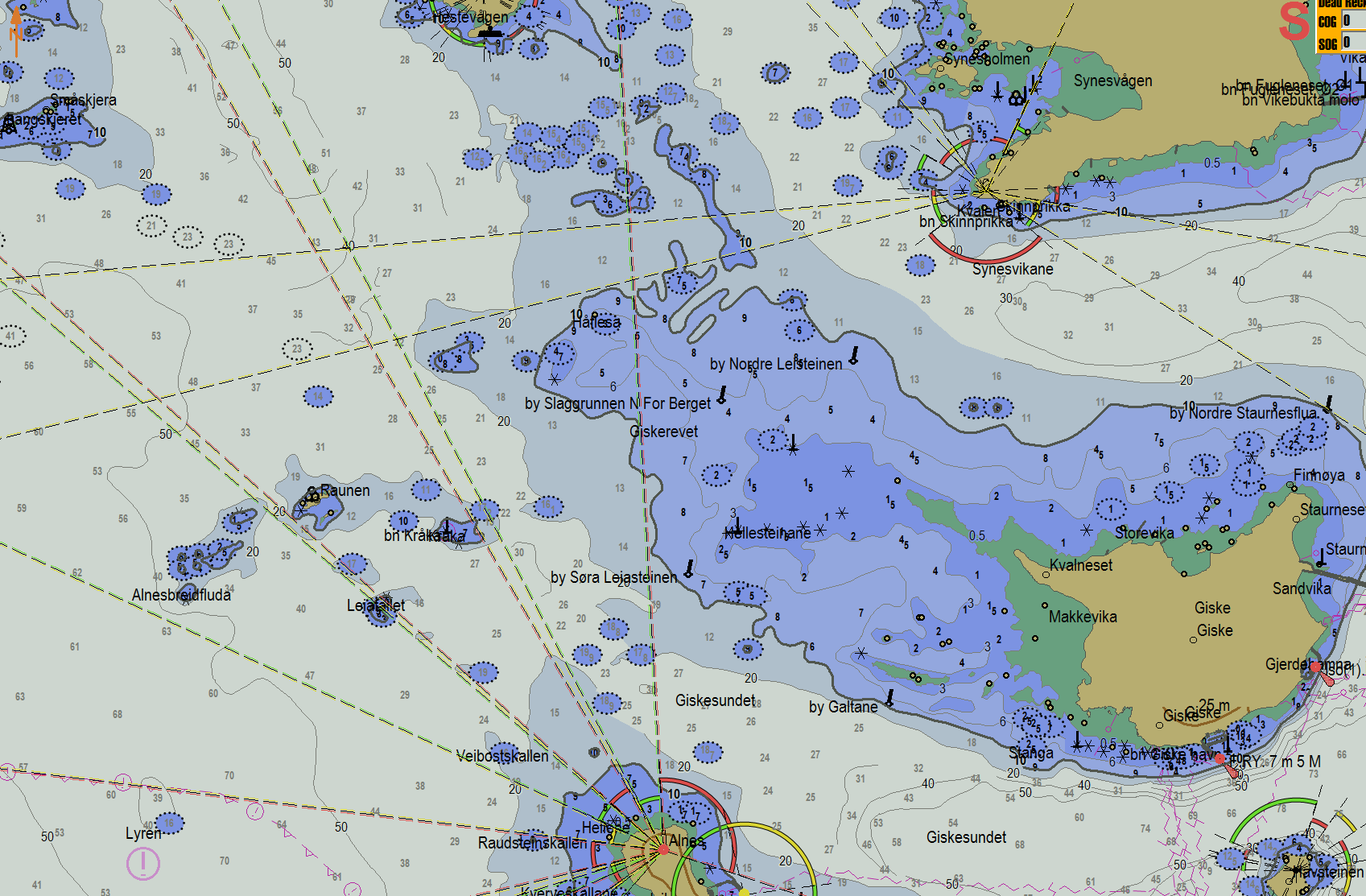


Figure 3 Portrayal of selected light sectors in an ENC chart.

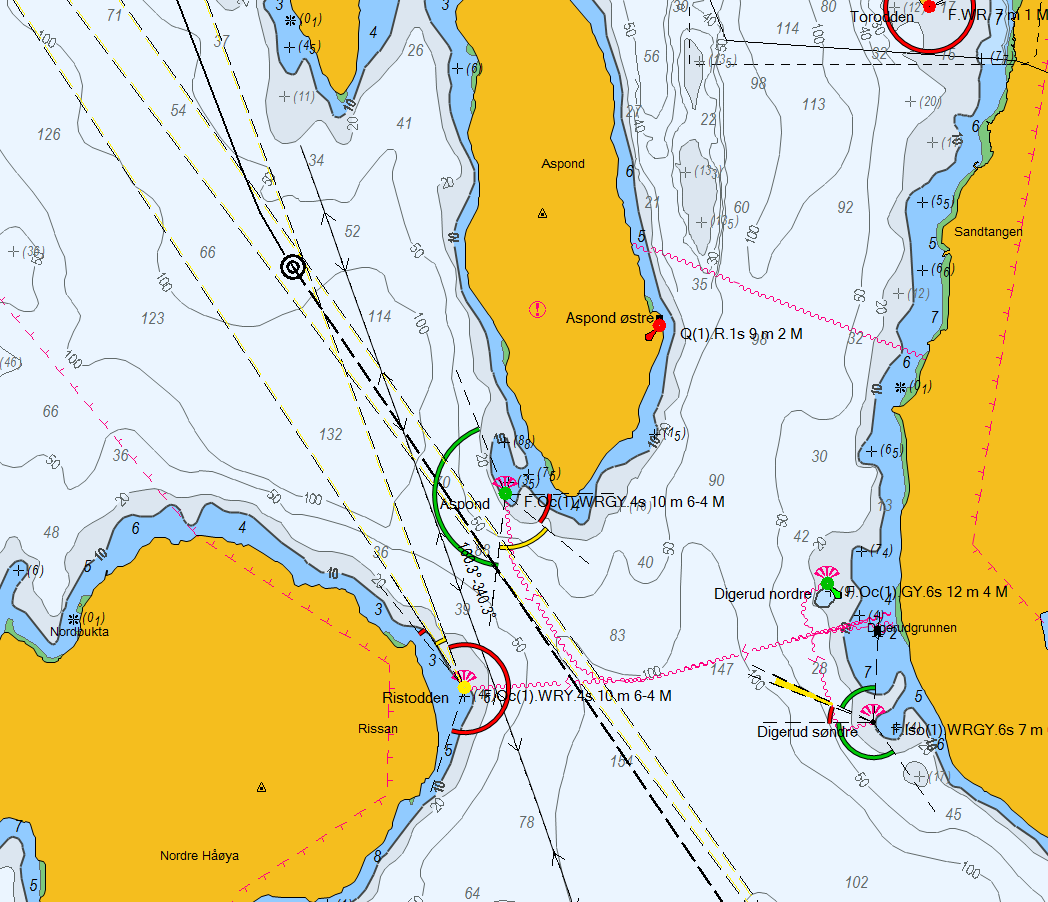


Figure 4 ECDIS with position dependent activation of narrow white sectors (Int1 color)

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