

SUB-COMMITTEE ON SAFETY OF
NAVIGATION
59th session
Agenda item 12

NAV 59/12/1
25 June 2013
Original: ENGLISH

**CONSIDERATION OF ECDIS MATTERS RELATED TO THE IMPLEMENTATION OF THE
CARRIAGE REQUIREMENTS IN SOLAS REGULATIONS V/19.2.10 AND V/19.2.11**

Report on monitoring of ECDIS issues by IHO

Submitted by the International Hydrographic Organization (IHO)

SUMMARY

Executive summary: This document reports on the action taken by IHO since NAV 58 to monitor and address ECDIS issues related to the implementation of the carriage requirements in SOLAS regulations V/19.2.10 and V/19.2.11

Strategic direction: 5.2

High-level action: 5.2.4

Planned output: 5.2.4.17

Action to be taken: Paragraph 22

Related documents: MSC 90/10/1; MSC 91/12/1; NAV 57/6/1; NAV 58/14 and NAV 59/12

Background

1 Recognizing the role of the International Hydrographic Organization (IHO) in the development of Electronic Chart Display and Information System (ECDIS) and its active support to IMO in the endorsement of a carriage requirement for ECDIS, the 18th International Hydrographic Conference (23 to 27 April 2013) had agreed that IHO should continue to take a leading role within the ECDIS stakeholder community to ensure that issues identified in regard to the anomalous operation of ECDIS are collated, analysed, communicated and resolved as speedily as possible to maintain the safety of navigation and to assist the smooth transition from paper to digital navigation.

2 At its fifty-eighth session, NAV recognized the need for continuous monitoring of the implementation of ECDIS and any issues that may arise. The work undertaken to date by IHO was acknowledged and IHO was also encouraged to continue its engagement and work in this area. The Sub-Committee further invited Member Governments and international organizations to submit comments and proposals for consideration at NAV 59.

3 Accordingly, the IHO Secretariat continues to encourage and monitor feedback through reports from mariners or ship operators, from national administrations and hydrographic offices as well as from manufacturers. Whenever issues relating to ambiguities in the IHO standards or inconsistencies in their implementation arise, the IHO Secretariat ensures that these are being addressed in cooperation with all the relevant stakeholders.

ENC/ECDIS data presentation and performance check for ships

4 Over a 1,000 reports from more than 800 ships have been received since the check data set was distributed to ship operators and posted on the IHO website in August 2011. The reports account for approximately 60 different ECDIS models from 20 different manufacturers and 200 different ECDIS software versions. Although the number of reports is relatively small, representing less than 2 per cent of vessels subject to SOLAS requirements, IHO considers that they constitute a representative sample covering the majority of ECDIS models in use at sea. It is worth noting that the identification by the mariner of a particular ECDIS model and software version does not seem to be straightforward; the relevant indications in the reports have sometimes been ambiguous or inadequate.

5 The more recent reports confirm the analysis reported at MSC 90 (MSC 90/10/1) and no new significant issue has been identified. Twenty-two per cent of the reports indicate no problems. Forty-nine per cent indicate no more than three (out of 40) abnormal detection points. Less than 3 per cent of the reports indicate more than 20 (out of 40) instances of anomalous behaviour.

6 The most frequent anomalies relate to:

- the display of the "*new object*" feature introduced in the current edition of the IHO Presentation Library to enable new requirements recognized by IMO to be included in charts (40% of the reports indicate an anomaly);
- the display of the period and range of *all-round lights* (anomalies in 30% of the reports);
- the display of isolated underwater dangers located on a depth contour (19% of the reports for the inspection point in standard display mode indicate an anomaly); and
- the detection of objects by route checking in voyage planning mode (a rate of anomalies greater than 20% for all objects and up to 47% for the object "*area to be avoided*").

7 The values reported above should not be considered as absolute as there was some inconsistency in the reports from ships. For example, 61 of the reports relate to one ECDIS model and one software version, yet there was a significant spread of answers for the same check. The highest such spread relates to the display of an isolated underwater danger located on the depth contour, with half the reports indicating no anomaly and the other half indicating an anomaly. It has not been possible to ascertain whether this dispersion is caused by a different setting of the ECDIS, a misinterpretation of the check result or a misidentification of the software version.

Outcome of the ECDIS manufacturers meeting at IMO (11 September 2012)

8 As announced at NAV 58 and reported at MSC 91 (MSC 91/12/1), the IMO Secretary-General convened a meeting of ECDIS manufacturers to discuss operating anomalies in ECDIS on 11 September 2012, in order to provide appropriate guidance to shipping companies and seafarers. The meeting agreed that IHO would post contact information provided by manufacturers on the IHO website so as to enable ship operators and mariners to identify and, if necessary, obtain upgrades for their ECDIS operating software. That measure has been implemented and a list is available on the "ENC & ECDIS" page of the IHO website (www.iho.int). So far, 19 of the 30 ECDIS manufacturers listed have provided information. The list will continue to be updated as new information is made available by the manufacturers.

Third IHO Workshop of Technical Experts on resolving operating anomalies in ECDIS (15 to 16 October 2012)

9 The workshop announced at NAV 58 was held at the IMO Headquarters on 15 and 16 October 2012. The workshop was attended by 48 technical and operational experts representing the key stakeholders – including representatives from the IMO Secretariat, IMO and IHO Member States, non-governmental international organizations, data service providers, ECDIS manufacturers, type-testing authorities and seafarers' organizations. The workshop considered the summary of mariners' feedback from the IHO ECDIS data presentation and performance check campaign, discussed progress on implementing the outcomes of previous IMO meetings (MSC 90, NAV 58) and was provided with an update on progress with the maintenance and improvement of the relevant IHO standards.

10 Useful feedback was provided by the participants on issues such as display requirements, alarm management, and testing procedures. This feedback will benefit not only the maintenance and improvement of existing IHO standards related to ECDIS but also the development of related standards that will be based on the new IHO S-100 data standard, such as S-101, the next generation ENC product specification. The participants at the workshop provided input for the consideration of IMO Member States. These inputs related to the consolidation of ECDIS-related circulars and the revision of footnotes to SOLAS regulation V/27 which are being considered under separate agenda items of NAV 58.

11 The meeting reached the conclusion that all ECDIS should be up to date so as to conform to the latest edition of the relevant IHO standards reported to IMO, whatever their date of installation. This is necessary to enable ENCs to be "adequate and up to date", as required by SOLAS regulation V/27 and in conformance with the ECDIS Performance Standard that stipulates that: "The chart information to be used in ECDIS should be the latest edition of information originated by a government-authorized hydrographic office, and conform to IHO standards". It was also concluded that it would be useful if there was a check data set that allows a mariner to confirm that an ECDIS is up to date in relation to the applicable IHO standards. Seafarer representatives noted that, at the moment, this is a particularly contentious issue in relation to port State control inspections in some States and they would welcome an easy-to-use IHO "proof" of conformance.

12 An IHO Member State attending the workshop indicated that recent feedback had shown that some mariners have difficulty determining whether their ENCs are up to date because the relevant information is not readily apparent in some ECDIS equipment. The ECDIS manufacturers represented at the meeting encouraged IHO to provide clearer guidance in terms of what information is required to be presented to the mariner and in what form.

13 The meeting, which had the widest spread of stakeholder representatives of any similar meeting held so far, provided a very useful forum for the exchange of views and information. It was agreed that the meeting had been informative for all participants and that ongoing actions will benefit from the discussions that took place at the meeting. The fact that the workshop had not identified any new work item or initiative to be followed was taken as a sign of continuing progress. Although work remains to be done, there was widespread agreement that ECDIS remains a powerful and valuable tool on the bridge of ships.

Activities of IHO committees and working groups

14 The relevant IHO working groups are progressively revising the various IHO Standards related to ECDIS in order to address the issues identified so far, particularly S-52 – *Specifications for Chart Content and Display Aspects of ECDIS*, S-58 – *Recommended ENC Validation Checks*, and S-64 – *IHO Test Data Sets for ECDIS*. A revision of S-63 – *IHO Data Protection Scheme* is also being considered to enable mariners to monitor ENC update status in ECDIS more easily. The participation of mariners and ECDIS manufacturers is considered to be both valuable and essential to the progress of the working groups. The feedback and information gained from ECDIS anomalies are being taken into account in their work.

15 The objective of IHO is to finalize drafts of revisions to the relevant standards related to ECDIS in 2014 for adoption by IHO Member States in 2015. IHO is maintaining close liaison with the Technical Committee on Maritime navigation and radiocommunication equipment and systems of the International Electrotechnical Commission (IEC/TC 80) to ensure a proper coordination with the revision of IEC Standard 61174 – *Maritime navigation and radiocommunication equipment and systems – Electronic chart display and information system (ECDIS) – Operational and performance requirements, methods of testing and required test results*.

16 The IHO Secretariat will continue to maintain close liaison with the IMO and IEC Secretariats and other relevant stakeholder bodies to ensure a smooth transition from the current editions to the new ones.

17 In parallel, IHO continues to monitor the status of ENC coverage. The following information summarizes the global availability of ENCs by comparing the availability of paper charts intended for international voyages with the availability of corresponding ENCs. The figures are based on data available as of 31 May 2013:

Comparison of ENC coverage with corresponding paper chart coverage			
	May 2009	May 2011	May 2013
Small-scale ENCs (planning charts)	~100%	~100%	~100%
Medium-scale ENCs (coastal charts)	77%	88%	90%
Large-scale ENCs (top 800 ports)	84%	94%	96%

18 Analysis of the remaining gaps is continuing through the relevant Regional Hydrographic Commissions. It is worth noting that, so far, the IHO Secretariat has received no input from shipping operators that identifies specific areas of shortfalls in ENC coverage.

Overview and perspective

19 Progress in resolving the outstanding issues with ECDIS operating anomalies is well underway with the active involvement of all key stakeholders. No major new issue has been identified since NAV 58.

20 With the uptake of ECDIS use associated with the entry into force of carriage requirements since 1 July 2012, vigilance and attentiveness are still relevant. The IHO Secretariat will continue to monitor the evolution of ECDIS and the associated standards, actively pursuing ways to resolve any future issues whenever they arise, whilst continuing to report progress to Member States, to the IMO MSC and NAV and to the wider maritime community.

21 The IHO Secretariat welcomes further feedback from all stakeholders concerning ECDIS operation and maintenance. The detailed outcome of the separate survey reported by BIMCO and Denmark (NAV 59/12) will be investigated accordingly when the data is made available to IHO. The IHO Secretariat also welcomes feedback from stakeholders about ENC coverage and, in particular, the identification of specific areas where ENC coverage is still considered to be lacking.

Action requested of the Sub-Committee

22 The Sub-Committee is invited to consider this report and take action, as appropriate.
