Extract from NAV57/15

Operating anomalies identified within ECDIS

14.38 The Sub-Committee noted that MSC 88 had considered document MSC 88/25/6 (Japan, Norway, the United Kingdom, ICS and IFSMA) highlighting issues that had been identified within ECDIS, which were affecting the operational performance of some ECDIS systems. The anomalies were discovered by "chance" inspections of ENCs within a small number of ECDIS systems and it was considered possible that other anomalies remained to be discovered. The IHO observer, in supporting the document, stated that this was an important matter concerning the safety of navigation and, in particular, the fact that some ECDIS equipment in service at sea might not be performing optimally. The IHO had been concerned for some time that there was no specific obligation on ship operators to keep up to date the software for sophisticated computer-based systems, such as ECDIS. SN.1/Circ.266/Rev.1 was of relevance, referring to the "Maintenance of ECDIS software". 14.39 The Sub-Committee also noted that MSC 88 further had subsequently approved MSC.1/Circ.1391 on Operating anomalies identified within ECDIS.

14.40 The Sub-Committee further noted that MSC 89 had considered document MSC 89/24/2 (IHO) reporting on the outcome of a workshop organized by IHO in February 2011 to discuss the issues raised during MSC 88 regarding "Operating anomalies in ECDIS" and requesting the Committee to note the outcome of the ECDIS stakeholders' workshop; continue to encourage flag States to collect and disseminate relevant information on ECDIS anomalies in accordance with MSC.1/Circ.1391; and further inviting Member Governments to consider proposing an unplanned output in the biennial agenda of the NAV Sub-Committee, which would clarify the policy on working-life validity of software driven electronic navigation equipment. MSC 89 had also considered document MSC 89/24/3 (Australia, Canada, Chile, Japan, Norway, the United Kingdom, ICS and IFSMA) supplementing the report on the outcome of a workshop organized by the IHO to discuss the issues raised during MSC 88 regarding "Operating anomalies in Electronic Chart Display and Information System (ECDIS)", as reported in document MSC 89/24/2 and proposing further steps which ought to be taken. Further, the Committee had been requested to consider as to how maximum advantage could be gained from feedback from seafarers; whether and, if so, how the Organization could adopt a role to coordinate the necessary programme of activities to address the issues of potential anomalies in type-approved ECDIS, using official ENCs, and establish processes, capabilities and modalities to achieve this. Delegations who spoke on the issue, fully supported the concerns outlined in documents MSC 89/24/2 and MSC 89/24/3 and were of the view that it was an important matter of relevance and concern for the COMSAR, NAV and STW Sub-Committees. It needed to be considered carefully on an urgent basis, and should therefore, as a first step, be referred to NAV 57 for initial detailed consideration. Accordingly, MSC 89 (MSC 89/25, paragraphs 24.6 to 24.9) decided to refer the matter to NAV 57 for further consideration under agenda item 14 "Any Other Business" and advise MSC 90 on the way forward.

14.41 The delegation of the United Kingdom was of the view that complex software based systems had teething problems and ECDIS was no exception. But, when these problems affected the safety of navigation, warning and informing needed to take place so that ship operators, mariners, manufacturers, custodians of standards, trainers, and port State control officers (PSCO) could be aware and take the appropriate remedial action. The delegation noted that there were three themes of anomaly in ECDIS, namely:

.1 IMO, IHO and IEC standards were not fully coordinated and this had left chart producers, Original Equipment Manufacturers (OEMs) and testers with problems of interpretation;

.2 genuine errors in charting and ECDIS manufacture; and

.3 software updates for ECDIS, where the latest version of the application software did not conform to the latest issues of the IMO, IHO or IEC standards.

The United Kingdom had therefore proposed, to MSC 89, that more action was needed, which might include the following areas of activity:

.1 systematically establishing a mariner-friendly list of ECDIS anomalies and publishing them worldwide;

.2 distribution of the same list to all ECDIS training providers, OEMs, nautical colleges and third party training providers and incorporating appropriate information and warnings in the relevant STCW Model Course and type-specific courses;

.3 distribution of the same list to OEMs and inviting corrective action and the publication of appropriate information to their system users;

.4 design, manufacture and distribute a "test card" program to enable navigators and PSCOs to determine if ECDIS is performing correctly; and

.5 taking a longer term look at how IMO, IHO and IEC standards could be coordinated.

The United Kingdom consequently expressed a preference for a small group of experts to correspond and act frequently, resulting in a report to MSC 90 of the actions completed, including any residual issues.

14.42 The IHO observer stated that software-based systems such as ECDIS were basically the same as any computer systems ashore, requiring periodic software upgrades and patches to continue to work effectively. Not surprisingly, ECDIS also required such periodic software upgrades. Since this was currently still not happening, IHO had convened a meeting of interested parties in February 2011 to discuss the matter further. One result of that meeting was the distribution of a test ENC to all ships using ENCs later this year. This simple test, which would be executed worldwide over the space of less than a month, would be provided to all mariners using ECDIS, enabling them to identify whether their equipment conformed to the latest standards, and highlight some of the known software deficiencies affecting certain manufacturers' ECDIS. This, once-only test could not, however, identify all potential problems. Seafarers would be invited to contact the manufacturer if their ECDIS appeared to fail the test. An anonymous, voluntary feedback mechanism would be supplied that would identify which specific ECDIS models were performing sub-optimally. However, there was no guarantee that mariners or shipowners would take the necessary action to bring any suspect equipment up to date, since there appeared to be no clear requirement for ECDIS software to remain up to date and deficiencies to be corrected in existing equipment. Features like Archipelagic Sea Lanes and PSSAs were unlikely to be displayed with the correct symbology in any ECDIS older than two and a half years without appropriate updates. There also were ECDIS being used at sea that would not detect and warn of a dangerous approach to land when using small scale ENCs, and no specific mechanism existed to ensure corrective action either by the manufacturer or ships at sea using those ECDIS. IHO had therefore agreed on the need for regular dialogue and

cooperation between all the relevant ECDIS stakeholders to consider and address problems with ECDIS software promptly and IHO might organize a similar meeting of key ECDIS stakeholders later in 2011 on conclusion of its global ECDIS testing campaign and report back to MSC 90. The IHO observer recalled that Administrations and mariners had been alerted to the importance of keeping ECDIS software up to date by SN.1/Circ.266 in 2007 and its revision early this year, seeking feedback on any problems being encountered with ECDIS software at sea. So far little, if any, response had been received, which did not necessarily indicate the lack of important safety of navigation issues with ECDIS equipment, but more likely, lack of appreciation by mariners and ship operators of the impact of outdated software. The IHO test data might help in raising awareness in this regard. The IHO observer underlined the need for action by the Organization in the interests of safety at sea, bearing in mind that the maintenance of ECDIS software had parallels with other existing computer-driven equipment on ships and would certainly have relevance to computer-based e-navigation compliant systems in future.

14.43 There was general support for the three themes and five activities as mentioned in the statement by the United Kingdom. The delegation of Australia offered to participate in the proposed expert body suggested by the United Kingdom. The delegations of Canada and the Netherlands indicated their support for the views of the United Kingdom. 14.44 The ICS observer, whilst supporting the views of the United Kingdom and IHO, had some reservations about training. ICS was of the view that training should focus on the use of generic systems rather than on type specific training. ICS further clarified that there was no reluctance on the part of shipowners to undertake updates of their systems as long as they were informed that updates were necessary.

14.45 The observer from IEC stated that the issues raised by the United Kingdom and IHO were fully recognized by IEC and that they would continue to cooperate with IMO and IHO in this respect.

14.46 The Chairman, in his summing up, thanked the United Kingdom and IHO for bringing these issues to the attention of the Sub-Committee. He also indicated that the establishment of an Expert body or *Ad Hoc* working group was not within the remit of the Sub-Committee. This decision would have to come from the Committee. In the meantime, the outcome of the discussions would be forwarded for consideration by MSC 90.

14.47 The delegation of the United Kingdom, whilst agreeing with the report of the Sub-Committee regarding the discussion about ECDIS, recalled that the Sub-Committee had been asked to advise MSC 90 on the way forward. The NAV 57 report does record some general support for views expressed by the IHO observer and one delegation, but it does not, in the United Kingdom's view, provide MSC 90 with guidance on "the way forward". The United Kingdom further recalled that the sponsors of document MSC 89/24/3 had invited MSC 89 to gain maximum advantage of feedback from seafarers and whether, and if so, how the Organization could co-ordinate a programme of activities to address the ECDIS anomaly issues raised, and distributed through some NAVAREA messages. However, the United Kingdom did not see this, in the present report and, notwithstanding the helpful document MSC.1/Circ.1391, no clear NAV 57 views on the way ahead concerning ECDIS anomalies in general, and the two particular issues mentioned. Hence, the United Kingdom urged the Sub-Committee to be as clear, supportive and encouraging as it could when it provided its advice to MSC 90 on the way forward.

14.48 The Secretariat clarified that at MSC 89, delegations that spoke on the issue, had fully supported the concerns outlined in documents MSC 89/24/2 and MSC 89/24/3 and were of the

view that it was an important matter of relevance and concern for the COMSAR, NAV and STW Sub Committees. It needed to be considered carefully on an urgent basis, and should therefore, as a first step, be referred to NAV 57 for initial detailed consideration. Accordingly, MSC 89 had decided to refer the matter to NAV 57 for further consideration under agenda item 14 "Any Other Business". COMSAR and STW still had to look at the issue and provide their comments; the consolidated comments of NAV, COMSAR and STW would enable MSC 90 to provide suitable guidance on the best way forward.