IMO Navigation, Communications and Search and Rescue Twelfth Session (NCSR 12)

Summary Report

Summary of significant outcomes

Below is a brief overview of some of the significant outcomes from NCSR 12:

NCSR finalised the draft amendments to SOLAS chapter V and related instruments to support the introduction of the VHF Data Exchange System (VDES) on voluntary basis. These include performance standards, operational guidelines, and provisions allowing VDES to replace AIS. The draft documents will be submitted to MSC 110 for approval and are expected to be adopted at MSC 111 in May 2026, with entry into force on 1 January 2028.

NCSR finalised draft guidelines on the carriage and use of an Electronic Nautical Publications (ENPs) system on board to support uniform implementation of SOLAS regulations V/19.2.1.4,V/19.2.1.5 and V/27. The guidelines will be submitted to MSC 111 for approval in May 2026, and should be effective immediately once approved.

NCSR finalised the draft MSC circular on guidelines for software maintenance of shipboard navigation and communication systems, focusing on cybersecurity, remote servicing, and standardised maintenance processes. The draft guidelines are expected to be submitted for approval at MSC 111 (expected May 2026) and should be effective immediately once approved.

NCSR continued work on the draft NAVDAT manual and roadmap for implementing the digital navigational data system, building on resolutions adopted at MSC 109. Due to time constraints, finalisation was deferred to NCSR 13 (expected June 2026), with approval expected at MSC 112 (expected December 2026).

Introduction

NCSR 12 took place 13 – 22 May 2025 at the IMO in London. This report provides a summary of the outcomes from the meeting which are significant to Lloyd's Register's (LR) work with our customers.

Lloyd's Register contributed in the Working Group on Navigation.

Additional Information LR's Summary Report for MSC 109 and Summary Report for NCSR 11

Navigation

Routeing measures and ship reporting systems

The safety of shipping and the cleanliness of oceans are enhanced by routing measures and ship reporting systems. Ship reporting systems further improve safety by providing real-time information on ship movements. SOLAS Chapter V designates the IMO as the sole international authority for establishing these systems, ensuring safe and efficient maritime navigation.

NCSR agreed on the following:

- A draft MSC resolution on amendments to an existing mandatory ship reporting system in the Adriatic Sea (ADRIREP)
- A draft SN circular on area to be avoided off the coast of Reunion, in the Mascarene Basin.
- Draft amendments to Resolution MSC.314(88) as a new annex for *In the Sound Between Denmark and Sweden (SOUNDREP)* and draft amendments to MSC.332 (90) in the existing annex for *In the Storebælt (Great Belt) Traffic Area (BELREP)* ship reporting systems.

The finalised drafts are expected to be adopted at MSC 111 in May 2026, with implementation expected six months later.

Information was submitted regarding the change of Chart Datum and value of minimum depth of 17.60 m in the deep-water route within the South Åland Sea traffic separation scheme. A proposal to issue an addendum 3 to SN.1/Circ.272 was approved by NCSR.

Development of procedures and requirements for the recognition of augmentation systems in the Worldwide Radionavigation System

Global Navigation Satellite Systems (GNSS) are the primary source of Positioning, Navigation and Timing (PNT) information for ships worldwide. While adequate for ocean navigation, standalone GNSS systems often lack the accuracy and integrity needed for navigation in coastal waters and harbour approaches. To address this, augmentation systems such as Radiobeacon Differential GNSS (DGNSS), SBAS (Satellite Based Augmentation System) and RAIM (Receiver Autonomous Integrity Monitoring) are widely used to enhance GNSS performance.

IMO has previously recognised GNSS and Regional Navigation Satellite Systems (RNSS) constellations as part of the Worldwide Radionavigation System (WWRNS) and adopted related performance standards. However, formal procedures and requirements for recognising augmentation systems within WWRNS are still lacking. In response, MSC approved outputs to develop such procedures before addressing performance standards for dual frequency multi-constellation satellite-based augmentation systems (DFMC SBAS) and advanced receiver autonomous integrity monitoring (ARAIM) in shipborne radionavigation receivers.

NCSR agreed on below:

- Recognition of augmentation systems is not necessary as they are considered to be a method of improving GNSS attributes, such as accuracy, integrity, continuity and availability, not forming part of the WWRNS.
- Draft MSC resolution on *Amendments to WWRNS* (resolution A.1046(27)) to incorporate additions to current procedures and requirements to include augmentation systems.
- Initiating work on development of performance standards for DFMC SBAS and ARAIM in shipborne radionavigation receivers at NCSR 13 (June 2026).

The draft MSC resolution is expected to be submitted for approval at MSC 111 in May 2026, with an anticipated entry into force on 1 January 2028.

Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce VHF data exchange system (VDES)

The Very High Frequency (VHF) Data Exchange System (VDES) integrates the functions of terrestrial and satellite VHF data exchange, Application Specific Message (ASM) and Automatic Identification System (AIS). VDES has additional capacity for the exchange of more digital data and could accommodate future growth in demand for using digital data in maritime radiocommunications. It was previously proposed at the IMO that there is a need to amend chapters IV and V of SOLAS to introduce VDES, and to develop performance standards and guidelines to facilitate the widespread adoption of VDES. Furthermore, MSC 108 agreed that the use of any new satellite system, including the VDES, for use in the GMDSS, should be recognised by the Organization in accordance with the applicable procedures.

NCSR in its last session agreed on a voluntary implementation of the VDES as further developments take place, which will allow it to be used concurrently with an AIS.

Progressing on, NCSR 12 finalised and agreed to the following:

- Draft amendments to SOLAS chapter V, in particular inserting words "or VDES" after "AIS".
- Consequential draft amendments to related mandatory instruments, such as the 1994 HSC Code and the 2000 HSC Code.
- Consequential draft amendments to the records of equipment for the passenger ship safety (form P), cargo ship equipment (form E) and cargo ship safety (form C) Certificates.

The draft instruments are expected to be submitted for approval at MSC 110 in June 2025 as an urgent matter and adopted at MSC 111 in May 2026, with an anticipated entry into force on 1 January 2028.

The following non-mandatory instruments are expected to be approved in principle at MSC 110 and formally adopted at MSC 111:

- A draft MSC resolution on *Introduction of VDES into the IMO regulatory framework*;
- A draft MSC resolution on performance standards for VDES; and
- Draft guidelines for the operational use of shipborne VDES.

Development of *guidelines for the carriage and use of electronic nautical publications (ENP) System*

SOLAS regulations V/19.2.1.4, V/19.2.1.5 and V/27 require ships to have nautical charts and publications for voyage planning, display and monitoring, which can be in electronic form with appropriate backups.

The use of ENPs in lieu of traditional nautical publications has surged in recent years due to their advantages. However, there is not an IMO instrument providing uniform instructions, though some guidance has been issued by national hydrographic offices. Therefore, urgent development of specific IMO-level guidance is considered necessary to ensure uniform and global implementation of the aforementioned SOLAS regulations.

Acknowledging this, NCSR finalised and agreed to a draft MSC circular on *Guidelines for the carriage and use of electronic nautical publications (ENP) system on board*.

The draft guidelines are intended for digital publications based on existing paper publications used on ships, rather than ENP displayed on Electronic Chart Display and Information Systems (ECDIS) and does not override any ECDIS performance standards requirements. It focuses on aspects such as hardware and software, adequate backup arrangements and power supply, rather than defining specific performance standards.

The draft guidelines are expected to be submitted for approval at MSC 111 in May 2026 and should be effective immediately once approved.

Communications

Development of guidelines for software maintenance of shipboard navigation and communication equipment and systems

As reliance on computer-based navigation and communication systems grows, effective software maintenance has become critical for maritime safety and operational efficiency. In response to industry challenges and evolving cyber risks, MSC 107 approved the development of non-mandatory guidelines, focusing on equipment regulated under SOLAS chapters IV (Radiocommunications) and V (Safety of Navigation).

An initial industry standard, developed collaboratively by shipowners, service providers, classification societies, and equipment manufacturers, laid the foundation for these draft guidelines. Building on this, NCSR 12 considered the draft guidance for software maintenance that promotes standardised, secure, and transparent processes. The guidelines aim to minimise downtime, enhance system reliability, improve crew awareness, and strengthen cybersecurity without increasing the frequency of maintenance tasks.

Key features of the draft guidelines include:

- Clear roles and processes for initiating, planning, and executing maintenance,
- Cybersecurity and safety measures throughout the maintenance lifecycle,
- Use of electronic service reports and onboard software logs,
- Training and certification of service personnel by equipment manufacturers,
- Guidance for remote maintenance.

NCSR agreed to the draft MSC circular on *guidelines for software maintenance of shipboard computer-based navigation and communication equipment and systems*. The draft guidelines are expected to be submitted for approval at MSC 111 in May 2026 and should be effective immediately once approved.

Development of guidance to establish a framework for data distribution and global IP-based connectivity between shore-based facilities and ships for ECDIS S-100 products

To support the transition to next-generation S-100 capable electronic chart display and information systems (ECDIS), MSC 109 recognised the need for a robust framework enabling secure and standardised IP-based data exchange between shore-based facilities and ships. This transition is essential for delivering real-time navigational, meteorological, and other S-100 products, enhancing maritime safety and situational awareness.

NCSR 12 considered the draft guidance to establish a framework for data distribution and global IP-based connectivity for shore-based facilities and ships supporting ECDIS S-100 products. The draft guidance aims to address the technical, operational, and cybersecurity challenges associated with the transition to S-100 ECDIS. It leverages existing digital technologies such as the Maritime Connectivity Platform (MCP) and the Secure communication between ship and shore (SECOM) Protocol to ensure:

- Secure communication through encryption and authentication.
- Service discovery within maritime digital networks.
- Data interoperability across different systems.
- Real-time data exchange for timely access to critical updates.

The draft guidance also emphasises the importance of training shore-based staff and familiarising seafarers with the new systems. While designed for S-100 ECDIS, the framework can be extended to other maritime digital services, supporting the sector's broader digital transformation.

Due to time constraints, the review of the draft guidelines and the draft list of elements associated with the implementation of S-100 capable ECDIS could not be completed, and the work will continue during the intersessional period. Finalisation is expected at NCSR 13 next year, with approval anticipated at MSC 112. The guidelines should be effective immediately upon approval.

Search and Rescue

Developments in GMDSS services, including guidelines on maritime safety information (MSI)

Issues concerning the dissemination of maritime safety information (MSI) and search and rescue (SAR)

MSC 108 discussed significant developments in Global Maritime Distress and Safety System (GMDSS) services, particularly focusing on the dissemination of Maritime Safety Information (MSI) and instructed NCSR to draft amendments to SOLAS, mandating the dissemination of MSI and SAR (Search and Rescue) related information through all operational RMSSs (Recognised Mobile Satellite Services). The implementation date for disseminating MSI through all operational RMSSs was set to be no later than 31 December 2026.

In line with above, NCSR at its last session had Instructed the joint IMO/ITU Experts Group to draft SOLAS amendments. NCSR at this session finalised and agreed to below draft amendments to clearly state the requirement for dissemination of maritime safety information and SAR related information through all operational recognised mobile satellite services:

- Draft amendment to SOLAS regulation IV/5 (provision of radiocommunication services), SOLAS regulations V/4 (navigation warnings) and SOLAS V/5 (meteorological services and warnings);
- Draft amendment to Resolution MSC.509(105) on *Provision of radio services for the Global Maritime Distress and Safety System*.

The draft instruments are expected to be submitted for approval at MSC 110 in June 2025 as an urgent matter and adopted at MSC 111 in May 2026, with an anticipated entry into force on 1 January 2028.

Consideration of matters related to NAVDAT (A digital navigational data system) implementation

At its last session NCSR approved the draft MSC resolution on *Performance Standards for digital navigational data system (NAVDAT)* and the draft revision of resolution MSC.509(105) on *Provision of radio services for the Global Maritime Distress and Safety System (GMDSS),* which later got adopted by MSC 109. It further Instructed the Joint IMO/ITU Experts Group to review the draft NAVDAT manual, consider the revised roadmap, and advise accordingly.

Considering the work done by the Joint IMO/ITU Experts Group, NCSR 12 continued work on developing the draft NAVDAT manual. It also progressed on the road map on the issues to be considered regarding the introduction of the NAVDAT service.

Due to time constraints, the review of the draft manual could not be completed and will continue during the intersessional period. Finalisation is expected at NCSR 13 next year, with approval anticipated at MSC 112 in December 2026. The guidelines should be effective immediately upon approval.

Development of global maritime SAR services, including harmonisation of maritime and aeronautical procedures and amendments to the IAMSAR Manual

Search and rescue impacts of MASS

MSC 109 considered the search and rescue implications for Maritime Autonomous Surface Ships (MASS), noting that Chapter 23 of the MASS Code remains under development. It decided that the invitation to NCSR to review the chapter will take place after the finalisation and adoption of the non-mandatory code - finalisation of the Code is expected at MSC 111 in May 2026.

Additionally, following the work carried out by the ICAO/IMO Joint Working Group, NCSR noted the understanding that remotely piloted aircraft (RPA) and other autonomous craft are not required to conduct searches for craft with no persons on board, and that distress beacons should not be used for alerting on craft with no persons on board.

Amendments to the IAMSAR Manual

This is a standing agenda item which addresses amendments to the IAMSAR Manual. Shipowners, operators and Masters should note that the IAMSAR Manual is a surveyable item and ships are required to carry the most up to date edition. The current edition of the IAMSAR Manual was published on 1 June 2022. The next edition had been finalised at NCSR 11 last year and is due to be published in June 2025.

NCSR at this session initiated the work on the preparation and discussion of proposed draft amendments to the IAMSAR Manual for its 2028 edition. The following matters for discussion and finalisation at future sessions of NCSR may be included in that edition:

- Radar SART and the related draft amendments.
- Psychology of emergency on the principle that SAR personnel could benefit from further detailed guidelines on psychological first aid, including the possibility of developing a draft circular on the subject.
- Optimising homing operations for 406 MHz distress beacons and automatic identification system (AIS) signals.
- Guidance on submarines and passenger submersible craft and related SAR issues.

Additionally, NCSR also agreed to a revision of *Procedure for responding to DSC distress alerts by ships* (MSC.1/Circ.1657), comprising modifications to enhance consistency and alignment with the relevant provisions of Recommendation ITU-R M.541-11 (*Operational procedures for the use of digital selective calling equipment in the maritime mobile service)* as well as of those in Recommendation ITU-R M.585-9 (*Assignment and use of identities in the maritime mobile service*). The draft revision is expected to be submitted to MSC 111 for approval in May 2026, and should be effective immediately once approved.

Subject to approval of the draft revisions to MSC.1/Circ.1657, consequential amendments to IAMSAR and GMDSS manuals would be necessary in due course.

Guidance for entering and updating information on search and rescue services into the Global SAR Plan

NCSR 11 last year identified the need to improve guidance on entering and updating maritime search and rescue (SAR) service information in the GISIS Global SAR Plan. The Secretariat was tasked with preparing consolidated guidance, incorporating existing materials and new criteria for defining Search and Rescue Regions (SRRs). This supports harmonisation of maritime and aeronautical SAR procedures and enhances global SAR coordination.

NCSR finalised and approved the draft COMSAR circular on *Guidance for entering and updating information on search and rescue services* into the Global SAR Plan and on how to get access to the information for operational use.

Revision of the Performance Standards for Shipborne BeiDou Satellite Navigation System (BDS) Receiver Equipment (resolution MSC.379(93))

The BeiDou Satellite Navigation System (BDS) was recognised by IMO in 2014 as part of the World-Wide Radionavigation System (WWRNS), with performance standards adopted under resolution MSC.379(93). Since its full commissioning in 2020, BDS has operated reliably and now offers enhanced services, including improved positioning accuracy, dual-frequency capabilities, and global PNT and messaging functions.

In response to these advancements, a proposal was submitted to the NCSR to revise the performance standards. The draft revision enables the shipborne BDS receiver equipment to support or integrate new navigation signals and support the use of single-frequency and dual-frequency modes with enhanced positioning accuracy and sensitivity to promote the development of equipment in the maritime industry and enable maritime users to use the improved services provided by BDS.

Following consideration of the proposed amendments, NCSR 12 reviewed and finalised the draft revision of MSC.379(93) *Performance standards for shipborne BeiDou Satellite Navigation System (BDS) receiver equipment* to align with the current BDS capabilities.

The draft revision is expected to be submitted to MSC 111 (May 2026) for approval and should be applicable to the BDS receiver equipment installed on or after 31 July 2028.

Any other business

Progress on standards development by IEC

Technical Committee 80 of the International Electrotechnical Commission (IEC TC 80) is responsible for the preparation of standards for maritime navigation and communication equipment and systems.

NCSR 12 noted the report from IEC TC 80 on the progress of standards completed and under development which will support performance standards and other IMO instruments. This is a standard report which included, but is not limited to the following):

Area	Standard	Status
GNSS	**IEC 61108-8**: *Maritime navigation and radiocommunication equipment and systems - Global navigation satellite systems (GNSS) - Part 8: Quasi-Zenith Satellite System (QZSS) receiver equipment - Performance requirements, methods of testing and required test results.*	Target publication: 2028
ECDIS	**IEC 61174 (revision)** *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*	In progress
CMDS (Route Exchange)	**IEC 63173-1**: *Maritime navigation and radiocommunication equipment and systems - Data interfaces - Part 1: S-421 route plan based on S-100* and **IEC 63173-2**: *Maritime navigation and radiocommunication equipment and systems - Data interfaces - Part 2: Secure communication between ship and shore (SECOM).*	In progress, alongside ECDIS standard
VDES	New standard in progress	Ongoing with ITU & IALA
GMDSS (VHF)	**IEC 61097-7 (revision)** *Global maritime distress and safety system (GMDSS) - Part 7: Shipborne VHF radiotelephone transmitter and receiver - Operational and performance requirements, methods of testing and required test results*	Target publication: **2026**
GMDSS (MF/HF)	**IEC 61097-9 (revision)** *Global maritime distress and safety system (GMDSS) - Part 9: Shipborne transmitters and receivers for use in the MF and HF bands suitable for telephony, digital selective calling (DSC) and reception of Maritime Safety Information and Search and Rescue related information - Operational and performance requirements, methods of testing and required test results*	Target publication: **2026**
VHF DSC (Non-SOLAS)	**IEC 62238 (revision)** *Maritime navigation and radiocommunication equipment and systems - VHF radiotelephone equipment incorporating Class "D" Digital Selective Calling (DSC) - Methods of testing and required test results* This standard is of interest to ships for which the SOLAS Convention does not apply but that participate in the GMDSS.	In progress

Bridge Alert Mgmt.	**IEC 62065 (revision)** *Maritime navigation and radiocommunication equipment and systems - Track control systems - Operational and performance requirements, methods of testing and required test results.*	Target publication: **2026**

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