Future vision for S-124 dissemination.

Submitted by USA

SUMMARY

Executive Summary: This document discusses and presents proposals to assist the sub-committee with its deliberations on the dissemination of S-124 navigational datasets, the relationship with S-124 navigational warnings to traditional MSI promulgated through the GMDSS, and potential implementation timelines for various future state scenarios. Additionally, this document presents various S-124 coordination schemes and mechanisms to facilitate global dissemination of S-124 datasets.

Action to be taken: Paragraph 5

Related documents: NCSR 11/WP.8, A.706(17), MSC.1/Circ.1645, HSSC16-07.1C

Background

1.1 The current timeline for the start of the dissemination of maritime navigational warnings in the S-124 format should begin on January 1, 2026 as per [HSSC ___]. Noting the discussions and decisions of the IMO MSC 108 and IMO NCSR 11, it has become apparent that there needs to be discussions regarding the future state of S-124 navigational warning promulgation.

1.2 Numerous Regional Hydrographic Commissions have started to create S-100 coordinators to monitor and facilitate the development of S-100 products within their respective commissions.

1.3 The report of the working group on SAR and other technical matters at NCSR 11 (NCSR 11/WP.8) requests Member States submit urgent proposals to MSC 109 for a work item on S-100 implementation. The time has come for the WWNWS-SC to discuss and agree on what method or methods it expects to use to provision and disseminate S-124 data.

Overarching Questions

2.1 Prior to discussing potential options and timelines for various future states of dissemination, the USA feel that there should be answers to various questions that would contribute to these discussions.

2.2 **Question 1: Is a S-124 dataset considered maritime safety information that is subject to the procedures as laid out in IMO and ITU documentation?**

2.2.1 As per the revised MSC.469(105) and as defined in SOLAS IV/2.1.10, *Maritime Safety Information* means navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships.

2.2.2 Per MSC.468(105), *Navigational warning* means a message containing urgent information relevant to safe navigation broadcast to ships in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.

2.2.3 The ITU RR define MSI as (No. **33.V.1**) navigation and meteorological warnings, meteorological forecasts and other urgent messages pertaining to safety transmitted from coast stations or coast earth stations. This was last updated in 2007.

2.2.4 HSSC discussed this topic through paper HSSC16-07.1C detailing the work required at ITU if S-124 navigational warnings are considered Maritime Safety Information and therefore subject to Section V of Art. 33 of the ITU RR which details the mode and format of transmissions for MSI. If S-124 is considered MSI, MSI providers will need to ensure that S-124 datasets are transmitted in accordance with Section V of Art. 33.

2.2.5 If S-124 datasets are not considered MSI, datasets would be open to a multitude of dissemination options that could bring potential opportunities. Additionally, they may be considered under ITU RR Art. 33.53 Section VII - Use of other frequencies for safety as "communications relating to the navigation, movements and needs of ships and weather observations may be conducted on any appropriate communications frequency"

2.4 Question 3: Note the impacts, including cost, to information providers and to seafarers, how do we ensure global S-124 coverage?

2.4.1 Is there a need to find a technical solution for information providers to covert S-53 to S-124?

2.4.2 The WWNWS-SC has seen demos, over the past few years, of IT solutions that have been developed by different NAVAREAS. Most of these solutions are custom that that NAVAREAs operation. Is there a need to share development of a basic S-124 platform, which could be made available to any navigational warning provider?

2.4.3 How would additional MSI providers (national coordinators) be handled? S-124 provides that opportunity for additional MSI providers due to the ease with which S-124 could be promulgated (i.e., IP-based).

Potential future state of navigational warning promulgation.

3.1 **Option 1 – S-124 datasets will be promulgated via MSI dissemination methods with a primary frequency allocation, approved by ITU (Appendix 15). The current structure of the provision of navigational warnings throughout the WWNWS would be used to provide an identical framework for S-124 datasets.**

3.1.1 S-124 navigational Warnings would be promulgated via a Maritime channel(s) with a primary allocation as stated in Appendix **15** the ITU Radio Regulations. Additional

channel(s) may be required due to bandwidth/capacity limitations of the current frequency allocations; subsequently, these would require protection through the ITU. Additionally, the provision of S-124 would be handled through the use of traditional NAVAREA boundaries, coastal warning service areas, and the distribution of S-124 producer codes would be administered by the IHO WWNWS-SC.

3.1.2 Technical service delivery, timelines and other items to consider: This option may require work at IMO to draft a liaison statement to the ITU to try to protect frequencies at a WRC, at the earliest 2031, more likely 2035. If information was to be disseminated via a channel that is already protected, it would likely not be possible to share that frequency, protecting our legacy services. Lastly, this treats S-124 navigational warnings in a way in which it may be possible to edit MSC.1/Circ.1645 where S-124 is considered an acceptable way for a vessel to meet its navigational warning requirements in accordance to the SOLAS convention. It is important to note that if there is the potential, the current infrastructure (RMSS) may have to be modified, that some of that cost could be expected to find its way back to the MSI providers.

3.1.3 Provision of MSI: In this option the provision of S-124 navigational warning datasets would be very controlled. The recommendation is to have S-124 certificates for information providers, similar to the approval process for EGC certificates, which would also include the assignment of a S-124 producer code. All MSI providers would need to apply to the WWNWS-SC for a S-124 producer code. This would ensure that the navigational warnings a seafarer would consume on an ECDIS matches what they receive over the International EGC or International NAVTEX service. The provision of the International S-124 Navigational Warning Service would essentially mirror the GMDSS master plan.

3.2. Option 2 - S-124 datasets will be promulgated via MSI dissemination methods with a primary frequency allocation, approved by ITU. However, the provision of S-124 navigational warnings datasets globally would be handled in a new to-be-determined framework, not subject to our legacy boundaries.

3.2.1 S-124 navigational Warnings would be promulgated via a Maritime channel(s) with a primary allocation as stated in the ITU Radio Regulations. These channel(s) may require the protection of frequencies through the ITU. Current dissemination methods may also be used for the dissemination of datasets. This option has the same technical service delivery as option 1, however, this option would allow for a new provision of navigational warnings globally, potentially on a member state by member state basis.

3.2.2 Technical service delivery and timelines and other items to consider: This option would mirror the same technical service delivery and timelines as option 1, as stated in paragraph 3.1.2.

3.2.3 Provision of MSI: S-124 presents a unique opportunity to completely change the fabric of how MSI is provisioned. Currently the WWNWS can be broken down into NAVAREAS, NAVTEX coverage and service areas, and Coastal EGC service areas. Coastal Warnings are provided by a National Coordinator or NAVTEX Coordinator and NAVAREA Warnings are provided by a NAVAREA Coordinator. There is the potential to turn dissemination into a more seamless enterprise. For example, instead of investing significant funds into a NAVTEX station, an MSI provider looking to provide Coastal Warnings, could invest in an IT solution (either custom or open source) to provide S-124 navigational warnings for their waters. This option would allow more administrations to be actively involved in the

promulgation of navigational warnings in their waters, minimizing the need for the NAVAREA coordinator to promulgate navigational on an administration's behalf.

3.3 Option 3 – S-124 navigational warning datasets would use of secured internet protocol (SECOM) for near real time technical service delivery. While the current structure of the provision of navigational warnings throughout the WWNWS would continue to be used.

3.3.1 This option would have S-124 navigational warning datasets promulgated via a general internet protocol communication that is not subject to a technical service delivery mechanism with a primary frequency allocation from the ITU. The use of general internet protocol communications in conjunction with the IEC SECOM protocol and S-100 Part 15 (Encryption and Data Protection) would allow for secure communications. This is a technology agnostic solution in which a ship could choose its own internet provider to receive their S-124 navigational warning datasets in a near real time capacity. Additionally, the provision of S-124 would be handled using traditional NAVAREA boundaries, coastal warning service areas, and the distribution of S-124 producer codes would be administered by the IHO WWNWS-SC.

3.3.2 Technical service delivery timelines and other items to consider: The advent of S-100 opens doors to incorporate new technologies to improve navigational warning delivery at sea. Currently the MSI dissemination framework allows for either EGC or terrestrial radio (NAVTEX) communications. With general satellite communications becoming more prevalent and affordable, it would seem reasonable to utilise these communication frameworks to support the next generation of MSI products. The use of a Maritime Connectivity Platform (MCP) and Maritime Messaging Service (MMS) platform in conjunction with the IEC SECOM protocol and the proper S-100 authentication mechanisms could provide a secure method to provide a near real time service to be consumed by the S-100 ECDIS. This allows for more seamless IT integration between MSI production systems and the potential for more efficient dissemination of navigational warnings. Concerns could possibly include the need for an oversight body to monitor the health of such a system? This could put the onus on the vessel's ECDIS receive S-124 navigational warning datasets. Lastly, this would be a technology agnostic service would allow shipping companies to choose their preferred communications provider.

3.3.3 Provision of MSI: This option would mirror the same provision of MSI as option 1, as stated in paragraph 3.1.3.

3.4 Option 4 - The use of secured internet protocol (SECOM) in proving the provision of navigational warnings globally in a new to be determined framework.

3.4.1 1 This option would have S-124 navigational warning datasets promulgated via a general internet protocol communication that is not subject to a technical service delivery mechanism with a primary frequency allocation from the ITU. The use of general internet protocol communications in conjunction with the IEC SECOM protocol and S-100 Part 15 (Encryption and Data Protection) would allow for secure communications. This is a technology agnostic solution in which a ship could choose its own communications provider and receive their S-124 navigational warning datasets in a near real time capacity. This option has the same technical service delivery as option 3, however, this option would allow for a

new provision of navigational warnings globally, potentially on a member state by member state basis, which was described in option 2.

3.4.2 Technical Service Delivery Timelines and other items to consider: This option would mirror the same technical service delivery and timelines as option 3, as stated in paragraph

3.4.3 Provision of MSI: This option would mirror the same provision of MSI as option 2, as stated in paragraph 3.2.3.

3.5 Option 5 - A phased approach that allows for different aspects of the above four options.

3.5.1 The above four options range in timeline and vision for near real time dissemination of navigational warnings. There is however no reason that the provision of S-124 navigational warnings has to be provided by only one of these options. Due to the fact that it may take a significant period of time for S-124 services to be consumed by the majority of SOLAS class vessels. The WWNWS could attempt to keep S-124 navigational warnings services open as much as possible initially (option 4) to learn and identify best practices for MSI providers. With the view to slowly add regulations over the course of time to 1.

3.5.1.1 Allow for the development or revision of maritime dedicated safety channels or 2.

3.5.1.2 Ensure that a cloud-based dissemination model can handle global MSI with potentially hundreds of MSI providers both in the local and international service, and 3.

3.5.1.3 Allow the S-100 universal data model and its associated overlays such as S-124 navigational warnings to prove itself over time. This could allow for a long dual period increasing costs to navigational warning providers but could allow for the potential retirement of legacy GMDSS systems over the course of time.

4. Recommendations

4.1 Develop a WWNWS view, in general, for how to address the provision and dissemination of S-124 navigational warning datasets in conjunction with traditional GMDSS navigational warning services, considering the above five options and timelines.

4.2 Develop a WWNWS view, in general, to the questions as outlined in paragraph 2

4.3 Encourage all MSI providers to develop S-124 navigational warning datasets in accordance with the decisions and timelines of IHO.

5. Actions Requested of the Sub-Committee:

5.1 The WWNWS-SC is invited to:

5.1.1 note the background provided in paragraph 1;

5.1.2 discuss further the questions proposed to the sub-committee in paragraph 2 and the various options as described in paragraph 3

5.1.3 allow the IHO secretariat to take appropriate action at IMO to best represent the view of the WWNWS-SC regarding this topic.