

The Report on Production and Application of S-124 Data in China

Submitted by China

SUMMARY

Executive Summary: This proposal outlines some of the work China MSA has undertaken in the practice of S-124 product production, including software development, data production, developments of e-Navigation technical services, and the applications in the APP and shipborne ECS. It is hoped that the WWNWS S-124PT will take note of these developments.

Action to be taken:

Related Documents : S-124_Navigational_Warnings_Ed_1.0.0

Related Projects: IHO S-124PT

1. Introduction / Background

In May 2023, IHO approved and released S-124 edition 1.0.0.

According to the decision made at the 108th session of the IMO Maritime Safety Committee(MSC108), S-100 format messages will be used to transmit MSI in ECDIS. The first phase, which includes the S-124 navigational warnings, is scheduled to be officially implemented from 2026. Based on the edition 1.0.0, China has carried out the production and application of S-124.

2. Analysis / Discussion

Development of S-124 Data Production Software

Based on S-124, China MSA has developed a navigational warning production software. This software can input various types of information, features, and associations of S-124 navigational warnings, achieving the automatic conversion of spatial data from text to graphics. The software can be used to produce navigational warnings that complies with S-124.

添加S124航行通/警告(Navigational Warnings)
✕

默认语言: 中文 英文

✚ * 航行警告序言(NAVWARNPreamble) 收起^

添加 选取

✚ * 航警信息部分(NAVWARNPart) 收起^

固定的日期范围(FixedDateRange)(0个) 添加

限制类型(restriction)

请选择 v

要素名称(FeatureName)(0个) 添加

* 航警信息(WarningInformation)(0个) 添加

空间对象(0个) 图层选取 v 选取空间对象 添加空间对象 ^

关联的要素(FeatureReference)(0个) 添加

文本位置设置(TextPlacement)(0个) 添加

航行警告影响地区(NAVWARNAreaAffected)(0个) 图层选取 v 选取空间对象 添加空间对象 ^

Figure 1: Information and feature Input page

新建空间对象

* 几何类型 线

* 坐标格式 度分

名称 请输入空间对象名称

绘制 定位 文本识别

编号	纬度	经度	操作
1	22-05.00 N	113-51.10 E	↑ ↓ + -
2	22-08.35 N	113-51.10 E	↑ ↓ + -
3	22-10.32 N	113-50.07 E	↑ ↓ + -
4	22-14.00 N	113-49.14 E	↑ ↓ + -
5	22-18.52 N	113-48.08 E	↑ ↓ + -
6	22-24.80 N	113-50.99 E	↑ ↓ + -

清空坐标 确定 取消

搜索船舶、港口、水文、航警、水域、航标

空间坐标

LENGTH OVERALL 400 METRES SPEED 5 KNOTS VIA 22-05.00N/113-51.10E,22-08.35N/113-51.10E,22-10.32N/113-50.07E,22-14.00N/113-49.14E,22-18.52N/113-48.08E,22-24.80N/113-50.99E,22-26.59N/113-52.53E,22-29.75N/113-51.20E AND 22-30.10N/113-50.92E.WIDE BERTH REQUESTED. SHENZHEN MSA CHINA.

确认 取消

Figure 2: Spatial Data Input Page

Production of S-124

Navigational warnings and Navigational Notices in China, including Chinese and English ones, were produced via the software into navigational warning data in compliance with S-124.

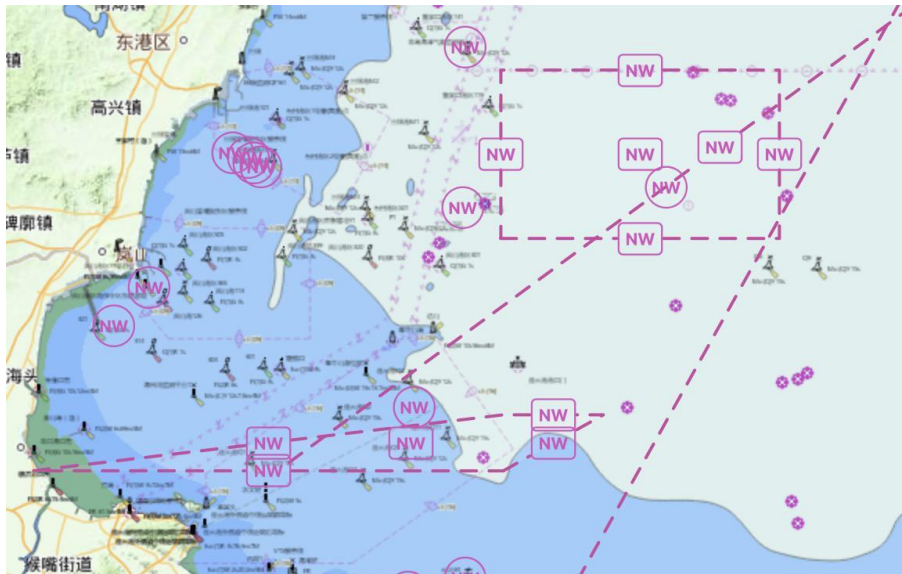
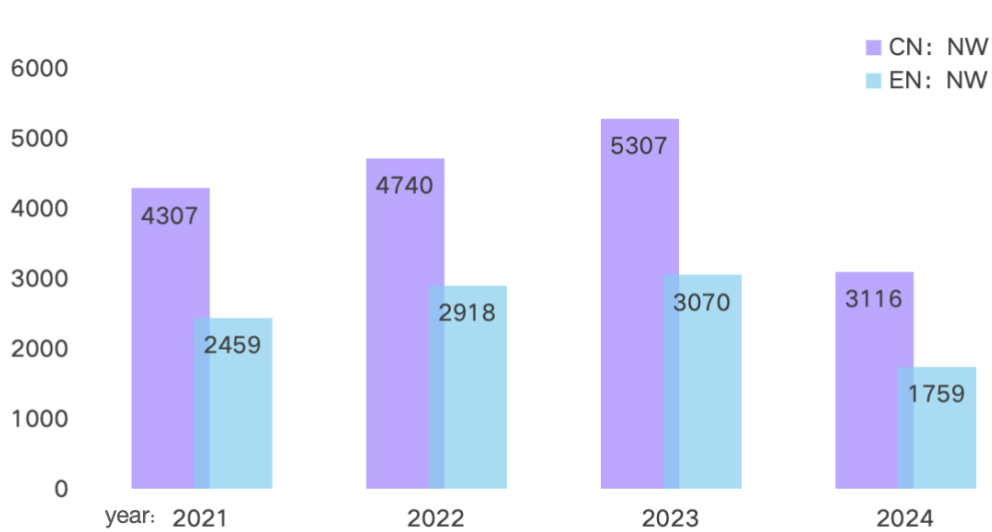


Figure 3: Display of S-124 Navigational Warnings

China MSA has been producing S-124 data for 4 years, and annually produces volume navigational warnings is shown in Figure 4 in Chinese and English.



The accumulative total number of coastal navigation warnings issued by the Southern Navigational service Centre in chinese and English language

Figure 4: Display of S-124 Navigational Warnings

Providing Data through E-Navigation Technical Services

Since there is no ECDIS that supports S-100 format to verify the application of S-124 for the time being, China MSA actually verify the application of S-124 data in navigation through mobile APP (iSailing) and ECS.

Considering that mobile APP and ECS are flexible, convenient, and can be used online, China MSA provide NW services to end users through e-Navigation technical services.

Based on the Specification of e-Navigation Technical Services(G1128) published by IALA, the e-navigational technical service specification, technical design and service instances for "Navigational warnings" have been developed. In this specification, the S-124 data model is used to encapsulate navigational warnings. It provides S-124 data or technical services to the application end through service interfaces. These technical services can directly provide navigational warnings for specific areas or navigational warnings related to a certain route, facilitating digital interaction between server-side systems (machines) and client-side systems (machines).

In terms of technical design, the REST protocol has been used to encapsulate the interface.

The application of S-124 in iSailing(app)

In iSailing APP, users can view the S-124 features, as well as query their details. The following figures are examples:

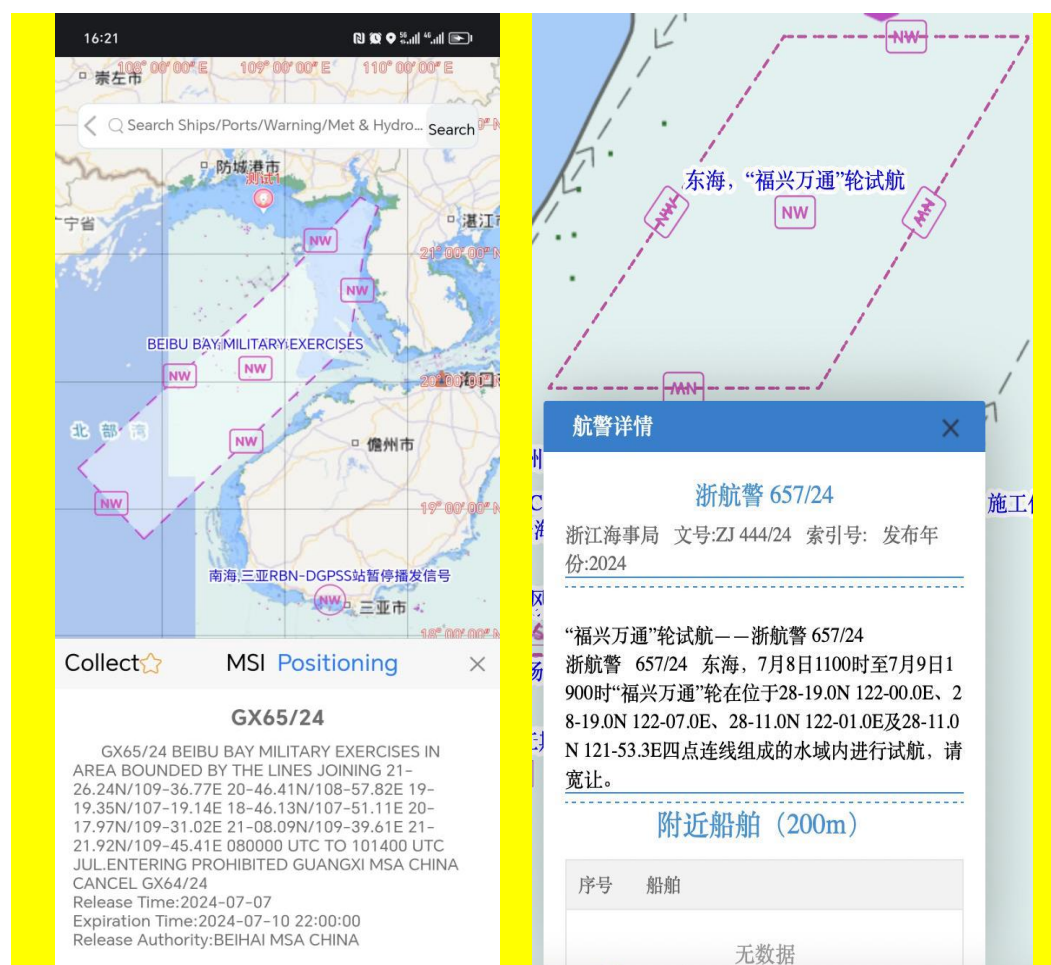


Figure 5: The application of S-124 in iSailing

For navigation users, a better way may be to directly provide appropriate prompt information, similar to the way of land vehicle navigation apps. Users do not need to view and read detailed navigation warning texts, but can directly obtain navigation warnings or prompts by calling the functional interface provided by e-Navigation technology services, so as to obtain the requirements of navigational warnings, for example, traffic restrictions, no entry, etc..This approach provides a better user experience and makes the products based on S-124 easier and more convenient, and may be more suitable for MASS-oriented services in the future.

For example, when navigation users use iSailing, if their routes intersect with area affected by S-124 navigational warnings, iSailing will automatically assess the impact and provide warnings or prompts, as shown in the figure below.

During route planning, the APP can verify the relationship between their routes and navigational warnings, identifying restricted zones such as "military exercise" areas, and prompting users to adjust their routes.

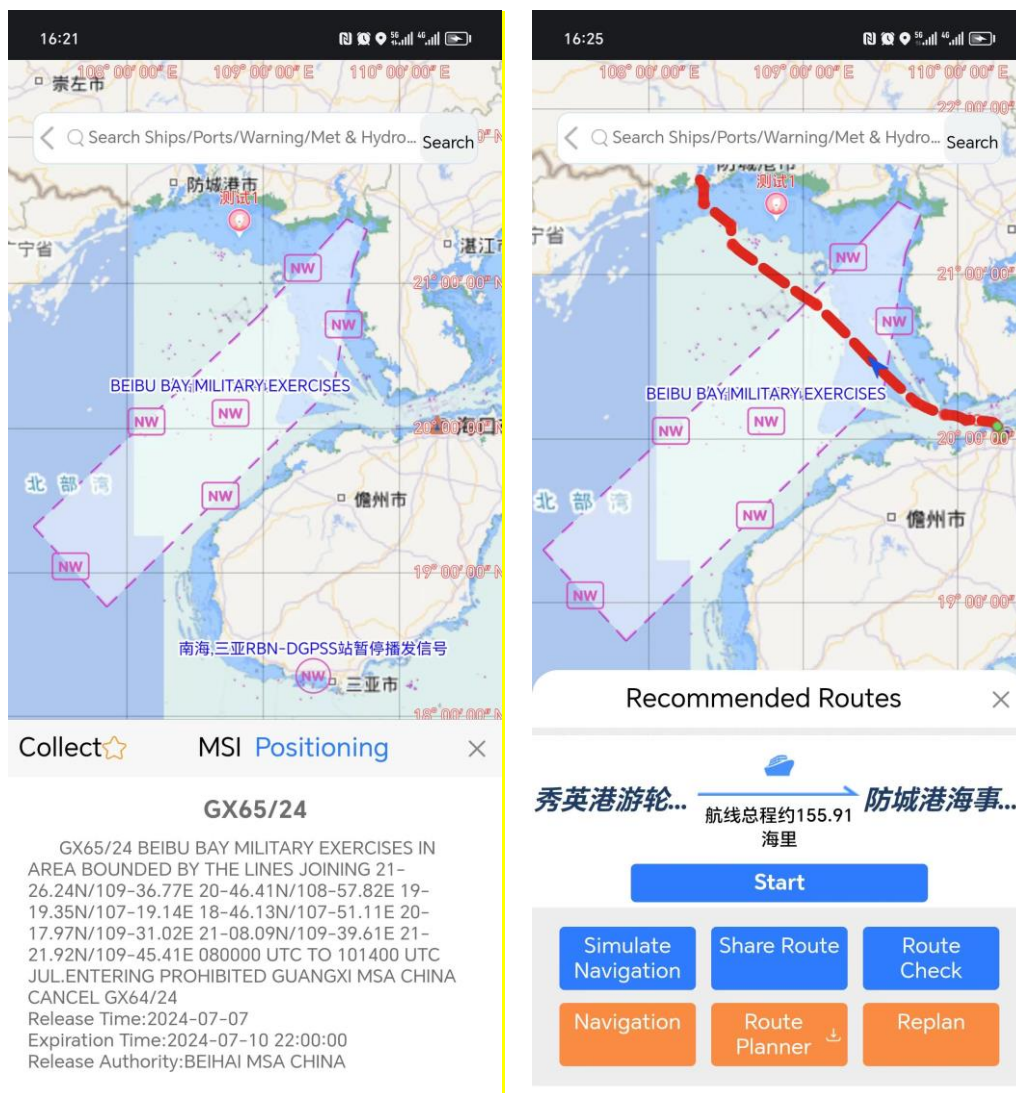


Figure 6: the relationship between the route and the navigational warning restricted area

iSailing is a free APP available in both Chinese and English versions, providing

navigational warnings and services in China coastal areas by invoking e-Navigation technical services. It provides S-124 and S-127 data for the time being. The Android version can be downloaded through the following link:

<https://sj.qq.com/appdetail/com.maphao.shipnavigation.show>

While the iOS users can search for 'iSailing' in App Store to install.

The application of S-124 in shipborne ECS

China MSA tried to collaborate with ECS manufacturers as well. S-124 data has been integrated into shipborne ECS, enabling data access, display, and intelligent assessment of navigational impacts on ECS terminals. This helps vessels better avoid risks, optimize routes, and enhance the accuracy and safety of ship navigation. The following figure shows the S-124 navigational warnings in shipborne ECS.

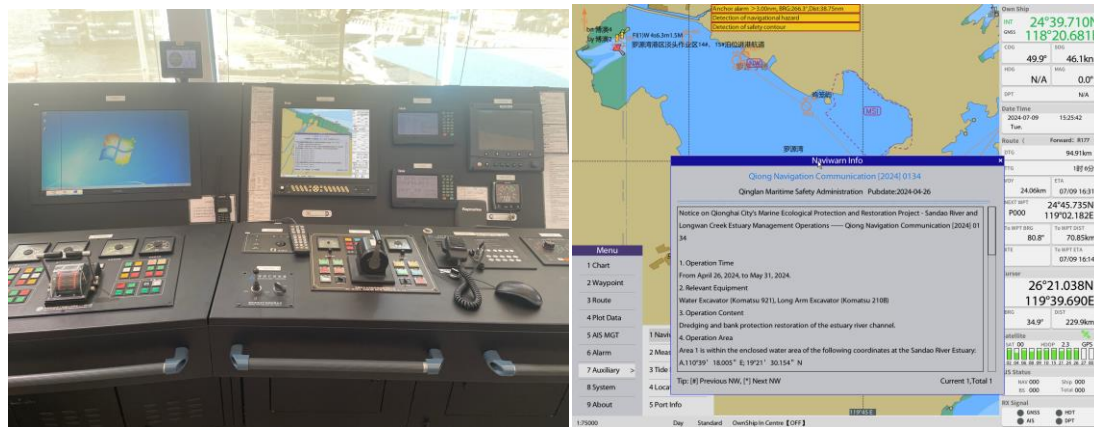


Figure 7: The application of S-124 in shipborne ECS

Currently, S-124 data has been applied in the ECS of 3,235 vessels along China's coastal and inland waters. The distribution of shipborne ECS is shown in the figure below.



Figure 8: The application of S-124 in shipborne ECS

3.Conclusions

China MSA has already carried out the work related to S-124, developed its production capabilities, and produced NW data that complies with S-124. The data has been applied in *iSailing APP* and certain shipborne ECS, providing a good practice for S-124.

China MSA will continue the S-124 related research and application, and is willing to Provide services to users.

4.Action required of WWNWS and S-124PT

The working group is requested to:

Note this proposal, Understand the work China has done regarding S-124.