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Agenda item [[2]](#footnote-2) 3.2

Technical Domain / Task Number 2 ………………………

Author(s) / Submitter(s) CHINA MSA……………

Application of e-AtoN for marking wrecks in Shanghai Port

# Summary

Due to the ship flow is large and the navigation environment is complex in Shanghai port, once ship sinking accident happened, the possibility of secondary accidents is greater. In order to improve the effectiveness of AtoN for marking wrecks, CHINA MSA Shanghai AtoN Department has developed e-AtoN for marking wrecks with the functions of monitoring ships in nearby waters, broadcasting early warning information, setting up virtual AIS AtoN, by using multi-link communication, AIS, electronic fence and other technologies to intelligently upgrade and transform the traditional buoys, and carried out relevant application tests in Shanghai port.

## Purpose of the document

The purpose of this proposal is to introduce the application and test of e-AtoN for marking wrecks in Shanghai port.

## Related documents

N/A

# Background

With the economic development of Shanghai port, ships are becoming large-scale, rapid and intensive flow. And, there are many sshallow waters in Shanghai port. All these can be lead to ship sinking accidents which brings unprecedented pressure to navigational ships. How to use modern scientific and technological means to empower traditional AtoN for aiding to navigation more effectively and helping the development of shipping economy better, that is the work direction of AtoN department.

# Discussion

## Upgrading and transformation

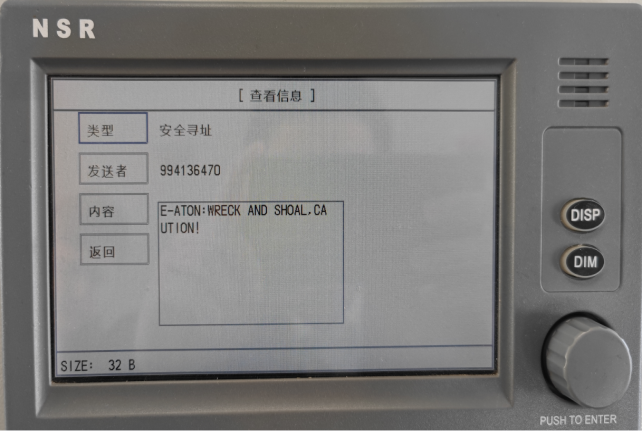
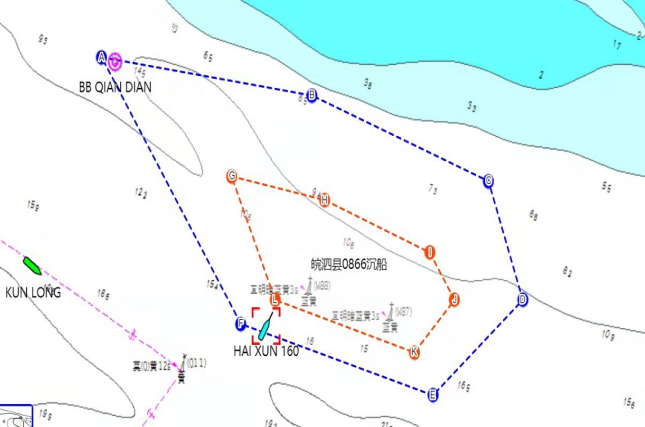
Wreck buoy W88 with the diameter of 2.4m, had been selected for upgrading and test. On the basis of the original integrated lamp, the equipments including intelligent control terminal, solar panel and battery were installed (as shown in Figure 1). On January 14, 2022, AtoN department had laid the new buoy in Baoshan water area of Shanghai port , and carried out the test of relevant functions.



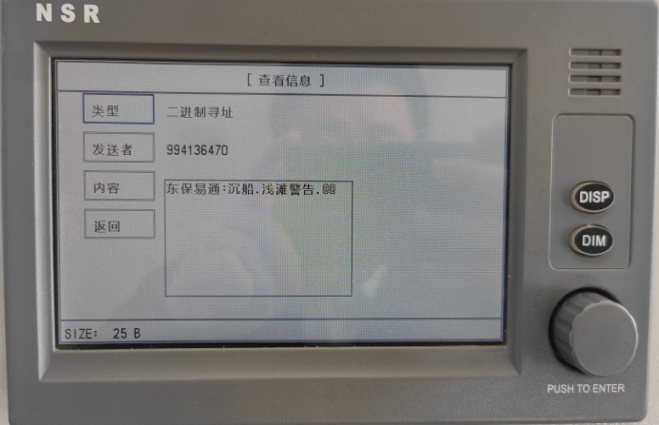
*Figure 1 e-AtoN for marking wreck*

## Test information

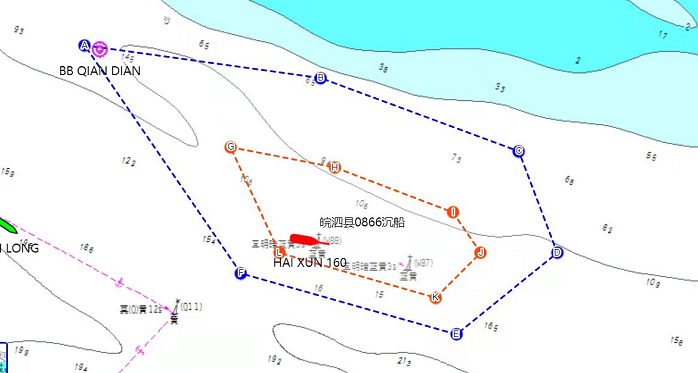
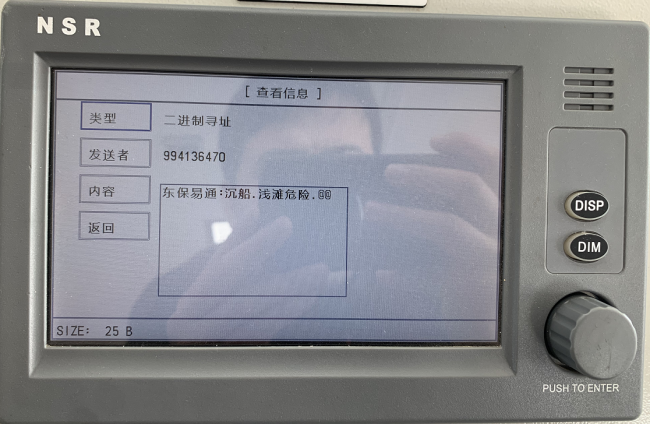
The test shows that e-AtoN for marking wrecks has successfully set up an electronic fence in the form of three-level alarm circle (as shown in Figure 2, figure 3 and Figure 4) and the "BB Shallow Point" virtual AIS AtoN (as shown in Figure 5). It will broadcast Chinese or English early-warning information to shipside AIS equipment according to different dangerous situations by monitoring the AIS signals of nearby ships, so as to remind ships to navigate carefully in the dangerous waters of the wreck.



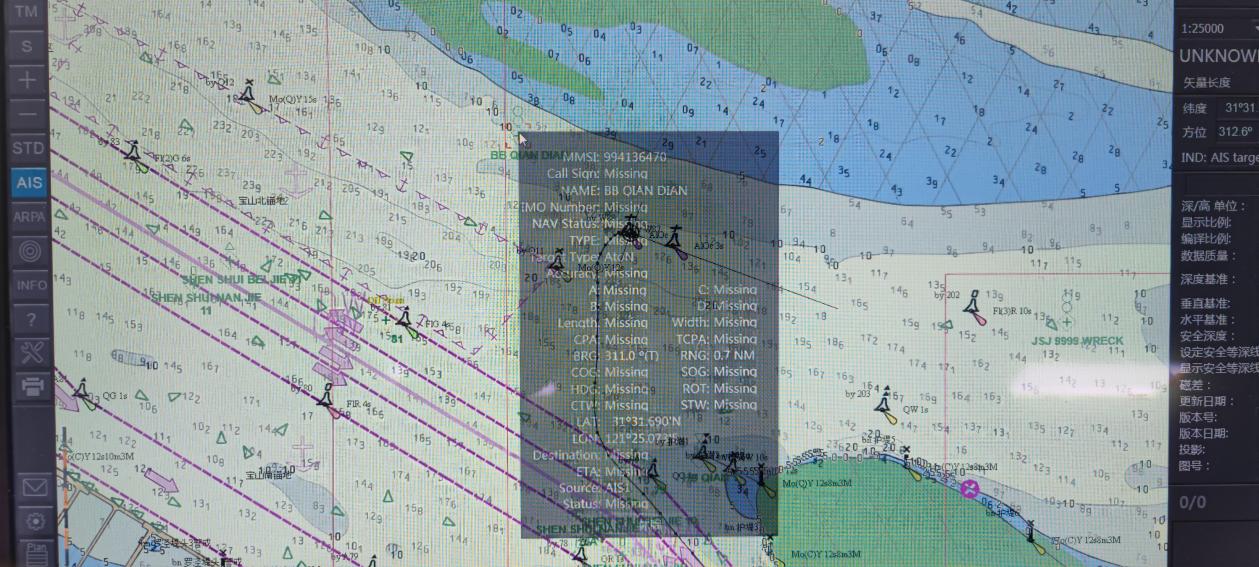
*Figure 2 First Level Alarm “E-ATON:WRECK AND SHOAL,CAUTION!!”*



*Figure 3 Second Level Alarm “E-ATON:WRECK AND SHOAL,WARNING!!”*



*Figure 4 Third Level Alarm “E-ATON:WRECK AND SHOAL, DANGER!!”*



*Figure 5* *Virtual AIS AtoN “BB Shallow Point”*

## Advantage

1. The signal coverage of the e-AtoN is 5 nautical miles. When the displacement of buoy is within the coverage, its functions of monitoring, warning and broadcasting virtual AIS AtoN will not be affected.
2. The equipments of the e-AtoN adopt portable design, with light weight and low power consumption. It has an independent energy system, which is not limited by geographical location, facility size, energy supply and other conditions)
3. The e-AtoN enhances the navigation aid efficiency of the traditional buoy, and is easy to operate and low cost, which is convenient for popularization and application.)

# References

N/A

# Action requested of the Committee

The Committee is requested to note this information.

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)