

Paper for Consideration by NCWG
Distinction between obstructions and foul grounds

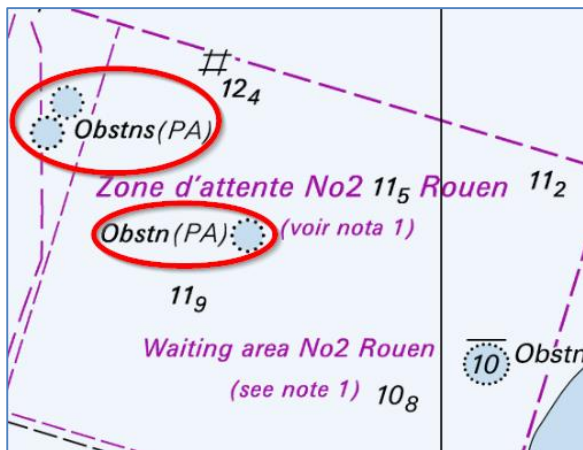
Submitted by:	France and Australia
Executive Summary:	What criteria should be used to decide if an object is to be charted as an obstruction or a foul ground?
Related Documents:	S-4 (B-422); S-57 UOC (§6.2)
Related Projects:	S-101

Introduction / Background

1. Artificial objects lying on the seabed can be charted as obstructions or foul ground. Although the decision how to encode the real world object in S-57 (and consequently which symbol will be used on the paper chart) may have a strong impact on the mariner's decision and on the ECDIS behavior, little guidance is available in S-4 and HOs can have various different views on this subject. The result is a possible inconsistency in the treatment of these objects throughout a worldwide portfolio.

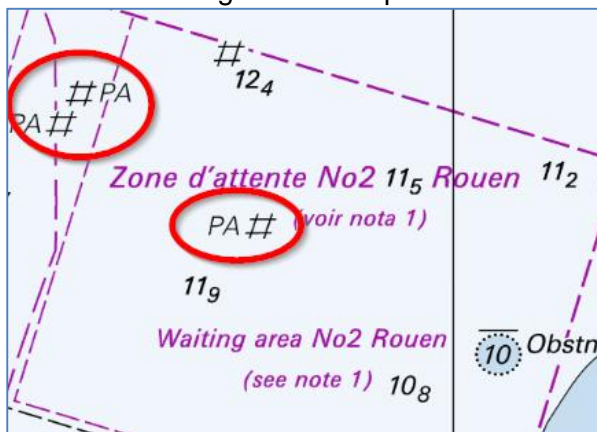
Analysis / Discussion

2. This paper finds its origin in a feedback received by Shom from Port of Rouen pilots. Obstructions (with no known value for VALSOU) were lying in the waiting areas and the Tanker vettings would prohibit their ships Captains to enter such areas because of potential dangers for the vessels.



Extract from French chart 7418 (ed. N°2)

3. After analysis, it was found that these objects were of small dimensions and represented no danger at all for surface navigation. Consequently, they were changed to foul grounds and this new charting solved the problem.



Extract from French chart 7418 (ed. N°3)

4. This issue raised some internal discussions on how to decide if an object is to be charted as an obstruction or a foul ground.

S-4 provides a definition of a foul ground (B-422.8): “**Foul Ground** is an area over which it is safe to navigate but which should be avoided for anchoring, taking the ground or ground fishing (for example: remains of wreck; cleared platform).” This definition is in line with the one in S-32. Consequently, an obstruction is an object that constitutes a danger for surface navigation.

S-32: “Obstruction = in marine navigation, anything that hinders or prevents movement, particularly anything that endangers or prevents passage of a vessel. The term is usually used to refer to an isolated danger to navigation, such as a sunken rock or pinnacle.” On a nautical chart, only artificial objects will be shown as obstructions, the natural dangers being shown as soundings, underwater rocks, etc.

5. If we stick to these definitions, the criteria to be taken into account to distinguish between both objects are:

- ✓ the least depth (or estimated safe clearance) of the object;
- ✓ the maximum draught of the vessels navigating in the area

Other criteria should not be considered such as:

- ✓ the size of the object;
- ✓ its vertical length above the seabed

Yet, some doubts may remain as S-4 (B-422.8) associates foul grounds to “sea floor debris”. A container lying in depths of about 90 metres is certainly not dangerous for surface navigation, but can it be considered as debris? Should a feature ‘higher’ than X meters (although it may not affect the safety of navigation in the area) be considered “seafloor debris” at all times? Maybe we should come up with a definition of “seafloor debris”.

6. In terms of S-57 encoding:

- ✓ A foul ground should be encoded with the object OBSTRN with CATOBS=7;
- ✓ Ground tackles, which can, in nature be considered as foul grounds should be encoded with CATOBS=9.

7. In terms of display and alerts on the ECDIS:

- ✓ Objects with CATOBS=7, 8, 9 or 10 are not in the Base Display and never trigger alerts. The reason is that for these values of CATOBS, the object does not go through Conditional Symbology Procedure OBSTRN07 and has no DEPTH_VALUE. This can be considered as a shortcoming in S-52, as for any object having VALSOU populated, this value should be compared to the safety contour.
- ✓ For the same reason, objects with WATLEV=7 never trigger alerts, although they represent a danger for surface navigation.

Conclusions

8. The decision to encode an object in an ENC (and show it on the paper chart) as an obstruction or as a foul ground may have a strong impact on the safety of navigation. Yet, there is probably a lack of guidance in S-4 to guarantee a consistent approach by all the HOs. On the other hand, there seems to be important shortcomings in the way S-52 deal with these objects.

Recommendations

9. The NCWG is invited to:

- ✓ compare the various HO policies (if any) on this subject;
- ✓ provide additional guidance in S-4 if needed;

- ✓ review the ECDIS display (S-52).

Action required of NCWG

The NCWG is invited to:

- a. note this paper
- b. discuss the recommendations
- c. take any necessary action
- d. refer to other WG if necessary (ex: ENCWG, S-101PT)