



## Editorial

Whether it is the Editor's own interests of the moment or whether the wheel of hydrography is turning and after a decade of attention being given to data management we are turning once again to data collection, is open to question. However, there is clearly an upward trend in the acquisition and use of depth measuring systems that result in the collection of huge amounts of data. Both multi beam acoustic systems (mbes) and Light Detection and Ranging (Lidar) systems have now reached a level of maturity that they have been accepted for production surveys. Earlier issues of this Review have included papers discussing the use and future plans for Lidar. This issue and the previous issue have given greater attention to mbes. A particular matter concerning mbes for hydrographic surveys for charting is its ability to detect small objects on the seafloor and to define them precisely. The IHO's S 44, 4th Edition publication specifies a capability to detect cubic features  $>2$  metres in depths up to 40 metres for its Orders 1 and 2, which are the heart of most charting surveys. For Special surveys it requires even more stringent specification and that objects  $>1$  cubic metre be detected. For Special surveys, the water depth is not specified. Tests discussed during recent conferences have brought this ability into question, although a paper in this issue from a prominent manufacturer claims this not to be a difficulty. Undoubtedly technological improvement will soon overcome this apparent system weakness but at the moment there is some question on this aspect of mbes use.

While this matter is being considered, it raises the question of whether the cubes are the best shapes for measuring detection capability and whether they should be more clearly specified in S-44. For instance, the backscatter from a cube is very dependent upon the angle of incidence of the signal and also is dependent upon the texture of the outer surface of the cube. For many years, fisheries scientists have used small tungsten spheres as a method of calibration for measuring the target strengths of fish of different sizes.

Associated with the above matter is the trust that can be placed in mbes to ensure that the highest point of every wreck is measured. This is a particularly critical part of a hydrographic survey and at present most European HOs specify that all wrecks must be physically swept. This is an exceedingly time consuming and hence expensive business. In the USA, NOAA, which at one time had two specially designed vessels, *RUDE* and *HECK* for wreck sweeping, has now ceased wreck sweeping, although continuing to send divers down where there are critical depths. Once again this is an expensive procedure. High definition mbes are now on the market that can even delineate the rigging of sunken vessels and this raises the question if we have finally reached the stage when we can trust mbes. However human beings have great difficulty in trusting something that they cannot physically touch!

Adam J. Kerr, Editor