2pAO1. High-resolution target strength measurements in deep water. 
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High-resolution target strength data can only be claimed valid in situations where it can be safely shown to be much less than one target per pulse volume. Many fish species occur in densities and at depths where this demand hardly can be met with standard, hull-mounted, survey transducers. This paper describes a new and simple method for obtaining such data with some examples of target strength and target tracking data obtained in deep water at three different cruises. The system used is the Simrad EK-500 split beam echo sounder, connected to an oil-filled ES3D, pressure-resistant transducer, on cable lengths from 400-800 m. The transducer was lowered as a probe to the desired depth, often inside or close to the fish layer, with the vessel stationary, or slowly drifting. For maximizing the number of detections per fish, the echo sounder was operated at maximum pulse repetition frequency. Recordings shown are from three different species, small myctophid fishes at 200-400 m, hake at 200-400 m, and herring at 50-400 m. High-quality target strength distributions were frequently obtained in less than 1 h at a typical target strength station.

2pAO2. A summary of target strength observations on fishes from the shelf off West Africa. 
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In many areas, and in tropical waters in particular, it may be difficult to fulfill the resolution criteria for high-quality target strength measurements both with respect to density and species mixing. Since 1985 target strength data have been collected periodically during cruises with R/V Fride. Fridesvang in West African waters. As a first attempt to establish a reasonably correct target strength for important species in the area, swim-bladder morphology was studied and compared with species from the North Atlantic. After 1986, in situ target strength data was collected off Morocco and in Namibian waters using split-beam echo sounders. Data from the following species have been analyzed and discussed: Pilchard (Sardinia Pilchardus), horse mackerel (Trachurus Capensis), hake (Merluccius Capensis), and myctophids. Only data which were considered to be of high quality have been analyzed. The calculated average target strength for pilchard are several decibels higher than the currently applied target strength of North Sea herring, but not very different from other reported target strength of sardine in other areas. Also, the target strength of horse mackerel is high compared to the presently applied target strength. For hake, the measured target strength are comparable to reported data for gadoids.