

Spatial distribution of main clupeid species in relation to acoustic assessment surveys in the continental shelves of Senegal and The Gambia

This work compiles hydroacoustic recordings and catch data over Senegambia (Senegal and The Gambia) from assessment surveys on the major clupeid species to identify sources of bias in abundance estimates caused by their horizontal distribution. The latitudinal distribution of small pelagic fish is often well known, while their "across shelf" distribution on the continental shelf is less understood. The southern part of the Senegambian shelf has a wide shallow water (<10 m) area that makes up 20% (1500 NM²) of the total shelf surface, while the northern part accounts for 3% (200 NM²). These areas are not assessed by conventional fisheries acoustics surveys and therefore increase the uncertainty of the assessment of these species. Our findings show that this likely introduces a bias in the assessment of *Sardinella maderensis*, while for *S. aurita* no major estimation-error is caused by their horizontal distribution. The data confirm that *Ethmalosa fimbriata* and *Ilisha africana* are challenging to assess by conventional surveys, due to their mostly inshore distribution. We emphasise the usefulness of assessing *S. aurita* through fisheries independent hydroacoustic surveys, and propose alternative methods to survey shallow water areas to reduce biases in biomass estimates and distribution mapping.

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