Target strength measurements of Nile perch (Lates niloticus: Linnaeus, 1758) in Lake Victoria, East Africa

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Abstract

Results of estimation of target strength (TS) of physoclistous Nile perch using in situ TS measurements and deformed cylinder model (DCM) at 70 and 120kHz are presented. The results of the two methods are compared with those from cage experiments conducted between 1999 and 2000. Cage experiments that assumed the 20 Log(L) relationship (TS = 20 Log(TL) - 66.55) provided a good fit only over the length range of 18-38 cm total length, but overestimated the length of large fish (>60cm TL). The DCM which lead towards a 30 Log(L) provides more accurate conversion over the full length range of single targets. An in situ study that made no assumptions about the shape, structure or orientation of the fish provided a close fit of acoustically estimated length frequency distributions to net hauls with the equations: It is suggested that using this approach can provide valid TS to length relationships for acoustic surveys on species for which little information exists and there is little opportunity for direct observation of behavioural aspects that are known to affect TS such as tilt angle and vertical migration.

Key Word Centropomidae,Vertebrata,Pisces,Afrique, Grands Lacs Afrique Est,Lates niloticus,Milieu eau douce,Pêcherie,In situ, Modèle ,Afrique Est, Lac Victoria, Echosondage ;