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### Notes on the Distinction of Northwest Atlantic Hakes, Merluccius albidus and M. bilinearis

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At the end of January 1969, some "Silver Hake" were caught by RV Walther Herwig at the southern slope of Georges Bank (Div.5Ze, southeast off Cape Cod) and sampled for length and age composition. When examining these materials more closely after the cruise at the laboratory, two types of otoliths - one "wide" and one "slender" form - were found. On account of a similar phenomenon observed in South African hake populations, where different types of otoliths could be attributed to two subspecies (Fig.1), it was suspected that this sample might consist of otoliths of silver hake (Merluccius bilinearis) as well as of offshore hake (M.albidus) for both species could be expected to be abundant in this area according to distribution charts given by Lozano Cabo (1965). As external distinctive characters are not very marked between both species none had been recorded on board, and consequently, it was not possible to find out if in fact, both species had been caught, and if so, which otolith type belonged to which species.

Due to this lack of information, special attention was paid to the identification of both species on the next cruise of RV Walther Herwig to Subarea 4 and 5 in November 1969. Using the identification key after Leim and Scott (1966), the following results have been obtained:

Near bottom midwater-trawl catches in Div.4W on "Middle Ground" at 45 m as well as on the slope of La Have Bank at 200-400 m contained of the species in question only silver hake (M.bilinearis).

In Div. 5Ze at the same positions as in January bottom trawl catches at 200-260 m contained M.albidus and M.bilinearis in almost equal numbers. Gill raker countings of the first gill arch varied between 9-11 and 15-19 respectively. By taking the otoliths it was found, that the "wide" type belonged to M.albidus and the "slender" type to M.bilinearis (Fig.2). Length and age compositions of the smaller silver hake and the larger offshore hake will be provided in the Sampling Yearbook. The following further characters were recorded and supplied for this report by Dr J. Messtorff:

	<u>M. albidus</u>	<u>M. bilinearis</u>
<u>Lateral line:</u>	Black-grey lined, in the beginning slightly curved dorsally	Light, almost straight
<u>Colour:</u>		
dorsal	Grey-black	Grey-brownish
lateral	Silver grey	Silvery-golden
ventral	Whitish - light silver-grey	Silver white - golden iridescent
oral cavity	Far-reaching intense inkblue, including tongue	Whitish-reddish, only near throat bluish-blackish
peritoneum	Deep black	Dusky-reddish

Conclusion

Silver Hake - Merluccius bilinearis and Offshore Hake - M.albidus are easily to be mistaken on account of their similar external characters. Commercial catches of silver hake taken in overlapping areas of distribution of both species might therefore contain unknown quantities of not identified Offshore Hake. Accordingly, special care should be taken to separate both species at least for sampling purposes before providing length frequencies and age compositions, and also to obtain information on the respective catch proportions.

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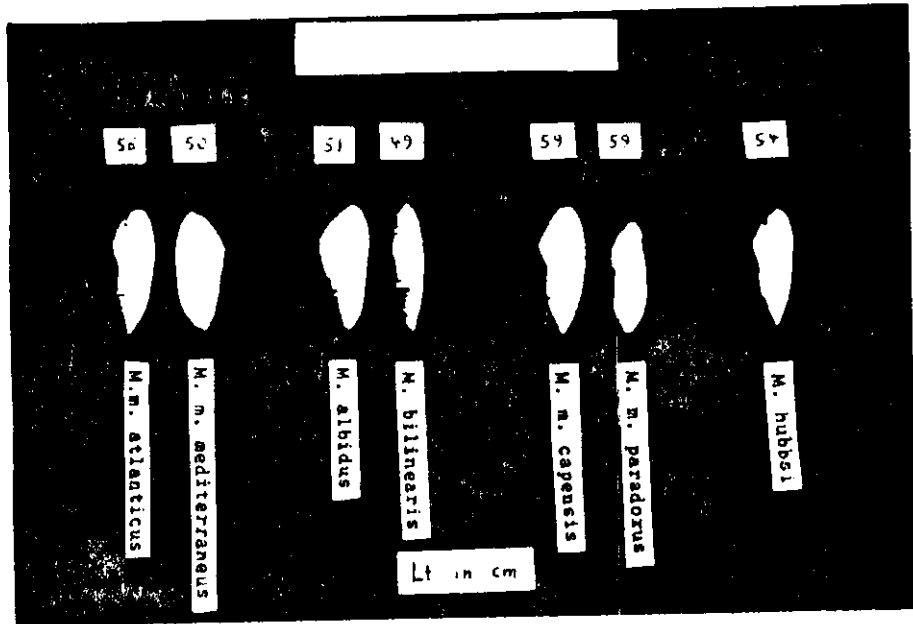


Fig. 1. Different types of otoliths of Atlantic Hakes, which may occur in overlapping areas of distribution.

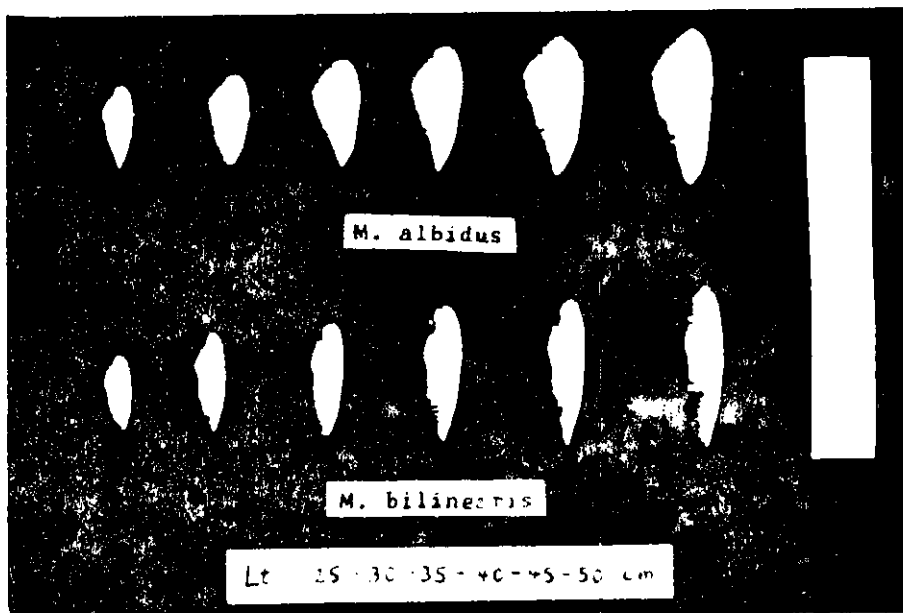


Fig. 2. Otolith sizes of Merluccius albidus and M. bilinearis from Iv. File at corresponding lengths of fish.