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## A Brief Review of Herring Mesh Selection Studies

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The herring regulations adopted at the January, 1972, ICNAF Special Meeting in Rome, Italy, included a minimum 9-inch size limit. A preliminary review of the literature was conducted in order to provide a basis for determining the mesh size that would allow the escapement of 9-inch herring from otter trawl nets.

Bohl (1965) summarized the selection factors (mean selection length/mesh size) of herring compiled up to 1965. They varied from 3.74 to 4.40 (Strzyzewski, 1961; Bohl, 1962; Zijlstra, 1957 and 1961; V. Brandt, 1962). With this range in selection factors the 50% retention point for 9-inch herring will occur with mesh sizes 54.4 mm and 60.2 mm. Because 10% of the total catch under 9 inches by weight would be allowed, a mesh size greater than 60.2 mm is required. Using the weight composition of the catches from Division 5Z in 1971, 10% of herring by weight 9 inches (22.9 cm - 97 grams) in total length and less would equal 21% of the catch by number. Bohl (1965) gives a selection curve summarized over all hauls whereby 20% of herring are retained that are 23.1 cm (9.1 inches) in total length. The mesh size used was 61.8 mm. Therefore, to avoid catching more than 10% of herring by weight of 9 inches or less in total length, the mesh openings should be 62 mm. With a mesh size of 62 mm the 50% retention length will be 24.6 cm with a selection range of 2.8 cm, i. e., from 23.0 cm (length at which 25% herring retained) to 25.8 cm (length at which 75% herring retained).

Herring selection is also a function of the net material and the stage of maturity. Light flexible materials such as nylon give higher selection factors than thicker materials such as manila. The determination of 62 mm as a minimum size of mesh opening for herring selection was on the basis of a "Perlon" continuous,

double-braided net used by Boh.

Herring of 22.8 cm are not mature and variation in stage of maturity should not be a factor in the determination of mesh regulation as the mesh size considered here should be small enough to capture all mature herring. "Gilling" i. e., the retention of fish within the mesh, must be considered as a practical problem. Bohl (1965) Zijlstra (1961) Strzyzewski (1961) have reported for various experiments that from 5% to 40% of the numbers caught have been gilled. Further definition of the magnitude of this problem in relation to the larger mesh for herring in the ICNAF area is required.

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