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Note on Investigation into Atlantic Salmon Racial Polymorphism

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The estimation of national contributions to the Greenland salmon catch through analysis of samples of the catch for racial polymorphism is a possibility being investigated.

The method depends, of course, not only upon proof of polymorphism being present in Atlantic salmon from different areas but on proof of such polymorphism being genetically induced.

Preliminary studies on blood sera indicated that polymorphism was probably present (although its genetic origin was not proved) and more recent studies have been concentrated on water-soluble eye-lens proteins, mainly because of the very much greater ease with which adequately large samples of material for analysis can be collected, transported and stored.

In 1967 eye-lens material was collected from Greenland (200), Scottish (115), Lancashire (61) and Devon (12) salmon and arrangements have been made for samples from Canada.

The studies are at present at the stage of developing a reproducible method, using an acrylamide gel tube electrophoretic technique. Eight-band separation with good resolution has been attained but it is thought that a plate method instead of a tube method will give even better results.

Results obtained in the USA with other species indicated that the lens nucleus was the best material but so far this result has not been repeated by our experiments, better results being obtained with the several cortical layers.

Tests for genetic proof of polymorphism in Atlantic salmon have been initiated by the rearing of eggs obtained by cross-fertilization from parent stock from different areas, from which eye-lens samples have been taken.