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THE MOVEMENT OF SEABED DRIFTERS AND SURFACE DRIFT BOTTLES  
FROM THE SPAWNING AREA OF THE "NOVA SCOTIA" HERRING STOCK  
AND THE HERRING LARVAL TRANSPORT-RETENTION HYPOTHESIS

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SUMMARY

The results of herring larval surveys in the Bay of Fundy area carried out in the fall of 1969 led to the hypothesis that larvae were transported from the spawning ground of the Nova Scotia stock into the Bay of Fundy and were retained there over the winter possibly by the interaction of behavioural factors and water movements.

In the fall of 1971 an experiment was carried out to determine net water movements from the spawning area using seabed drifters and drift bottles. The returns are now substantially complete and preliminary analysis of results demonstrate constant return rates of seabed drifters and systematic differences in return rates for drift bottles in relation to release area. Taken together, these suggest the existence of a hydrographic system which may account for subsequent herring larval distribution and particularly of "boundary" conditions defining larval distribution limits.

Analysis of seabed drifter returns correlates differences in area of return in relation to the point of release which may be quantitatively related to subsequent larval distribution. The analysis would suggest that the "retention" area would include both the Bay of Fundy area and the southwest Nova Scotian shelf. This has already been indicated by the

results of more extensive larval surveys carried out since 1969.

It is suggested that the association of hydrographic "systems" with larval retention areas may be a common feature of herring biology which might explain the siting of specific herring spawning grounds. It may also help explain why some herring stocks are so much larger in numbers than others.