

Elucidating the Early Life History of *Pleuronectes platessa* in the Northern Irish Sea Using Otolith Microstructural Analysis

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Plaice are an important commercial species in Europe. While nursery grounds are well studied in the eastern Irish Sea, little is known about the species early life history in the western Irish Sea or western Scotland. Evidence suggests that separate stocks may occur in these areas. Elucidation of migration patterns, spawning sites and population structure is paramount for fisheries management. In fish otoliths, material is deposited incrementally on a daily basis, allowing the reconstruction of life histories and age estimation via microstructural analysis. The microstructure of 160 plaice otoliths from the nursery grounds on the west of Scotland, the east Coast of Ireland and Galway Bay was analyzed. The data obtained were used to conduct a comparative study of life history parameters such as larval duration, growth rate and settlement dates between these locations.

Differences in growth rate, settlement timing and larval duration are useful markers for the differentiation of separate stocks present in the study area. These differences have not been examined in a comparative manner in the regions under consideration, or on such a large geographical scale. This substantially increases our knowledge of plaice life history dynamics and stock structure in the region.

This work will feed into future dispersal models to identify sources of settlers, contributing to a large-scale geographical comparison of early life history across Europe. This will improve current understanding of environmental influences on parameters like larval duration, and impacts of environmental change on nursery ground delivery.