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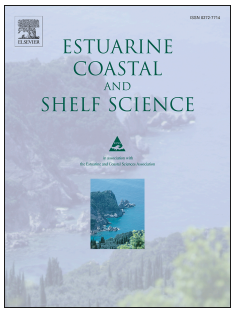

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Diarmuid Ryan, Ciara Wogerbauer, William Roche

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Establishing Nursery Estuary Otolith Geochemical Tags for Sea Bass (*Dicentrarchus labrax*): Is temporal stability estuary dependent?

Diarmuid Ryan*, Ciara Wogerbauer & William Roche

Inland Fisheries Ireland, 3044 Lake Drive, Citywest Business Campus, Dublin 24, D24 Y265, *Ireland*

*Corresponding author. Email address: Diarmuid.Ryan@fisheriesireland.ie [add telephone number at proof stage]

Abstract

The ability to determine connectivity between juveniles in nursery estuaries and adult populations is an important tool for fisheries management. Otoliths of juvenile fish contain geochemical tags, which reflect the variation in estuarine elemental chemistry, and allow discrimination of their natal and/or nursery estuaries. These tags can be used to investigate connectivity patterns between juveniles and adults. However, inter-annual variability of geochemical tags may limit the accuracy of nursery origin determinations. Otolith elemental composition was used to assign a single cohort of 0-group sea bass *Dicentrarchus labrax* to their nursery estuary thus establishing an initial baseline for stocks in waters around Ireland. Using a standard LDFA model, high classification accuracies to nursery sites (80-88%) were obtained. Temporal stability of otolith geochemical tags was also investigated to assess if annual sampling is required for connectivity studies. Geochemical tag stability was found to be strongly estuary dependent.

Keywords: Otolith microchemistry; Estuary; Sea bass; temporal stability; nursery; connectivity.

1. Introduction