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Growth and habitat requirements of juvenile flatfish at nursery grounds in Galway Bay, Ireland

F. De Raedemaecker, D. Brophy, I. O'Connor, and D. Mc Grath

Abstract:

Coastal zones are essential nursery habitats for most juvenile flatfish species. Fish stocks are highly dependent on suitable coastal habitat features for obtaining food, shelter, and rapid growth during the vulnerable juvenile life stage. Understanding the ecological habitat requirements for juvenile flatfish is important in determining their abundance and to reliably predict potential impacts of changing coastal ecosystems on fish stocks. The present study assesses the influence of habitat characteristics on the growth and abundance of juvenile dab and plaice in four nursery areas within Galway Bay, Ireland. Field sampling was carried out in summer 2008 using a beam trawl for the collection of flatfish and a van Veen grab for the collection of sediment. The distribution and abundance of the juvenile flatfish was assessed in relation to biotic (predator-prey abundance) and abiotic (sediment size, organic content, depth, temperature, and salinity) habitat features. The condition and growth of flatfish were compared in different nursery areas and a model of habitat requirements for juvenile plaice and dab was developed. Significant variability of the measured characteristics was observed between nursery areas and high-quality nursery areas for dab and plaice were identified. These results will act as the basis for mapping of essential flatfish habitats in Galway Bay.

Keywords:

juvenile flatfish, habitat characteristics, growth and condition, modelling, western Ireland.

Contact author:

Fien De Raedemaecker, Commercial Fisheries Research Group, Galway-Mayo Institute of Technology, Dublin road, Galway, Ireland, tel: +353 91 742278, e-mail: fienderaedemaecker@yahoo.com