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Mortality schedules in the early life history phases of juvenile flatfish: European plaice (*Pleuronectes platessa*) as a case study

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The estimation of natural mortality in early life history stages of fish is difficult because the appropriate data are scarce. Many flatfish, and in particular, plaice (*Pleuronectes platessa*) have been extensively studied and much of the information and progress reported in a succession of international flatfish symposia. The study of mortality rates in the juvenile phase is made easier because the nursery grounds are inshore and generally less than 5 m deep. This contribution considers the factors affecting mortality rates from egg production through to the end of the nursery ground phase. The problems associated with estimating mortality rates, from experimental design to behavioural characteristics are highlighted. Examples include larvae residing close to the bottom in the latter stages of development, immigration in to nursery areas confounding losses through mortality, and emigration of larger individuals off nursery grounds in the latter part of an annual cycle. The shifts in mortality schedules and the causes through the early life history are investigated along with how they fit with concepts such as "nursery ground carrying capacity" etc. Finally, new and promising techniques for estimating mortality, understanding the processes, and areas where further study and/or understanding are needed are discussed.

Keywords: flatfish, plaice, mortality rates, early life history, egg, larvae, juveniles, pelagic, nursery grounds.

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