

# Larval dispersal and juvenile dynamics of flatfish in the Southern North Sea



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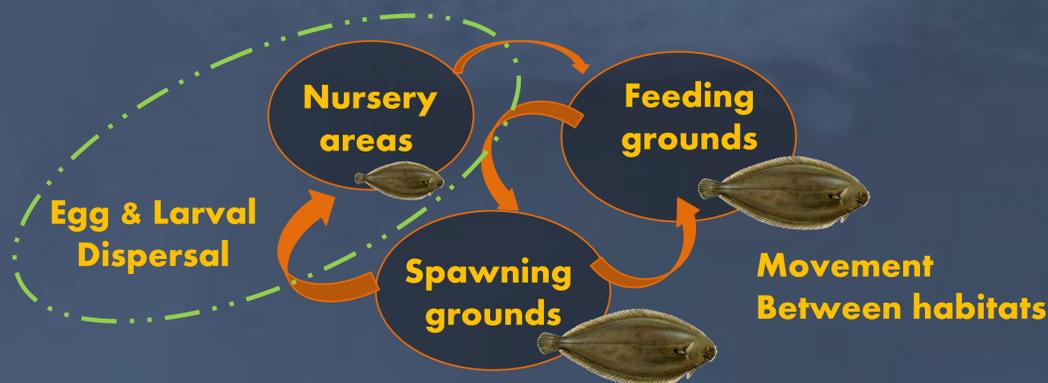
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## B-FishConnect : Population connectivity in Flatfish

Flatfish are economic and ecological valuable species on the continental shelf worldwide. The annual production of flatfish exceeds more than 900 000 tons. Understanding their population connectivity is therefore crucial to assess the impact of natural and anthropogenic factors on these valuable species. Population connectivity is the exchange of individuals among geographically separated subpopulations and encompasses the dispersal phase from reproduction to the completion of the settlement process. In this study we will focus on the dispersal of four commercial flatfish species in the Southern North Sea: Sole, Plaice, Turbot and Brill.



### Objectives:

- Characterizing dispersal history
- Spatial and temporal dynamics of juvenile flatfish abundance
- Linking larval dispersal history with juvenile condition

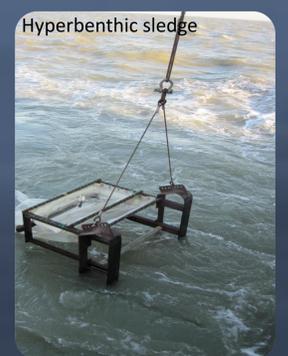
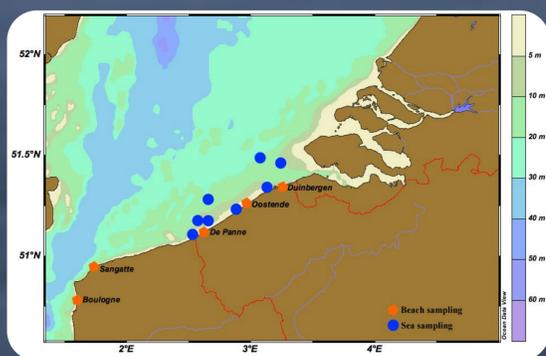
### The importance of population connectivity:

- Year-class strength is determined during the early-life stages
- Migration between (sub)populations
- Delineation of management units
- Assess the impact of natural & anthropogenic factors



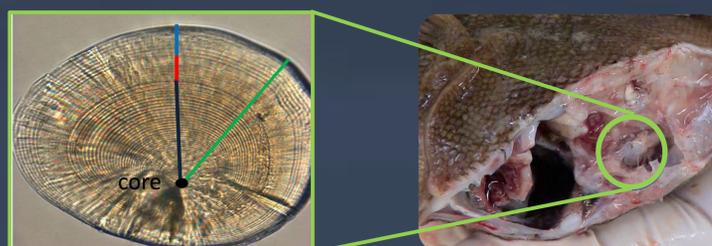
## Studying Dispersal: Tools & Methods

- Samples are collected at several points along the French-Belgian coast in two consecutive years from January till October.



- Fish otoliths, commonly referred to as “ear stones”, function like a plane’s flight recorder, every life event is recorded into the otolith microstructure. This allows us to characterize the dispersal pathway accurately

- Pelagic Larval Duration
- Settlement period
- Juvenile life
- Age in days



- Condition indices, both morphometric and biochemical, allow us to investigate juvenile performance in nursery areas.

- Morphometric:**
- Fulton’s  $K$
  - $K = (W/L_s^3) \times 100$
  - $W$  = weight,  $L_s$  = Standard Length
  - Low sensitivity

- Biochemical:**
- RNA/DNA ratio
  - Constant [DNA] in cells
  - [RNA] indicator of protein synthesis
  - High sensitivity