

# Early life stages of flatfish: otolith microstructure reveals patterns of dispersal and juvenile dynamics.

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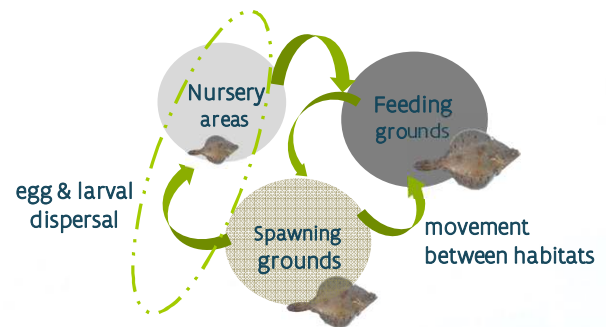
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## Larval dispersal and future performance of juvenile flatfish

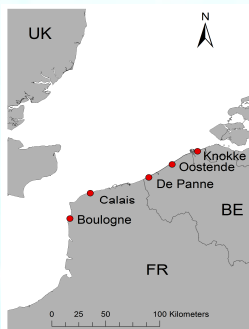
Flatfish have a complex life cycle and selective pressures can differ ontogenetically as larvae are exposed to a habitat different from that of juveniles or adults. The pelagic larvae metamorphose to a benthic juvenile form if reaching a suitable settlement habitat. Larvae may travel via different pathways before settlement and experience different environmental conditions. The larval experience can influence future growth, development and survival when juveniles reach the nurseries. Here we will focus on European plaice (*Pleuronectes platessa*).



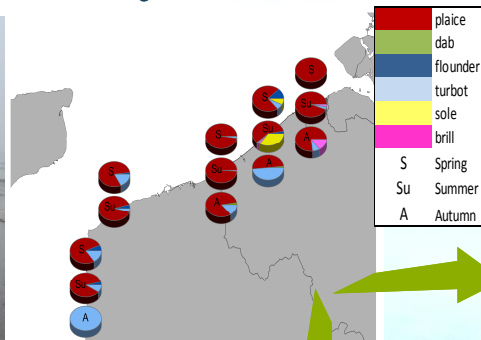
**AIM:** Determine larval traits & reconstruct dispersal history  
Determine effect of dispersal history on juvenile dynamics

## Materials & Methods

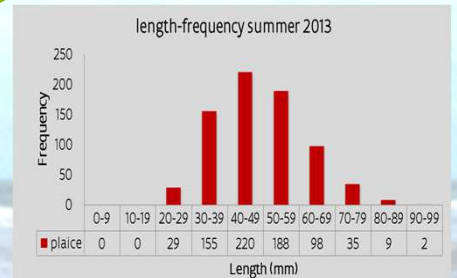
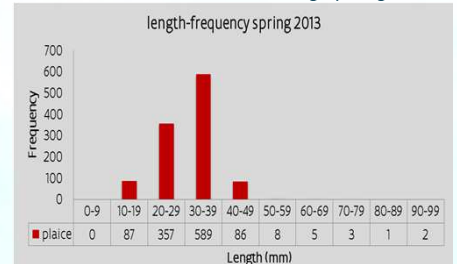
### Sampling locations



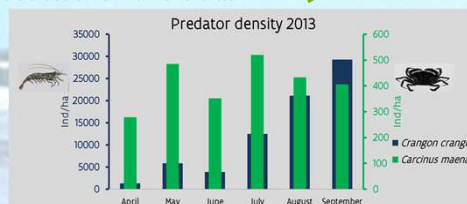
### Flatfish Young of the Year distribution 2013



### Plaice settle in sub-cohorts during spring & summer

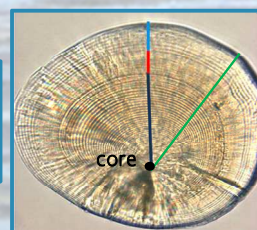


Sub-cohorts arrive in the nurseries under different environmental conditions. This will give insight in environmentally induced selection on larval traits.



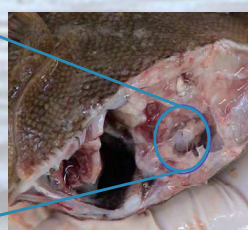
## Otolith microstructure

- Juvenile period
- Settlement period
- Pelagic larval period
- Age in days



### Larval traits under study

- Pelagic larval duration
- Early/Late larval growth
- Size-at-hatch
- Instantaneous growth



### Assess juvenile condition

- Morphometric indices
- Recent growth

## Research questions:

- How does larval trait distribution differ between sub-cohorts?
- How does the environment influence larval traits?
- What is the effect of larval dispersal history on juvenile dynamics?

## Take home message:

'Survival of the fittest' is one of the foundations of biology. Demographic heterogeneity in traits and the survival of higher quality individuals are the drivers of evolution and population dynamics.

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