

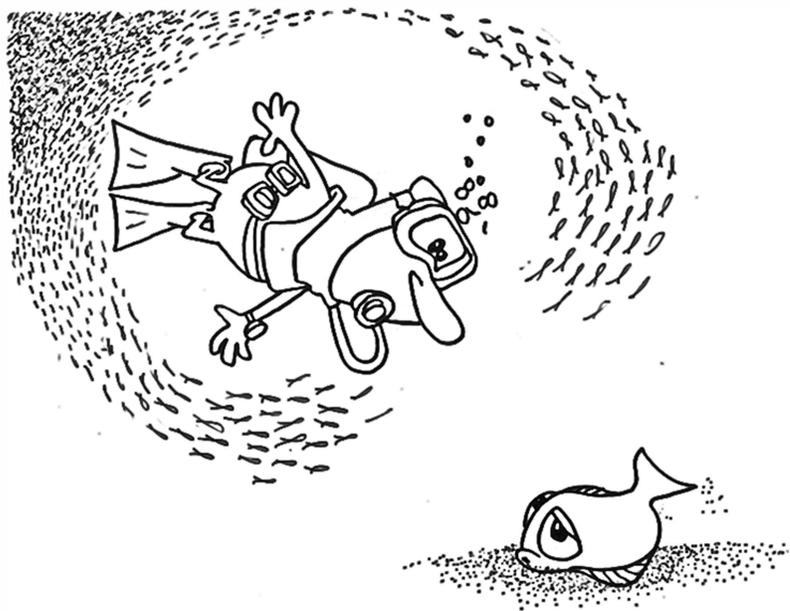
# One of the great unknowns in the Wadden Sea: pelagic fish

Bram Couperus, Sven Gastauer, Sascha Fässler & Ingrid Tulp

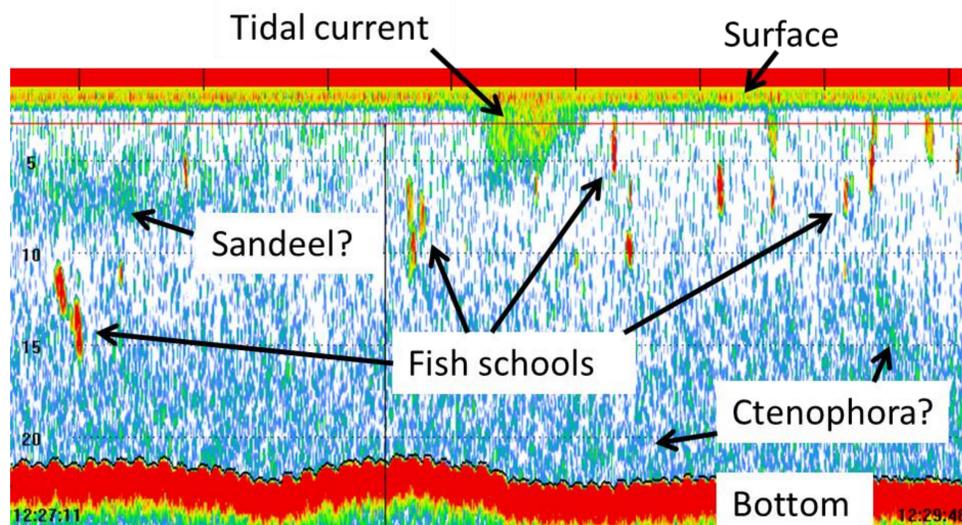


## Background

Coastal areas are presumed to be important nursery areas. Both for bottom dwelling fish (demersal) and fish living in the water column (pelagic). This nursery function for pelagic fish has never been quantified in the Wadden Sea due to the decennia-long focus on demersal fish.



## Echogram



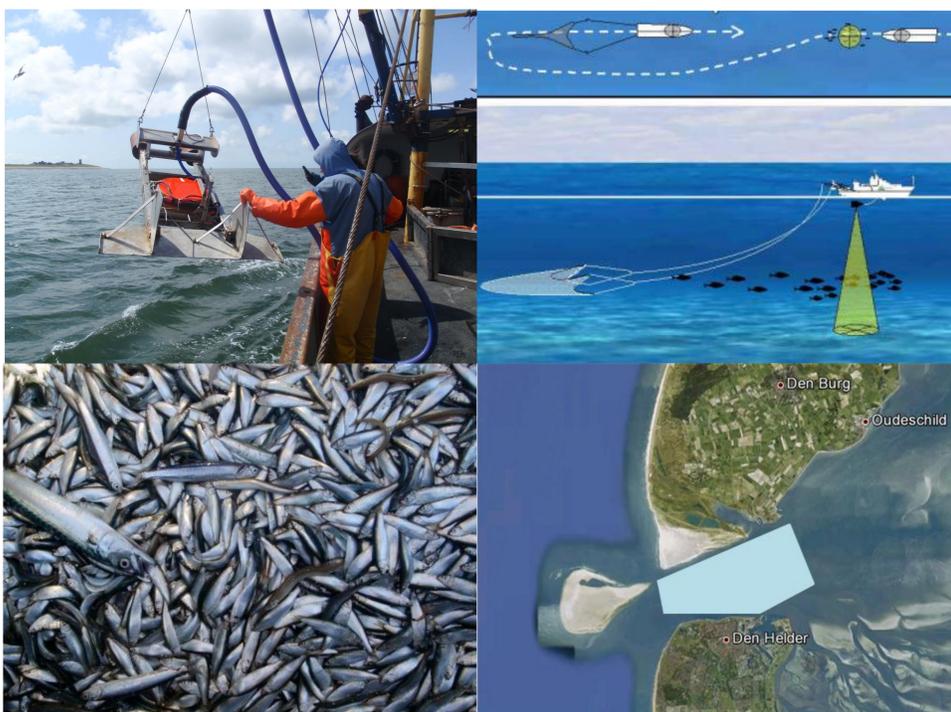
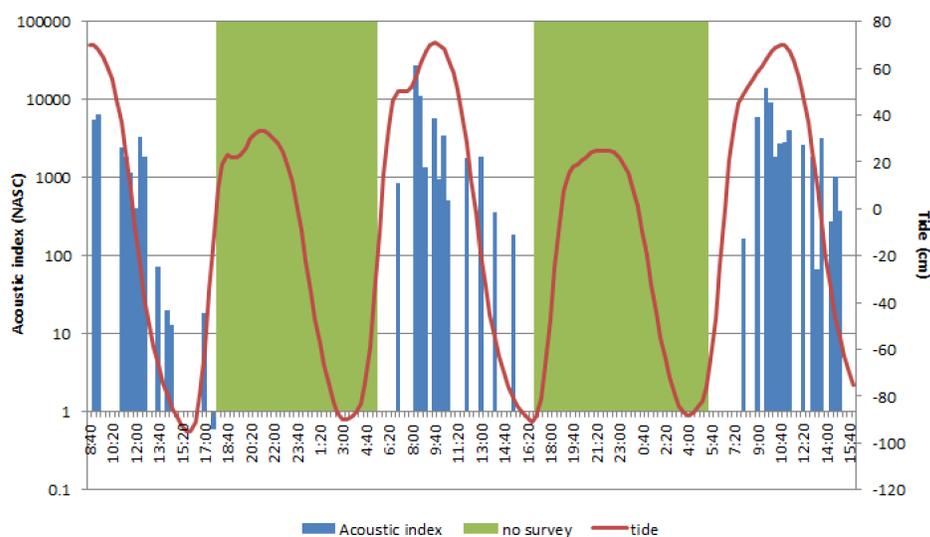
## Tide

The occurrence of pelagic fish showed a correlation with tide. Fish schools seem to form a dense band that move in and out the Marsdiep with the tide.

## Pelagic survey

Pelagic fish was surveyed with an echosounder, which detects targets in the water column. Acoustic pulses are generated by a transducer which is towed alongside a vessel. The echo's of fish schools are visible on the echogram. To obtain information on species – and length composition, the detected schools are sampled by means of a pelagic trawl. Abundance and biomass are calculated by dividing the total reflected acoustic signals by the known target strength of an average single fish (echo integration). Pelagic fish composition in the area was dominated by sprat. Other important species in the area were: sandeel, herring, anchovy and pilchard.

Pelagic Fish Survey - ZKO, May 2010

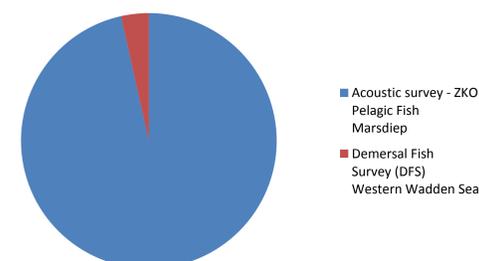


## Pelagic and demersal fish compared

In order to put the fish biomass in the Wadden Sea in perspective we compared pelagic fish and demersal fish biomass. For demersal fish we used the mean density for the western Dutch Wadden Sea (based on the Demersal Fish Survey) and raised that value to the surface area covered by the pelagic survey. In terms of biomass pelagic fish outnumber demersal fish by a factor of at least 20.

biomass (tonnes)	Acoustic survey - ZKO Pelagic Fish Marsdiep	Demersal Fish Survey (DFS) Western Wadden Sea
spring 2010	714.0	
autumn 2010	85.5	3.1
spring 2011	372.9	
autumn 2011	408.0	2.7

biomass fish autumn 2010



Contact:  
Bram Couperus  
IMARES  
PO Box 68, 1970AB IJmuiden  
+31 317 487074  
Bram.couperus@wur.nl