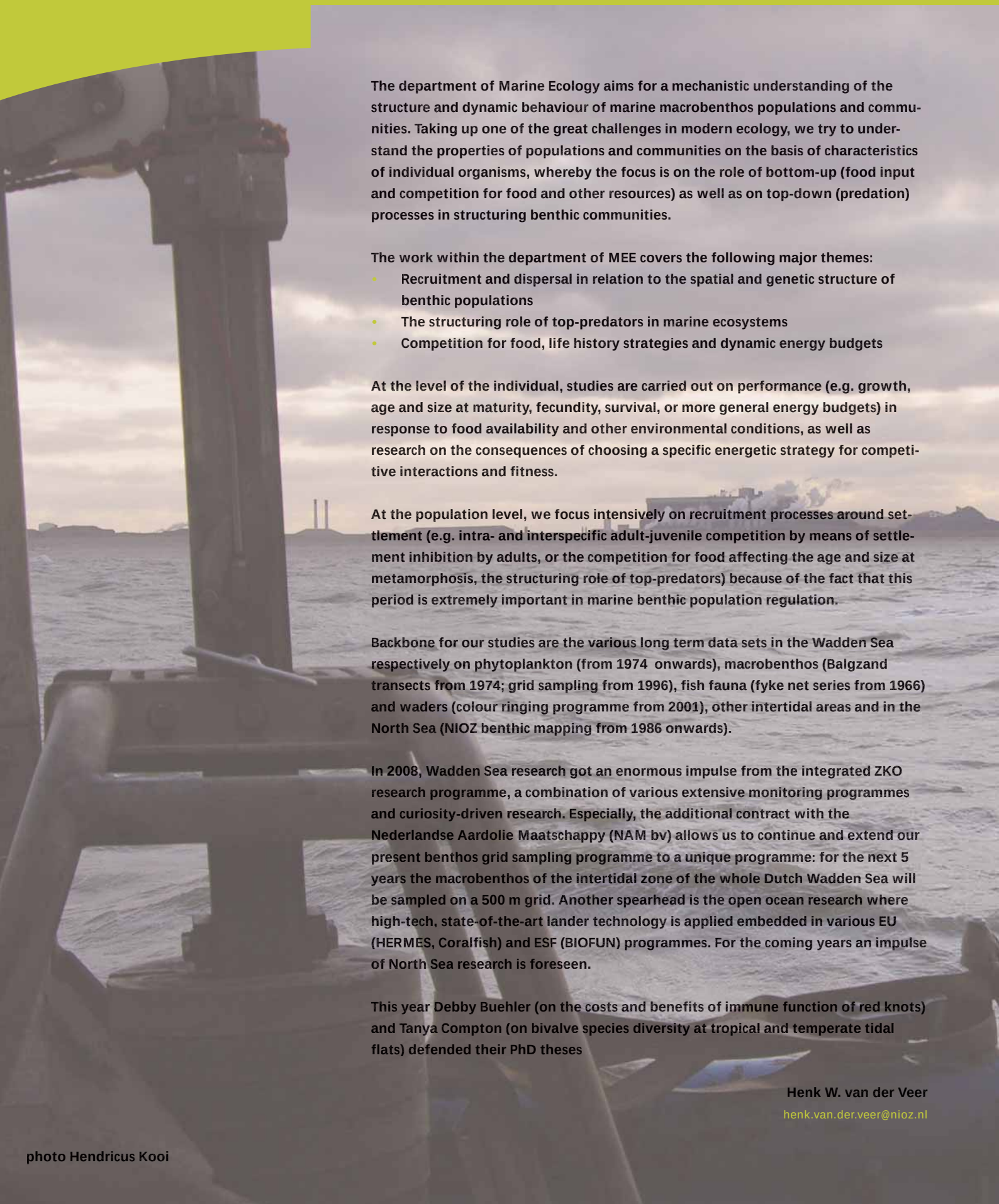
Marine Ecology



The department of Marine Ecology aims for a mechanistic understanding of the structure and dynamic behaviour of marine macrobenthos populations and communities. Taking up one of the great challenges in modern ecology, we try to understand the properties of populations and communities on the basis of characteristics of individual organisms, whereby the focus is on the role of bottom-up (food input and competition for food and other resources) as well as on top-down (predation) processes in structuring benthic communities.

The work within the department of MEE covers the following major themes:

- Recruitment and dispersal in relation to the spatial and genetic structure of benthic populations
- The structuring role of top-predators in marine ecosystems
- Competition for food, life history strategies and dynamic energy budgets

At the level of the individual, studies are carried out on performance (e.g. growth, age and size at maturity, fecundity, survival, or more general energy budgets) in response to food availability and other environmental conditions, as well as research on the consequences of choosing a specific energetic strategy for competitive interactions and fitness.

At the population level, we focus intensively on recruitment processes around settlement (e.g. intra- and interspecific adult-juvenile competition by means of settlement inhibition by adults, or the competition for food affecting the age and size at metamorphosis, the structuring role of top-predators) because of the fact that this period is extremely important in marine benthic population regulation.

Backbone for our studies are the various long term data sets in the Wadden Sea respectively on phytoplankton (from 1974 onwards), macrobenthos (Balgzand transects from 1974; grid sampling from 1996), fish fauna (fyke net series from 1966) and waders (colour ringing programme from 2001), other intertidal areas and in the North Sea (NIOZ benthic mapping from 1986 onwards).

In 2008, Wadden Sea research got an enormous impulse from the integrated ZKO research programme, a combination of various extensive monitoring programmes and curiosity-driven research. Especially, the additional contract with the Nederlandse Aardolie Maatschappy (NAM bv) allows us to continue and extend our present benthos grid sampling programme to a unique programme: for the next 5 years the macrobenthos of the intertidal zone of the whole Dutch Wadden Sea will be sampled on a 500 m grid. Another spearhead is the open ocean research where high-tech, state-of-the-art lander technology is applied embedded in various EU (HERMES, Coralfish) and ESF (BIOFUN) programmes. For the coming years an impulse of North Sea research is foreseen.

This year Debby Buehler (on the costs and benefits of immune function of red knots) and Tanya Compton (on bivalve species diversity at tropical and temperate tidal flats) defended their PhD theses

Henk W. van der Veer
henk.van.der.veer@nioz.nl

photo Hendricus Kooi