

**Habitat related growth and reproductive investment in estuarine waters, illustrated for the tellinid bivalve *Macoma balthica* (L.) in the western Dutch Wadden Sea**

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Abstract

In estuarine areas, bivalve species can be found in a variety of environments, where they experience large differences in environmental conditions. In the present paper, the importance of different habitats (intertidal, subtidal, adjacent coastal waters) for the persistence of the population was evaluated for the bivalve *Macoma balthica* (L.) in the western Dutch Wadden Sea estuary. Intra-specific variation in growth and reproductive output were followed during the year and related to local abiotic conditions. Significant differences in growth and reproductive investment were found between locations. Young individuals were mostly found in the intertidal area, where growth in terms of somatic mass was good. These areas were not favourable for adult individuals, since growth in shell length was low and many individuals did not reproduce. In the subtidal, where the highest densities were found, somatic and gonadal mass indices were low. Coastal areas had the lowest densities and showed high growth in terms of shell length and body mass. The habitat with the highest reproductive effort per individual was not the most important habitat in terms of reproductive output due to differences in density and in size of the habitat type. For *M. balthica*, the subtidal habitat contributed most to the reproductive output of the western Dutch Wadden Sea population although the highest reproductive output per individual was in the coastal area.