

FAUNAL INTERACTIONS WITH STRANDED WRACK ON THE POLISH SANDY BEACH

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Keeping in mind cyclical aspects such as diel, monthly and annual phases, the work was to gain information on how, when and where wrack of *Zostera marina* was colonised by invertebrates. Study was investigated through a field experiment at strandline of the temperate Hel Great Beach in Poland at the tip of the Hel Peninsula (Gulf of Gdańsk). During field studies over the course of years 1999-2001, the wrack breakdown was determined, while related faunal assemblages were characterised. To determine the significance of major macro- and meiofaunal taxa associated with wrack, 1260 replicate litterbags of three mesh sizes (12 mm, 0.5 mm, 48 μ m), containing fresh wrack, were used. Bags were retrieved 1, 3, 6, 9, 12, 18 and 27 days post-placement. The Barber's traps, specially designed to capture only active animals on the beach surface, were also sampled 1, 3, 6, 9, 12, 15, 18, 21, 24 and 27 days after start. After a comparison between two methods of sampling (ANOVA tests), both data were examined from a temporal point of view.

The wrack was colonised by the supralittoral fauna in two distinct phases. The macrofauna, including *Talitrus saltator*, adult Diptera and Coleoptera, colonised the wrack within one day, with highest number recorded after three days. Following this, their presence in the samples declined and the meiofauna, which consisted of nematodes, oligochates, turbellarians, and dipteran larvae, became increasingly abundant. After 18 days in the field, meiofauna dominated the wrack surface. This faunal succession did not, however, relate directly to the degradation of the eelgrass tissue, which proceeded exponentially for the entire study period. Material was lost from the bags at a rapid rate, with only 22-32 % of the original dry mass remaining after 27 days. Exclusion of the macrofauna from the wrack, using litterbags of finer mesh bags (< 1 mm), had no appreciable effect on the rate of dry matter loss. The major macrofaunal wrack consumers, therefore, did not affect the rate of sea grass disintegration. The effect of meiofaunal assemblages on wrack breakdown could not be accurately determined. Microbial decay, and abiotic leaching and fragmentation were thus likely to be the major causes of sea grass weight loss from the litterbags.