A variety of interactions in the marine environment

ABSTRACTS VOLUME FROM 49TH EUROPEAN MARINE BIOLOGY SYMPOSIUM

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BORED TO DEATH: EFFECT OF THE PREDATORY WHELK *BOREOTROPHON CLATHRATUS* ON THE BARNACLE *BALANUS CRENATUS* IN THE WHITE SEA SHALLOW SUBTIDAL

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Facilitation can amplify the effect of predation on community structure: a predator affecting a foundation species would indirectly alter the dependent assemblage. The acorn barnacle *Balanus crenatus* is a principal foundation species in the White Sea shallow subtidal. The clusters one develops on shells and gravel regularly contain empty barnacle shells (hereafter "dead barnacles") remaining after their death. According to our field observations near Solovetsky islands (the White Sea), 8% of dead barnacles had through perforations of unknown origin. Incomplete perforations (likely the traces of failed attacks) were also frequent on both live and dead barnacles. The only locally common species potentially capable of boring holes in prey shells was a whelk *Boreotrophon clathratus* of completely unidentified feeding habits. In a field experiment we manipulated the density of the whelks to assess their effect on barnacles. We exposed the cages with initially live barnacle clusters at the 12 m depth for a year. Treatments included full cage whelk enclosures and exclosures, partial cages and open cages. Each cage contained about 50 adult *B. crenatus* in 2–3 clusters with the addition of 8 adult *B. clathratus* in predator enclosures. Presence of the whelks severely increased the mortality of barnacles (excluding recruits), which was 2% in full cages (exclosures), 4% in open cages, 6% in partial cages and 37% in predator enclosures. The proportion of perforated shells in dead barnacles was 0%, 42%, 67% and 91% correspondingly. Since empty barnacle shells attract markedly different sessile and motile macrobenthic fauna than live barnacles, predation by *B. clathratus* would show up in changing the whole dependent assemblage of this foundation species.

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