Do moonsnails shape the population dynamics of Baltic clam at subarctic White Sea?

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It is generally recognized that abiotic factors predominates in shaping community structure and dynamics in harsh conditions of high-latitude marine habitats. Thus system productivity seems to be of first importance in community regulation. Nevertheless, a little is known about keystone predator species in subpolar regions, so a bias may occur in evaluating the role of top-down processes in communities. A survey of traceable predation is extremely useful to fill such a gap of knowledge since the effect could be directly observed in natural conditions. A 15-year long-term study of population structure and dynamics of Iceland moonsnail *Amauropsis islandica* (predator) and Baltic clam *Limecola* (Macoma) *balthica* (prey) populations at two intertidal locations in the subarctic White Sea (Russia) as well as caging experiment were performed to define predator-prey interactions. Analysis of both data sets showed that Amauropsis performs size-selective and ontogeny-shifted predation upon Macoma on the White Sea sandflats. By applying the additive modeling (GAMM), we found the strong relationship between the mean size of Macoma on the tidal flat and the shape of A. islandica's shell size frequency distribution observed in previous year. Therefore, a certain effect of predator upon otherwise quite unpredictable clam dynamics was considered.

Keywords: top-down regulation; predator-prey interaction; traceable predation; *Amauropsis islandica*; *Limecola balthica*; *Macoma balthica;* intertidal; White Sea; resources