Linear growth and shell shape variation in *Macoma calcarea* (Gmelin, 1791) (Bivalvia: Tellinidae) from the White Sea

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Arcto-boreal bivalve *Macoma calcarea* (Gmelin, 1791) is a common species in the White Sea, where it occurs in soft bottom communities at depths from 1 to 250 m. The vertical distribution of *M. calcarea* in the White Sea is bimodal with local maximums at 10 and 50 meter depths with highest abundance in shallow water populations, particularly at 10-15 m (Naumov, 2006). In this study we investigated morphometrical and growth characteristics of M. calcarea from contrasting subtidal habitats - shallow-water localities with pronounced seasonal variation in water salinity and temperature, and deep-water sites located below the thermo- and halocline where clams live in more stable conditions. For this analysis, *M. calcarea* sampled from 10-180 m depth during the decade between 1964 and 1974 and later stored in the Collection of Zoological Institute were used. Shell length (L), height (H), width (W) and the width of the external growth rings were measured with Vernier calipers to the nearest 0.1 mm. For morphometric analysis, standart indices (H/L, W/K and W/H ratios) were used. H/L ratio varied for molluscs from different depths (range was from 0.709 to 0.761; Kruskal-Wallis test: $x^2 = 9.57$, $p = 0.02$), but without a linear pattern. Comparison of samples by two other morphometric ratios did not show significant differences between molluscs from different depths ($W/L = 0.304 + 0.007$, $W/H = 0.418 + 0.009$).

Mean values of morphometrical indices calculated for the combined dataset when all individuals have been taken into account, was not significantly different from described earlier (Naumov et al., 1987). According to our analysis, growth rates in *M. calcarea* vary with depth, but also without a clear linear pattern. Nevertheless, clams from the most deep populations (180 m) had slower growth rates. The research was supported by the RFBR 18-34-00572, RAS research projects AAAA-A17-117042410167-2 and AAAA-A17-117030310207-3, Programs of Presidium RAS “Dynamics of gene pools in natural populations” and “Development of vital and biosphere processes”.

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