Oxygen uptake of *Littorina littorea* (Gastropoda: Littorinidae) at different levels of oxygen tension and temperature.

G. J. Fontje Kaligis

Kaligis, G.J.F. 2001. Oxygen uptake of *Littorina littorea* (Gastropoda: Littorinidae) at different levels of oxygen tension and temperature. - Phuket Marine Biological Center Special Publication 25(1): 119-124.

The present study examined the ability of the periwinkle *Littorina littorea* to regulate oxygen consumption in relation to decreasing oxygen tension in water as a function of temperature. There was a significant change of oxygen consumption of the snails parallel to the decrease of oxygen concentration in the experimental chamber. The rate of oxygen consumption seems to be dependent on the ambient partial pressure of oxygen, and thus declines as the PO_2 in the water surrounding the animal is reduced. *L. littorea* showed no ability to regulate its oxygen consumption rate when the environmental oxygen content decreased. Accordingly, *L. littorea* is regarded as an oxy-conformer. Calculation of the respiration rate between 5 and 10 °C gave a Q_{10} value of 2.6, and between 10 to 15°C it was 1.4. By increasing the temperature to 15 °C the metabolic rate of the snails increased due to higher activity.

G. J. Fontje Kaligis. Biologische Anstalt Helgoland, Alfred Wegener Institute for Polar and Marine Research, Meeresstation P.O. Box 180, D-27483 Helgoland, Germany
Permanent address:
Faculty of Fisheries and Marine Science, University of Sam Ratulangi,
Jl. Kampus Unsrat Manado 95115, Indonesia.
E-mail: <gkaligis@awi-bremerhaven.de> <fontje@hotmail.com>