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Respiration of marine mysid, *Leptomysis lingvura*, measured by four different methodologies

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Respiration is a vital process in all organisms. Its quantification is important to understand the physiology of key secondary producers in the food chain, to evaluate net secondary production, to calculate carbon-flux, nutrient retention efficiency, heterotrophic energy production, New Production, net-productivity, the ocean's metabolic balance, as well as to describe the exchange of CO₂ between the ocean and the atmosphere. However, even after a century, oceanographers still are severely challenged in making oceanographically-meaningful respiration measurements. Consequently, investigating new methodology and re-evaluating old-methodology is important. Here, we compare the respiration of marine mysid, *Leptomysis lingvura*, as measured by three different O₂ detection methodologies. These include the Winkler method, O₂ electrodes and O₂ optodes as well as a complementary measurement of potential respiration obtained from the enzyme based ETS method. We describe and compare the differences between the different techniques and describe the respiratory characteristics of this key specie.

Keywords: respiration, oxygen, electrodes, optodes, ETS, *Leptomysis lingvura*

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