

The Assessment of Some Biological Parameters With Dynamic Energy Budget of Mussels in Agadir Bay

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Abstract : Anticipating an individual's behavior to the environmental factors allows for having relevant ecological forecasts. The Dynamic Energy Budget model facilitates prediction, and it is mechanically dependent on biology to abiotic factors but is generally field verified under relatively stable physical conditions. Dynamic Energy Budget Theory (DEB) is a robust framework that can link the individual state to environmental factors, and in our work, we have tested its ability to account for variability by looking at model predictions in the Agadir Bay, which is characterized by a semi-arid climate and temperature is strongly influenced by the trade winds front and nutritional availability. From previous works in our laboratory, we have collected different biological DEB model parameters of *Mytilus galloprovincialis* mussel in Agadir Bay. We mathematically formulated the equations that make up the DEB model and then adjusted our analytical functions with the observed biological data of our local species. We also assumed the condition of constant immersion, and then we integrated the details of the tidal cycles to calculate the metabolic depression at low tide. Our results are quite satisfactory concerning the length and shape of the shell in one part and the gonadosomatic index in another part.

Keywords : dynamic energy budget, mussels, *mytilus galloprovincialis*, agadir bay, DEB model

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