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**Aspects of the biology and ecophysiology of thalassinidean shrimps in relation to their burrow environment**

This paper examines the burrow environment of thalassinidean shrimps, drawing on our experience of a range of UK species with differing lifestyles (*Calocaris macandreae*, *Jaxea nocturna*, *Callinassa subterranea*, *Upogebia stellata*, *U. deltaura*) and making comparisons with published work on a diversity of species elsewhere. Information on thalassinidean ecology and burrow structure is used, together with measurements of physicochemical conditions, to illustrate the range of conditions which thalassinideans may experience within their burrows, where conditions may be potentially hostile (hypoxic, hypercapnic, high in sulphide). Behavioural and physiological adaptations to their burrow-dwelling lifestyle are considered, particularly those that relate to survival in hypoxic and sulphidic conditions. Relationships are explored between mud-shrimp activity, including feeding, burrow structure and burrow physicochemistry. Some areas requiring further research are identified.