



## New fossil mussels (Bivalvia: Mytilidae) from Miocene hydrocarbon seep deposits, North Island, New Zealand, with general remarks on vent and seep mussels

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### Abstract

*Bathymodiolus* (*sensu lato*) *heretaunga* **sp. nov.** and *Gigantidas coseli* **sp. nov.** are described from Miocene-age hydrocarbon seep carbonates of North Island, New Zealand, adding to only four described fossil hydrocarbon seep mussel species. Both new species are small compared to their modern congeners, and it is suggested that an evolutionary trend toward gigantism occurred in vent and seep mussels since the first known fossil species of the group appeared in the Middle Eocene. *Bathymodiolus heretaunga* is highly variable in morphology, potentially reflecting population variation over a wide geographic area. *Gigantidas coseli* is the first named species, fossil or modern, of its genus known from hydrocarbon seeps, although several closely related species in the same group, the *Bathymodiolus childressi* clade, have been reported from these environments.

**Key words:** *Bathymodiolus*; cold seep; Bathymodiolinae; *Gigantidas*; new species