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The mollusk fauna of soft sediments from the tropical, upwelling-influenced shelf of Mauritania (northwestern Africa)

Julien Michel,[1,2]* Hildegard Westphal,[1,3] and Rudo Von Cosel[4]

[1]MARUM (Zentrum für Marine Umweltwissenschaften) and Department of Geosciences, Universität Bremen, Leobener Straße, 28359 Bremen, Germany; [2]current address: Université de Provence, Laboratoire de Géologie des Systèmes et des Réservoirs Carbonatés, case 67, 3 place Victor Hugo, 13331 Marseille Cedex 3, France; [3]current address: Leibniz-Center for Marine Tropical Ecology and Department of Geosciences, Universität Bremen, Fahrenheitstrasse 6, 28359 Bremen, Germany; [4]Muséum national d'Histoire naturelle, Département Systématique et Evolution, UMS 2700 Taxonomie – Collections, 55 Rue Buffon, F-75231 Paris cedex, France
e-mail: julien.michel@uni-bremen.de
**Corresponding author.*

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ABSTRACT

Ecological and taxonomic study of the mollusk-rich fauna of the Golfe d'Arguin, North Mauritania, investigates the various environmental influences affecting this tropical shelf. The upwelling of nutrient-rich waters leads to a highly productive environment under tropical conditions. The resulting mixed carbonate-siliciclastic sediment contains a large portion of calcareous components produced by heterotrophic organisms—e.g., mollusks, foraminifers, worms, barnacles—that are reworked on the open shelf. On the basis of mollusk assemblages, six taphocoenoses are defined, all being characterized by a mixed fauna of tropical (e.g., *Tellina densestriata*), subtropical (e.g., *Macoma cumana*) and temperate (e.g., *Spisula subtruncata*) species. Differences between the assemblages are related to the medium—grain size ranging from mud to gravel—that results from local hydrodynamic conditions and water depth. Among carbonate grains, *Donax burnupi* shells are very abundant in the swell-exposed, northern part of the Golfe d'Arguin and reflect the tropical to subtropical, high-energy, and high-nutrient waters. Mollusk assemblages are demonstrated to be a sensitive tool for deciphering complex environmental conditions in sedimentary archives.