Eau & Biodiversité
Portail documentaire partenarial

Document généré le 05/07/2025 depuis l'adresse https://www.documentation.eauetbiodiversite.fr/notice/long-term-effects-of-global-and-local-changes-on-benthic-macroinvertebrate-communities-in-multi-stre0.

Long-term effects of global and local changes on benthic macroinvertebrate communities in multi-stressed large rivers: the example of the Rhône River during the last 30 years

The study of biological traits have enhanced the understanding of the changes in the macroinvertebrate communities of the Rhône River during the last thirty years, as well as the potential effects of hydroclimatic factors and thermal discharges on the structure and the functioning of these communities at the regional scale. If every section of the Rhône had specific features, we observed over time a trend towards a higher uniformisation of invertebrate communities, especially in the Lower section. The strong impacts of the alien species and the water warming subsequent to the 2003 heat wave have been detected in the Lower Rhône and the Middle Rhône: the communities of the Middle Rhône gradually exhibit profiles closer to those of the communities of the Lower Rhône. The Upper Rhône was less colonized by alien species but was impaired by the global warming: its communities exhibited biological profiles closer to those of communities of further-downstream zones. In this site, the thermal discharges have led to a lower diversity of the communities and a higher occurrence of eurythermic species. Hence the benthic macrofauna of the Rhône River seems to have reacted quickly and strongly to environmental changes and to the arrival of invasive species. However numerous trait adaptations being common to Mediterranean and alien species, it seems complex to evaluate the respective weight of each of these potential sources of impairment. Predicting trends in invertebrate community composition is a complex objective because of the competition between native and/or invasive species in addition to man-induced environmental variation (flow, temperature). However, if biological invasion does not occur continuously but only based on specific events (especially hydroclimatology), we can legitimately believe that this drift will continue with the arrival of new Ponto-Caspian species via the Danube-Main Canal, their usual way to western and southern Europe. The common feature of these different species is that they are essentially predators or filterers, thermophilic and euryecic, and efficient functional competitors. Finally, this study once again emphasizes the importance of long-term monitoring in the study of biological communities in the context of global warming.

Auteurs du document : J.-F. Fruget, C. Jézéquel, G. Archambaud, J. Dessaix, M.-C. Roger
Obtenir le document : EDP Sciences
Mots clés : freshwater macroinvertebrates, Rhône River, climate change, long-term survey, biological traits, alien species, macroinvertébrés, fleuve Rhône, changement climatique, étude long-terme, traits bioécologiques, espèces invasises
Date : 2015-11-16
Format : text/xml
Source : https://doi.org/10.1051/kmae/2015025
Langue : Anglais
Télécharger les documents : https://www.kmae-journal.org/10.1051/kmae/2015025/pdf
Permalien : https://www.documentation.eauetbiodiversite.fr/notice/long-term-effects-of-global-and-local-changes-on-benthic-macroinvertebrate-communities-in-multi-stre0

Evaluer cette notice:

Office International de l'Eau

Ce portail, créé et géré par l'Office International de l'Eau (OIEau), est géré avec l'appui de l'Office français de la biodiversité (OFB)

OFB OFFICE FRANÇAIS DE LA BIODIVERSITÉ