

Document généré le 19/06/2025 depuis l'adresse https://www.documentation.eauetbiodiversite.fr/notice/interacting-climatechange-effects-on-mussels0.

Interacting climate change effects on mussels (_____

	蔬
<u>nannana B</u>	energen Reference

The physiological response of two species of mussels (Mytilus edulis and M. galloprovincialis) and two species of oysters (Crassostrea gigas and Ostrea edulis) to temperature, oxygen levels and food concentration, factors likely to vary as a result of climate change, was determined experimentally. Bivalves of similar size from different origins were exposed to six temperatures (3, 8, 15, 20, 25 and 30 °C) at two food regimes (2 and 10 µg Chl a L-1) for 6 weeks. In a parallel running experiment M. edulis from the same batches were exposed to three different temperatures (15, 20 and 25 °C) and three different oxygen levels (30, 50 and 100%) at two food regimes (2 and >8 µg Chl a L-1) for 3-4 weeks. Survival during the experiment ranged from 93% to 100% except for the mussels exposed to 30 °C which showed 100% mortality after three to 32 days. Higher food conditions showed higher optimal temperatures for growth of mussels and oysters. In addition, at the high food treatment, reduced O2 saturation resulted in lower growth of mussels. At the low food treatment there were no differences in growth among the different O2 levels at the same temperature. At high food

concentration treatment, M. edulis growth was higher with low temperature and high oxygen level. Condition index was higher at higher food concentrations and decreased with increasing temperature. In addition, condition was lower at low oxygen saturation. Lower clearance rates were observed at high food concentrations. At 100% saturation of oxygen, mussel clearance rate increased with temperature at High food regime, but not at Low food regime. Mussel clearance rates were significantly reduced with low oxygen concentrations together with high temperature. Oxygen consumption significantly increased with temperature. Oxygen saturation was the main factor affecting mussel clearance rate. High temperature and low oxygen concentration combined significantly reduced clearance rate and increased oxygen consumption. These response curves can be used to improve parameterisation of individual shellfish growth models taking into consideration factors in the context of climate change: temperature, food concentration, oxygen concentration and their interactions. The observation that abiotic factors interact in affecting mussels and oysters is an important result to take into account.

Auteurs du document : Pauline Kamermans, Camille Saurel Obtenir le document : EDP Sciences Mots clés : climate change, growth, temperature, oxygen, chlorophyll Thème (issu du Text Mining) : MILIEU NATUREL Date: 2022-02-24 Format : text/xml Source : https://doi.org/10.1051/alr/2022001 Langue : Anglais Télécharger les documents : https://www.alr-journal.org/10.1051/alr/2022001/pdf

Permatien: https://www.documentation.eauetbiodiversite.fr/notice/interacting-climate-change-effects-on-mussels0

Evaluer cette notice:



International 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)

