

<https://doi.org/10.7250/CONNECT.2025.065>

CLIMATE CHANGE EFFECTS ON AQUACULTURE: A CASE STUDY OF LATVIA

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Abstract – Aquaculture is one of the fastest-growing food production sectors, but the imminent impact of climate change puts aquaculture at risk. In the production of aquaculture products on ponds, the production process is significantly affected by climatic conditions, in particular climate change resulting in changes in average air and water temperatures, rainfall, changes in the hydrological regime and groundwater levels. At the same time, ponds are an essential element of environmental services, also contributing to the conservation of biodiversity and habitats. In 2024, 31 ponds in an area of 3.9 thousand ha (75 % of the total pond area) ensured the production of aquaculture production using environmentally friendly methods with increased standards for the maintenance of water bodies and fish farming, thus contributing to the preservation and improvement of the environment and biodiversity, but due to the fulfilment of environmentally friendly requirements through the production of reduced production. Without exploiting the potential for maximum water productivity and losing some of the potential income, the competitiveness of businesses suffers. Protected and non-game birds and animals also cause significant damage to pond farms. One of the priorities of the Latvian Aquaculture Development Plan 2021–2027 is the prevention of the adverse effects of climate change, where financing event for aquaculture, which provides environmental services, for aquaculture enterprises affected by the environment and climate change, is foreseen within the framework of the Programme for the Development of Fisheries 2021–2027. The aim of the study is to determine the potential impact of climate change on aquaculture production in Latvia. A partially structured Questionnaire was used to collect data. Bottom descriptive and Indicative methods were used for statistical analysis of the collected data. Collected data was analysed using frequency distributions, mean ranks and Mann-Whitney U test. The results showed that in order to balance the public interest in environmentally sustainable and biodiversity-preserving aquaculture production with ensuring the competitiveness of producers, it is necessary to continue to provide public support to cover revenue foregone or additional costs incurred by enterprises. Climate change has a significant impact on air and water temperatures, not only in open fish farming systems, but also in closed systems, which incur higher production costs in order to maintain and ensure optimal breeding conditions for fish species.

Keywords – Aquaculture farms; biodiversity conservation; climatic environments; sustainability

ACKNOWLEDGEMENT

This study was prepared by the Latvia University of Life Sciences and Technologies research project “Sustainable solutions for Development of the aquaculture sector in Latvia”, research grant No. DG6, contract No 3.2-10/202.