

# Energy foot-printing of seafood products based on the Water-Energy-Seafood Nexus

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## INTRODUCTION

Many studies have evaluated the environmental performance of seafood supply chain through life cycle assessment (LCA). However, there is no standardization of seafood-based LCA studies in terms of system limits, inventory modeling, end-of-life stage, etc. In the framework of the NEPTUNUS project (EAPA\_576/2018), it has been developed a methodological guide aiming to calculate the environmental footprint of seafood products.

## MATERIAL & METHODS

The proposed methodological guide addresses the main subjects when implementing LCA of seafood products, guiding LCA practitioners to tackle issues such as the selection of the most suitable functional unit, definition of system limits and cut-off criteria, inventory data required and modeling, allocation procedure or end-of-life modelling.

Aiming at simplifying environmental impact reporting to non-environmental experts, the methodological guide proposed the implementation and homogenization of several footprints. In addition, given their ability to raise environmental awareness, the life cycle perspective footprints are a good entry-door into the life cycle thinking concept for general public and policy makers. The appropriate combination of environmental footprints implies a comprehensive analysis, increasing the environmental issues covered and providing complete life cycle environmental performance profile based on Water-Energy-Food Nexus (Figure 1). Since the Nexus concept means an action in one of the systems has also consequences on the others, it is important to understand the synergies between water, energy systems and food systems aiming at resources efficiency and environmental impacts reduction.

## RESULTS

The Water-Energy-Food Nexus approach is the selected methodology for the integration of the proposed footprints into one single indicator throughout normalization, weighting and aggregation of environmental footprint scores. Finally, the Nexus approach also develops an environmental eco-label aiming at results communication to consumers.

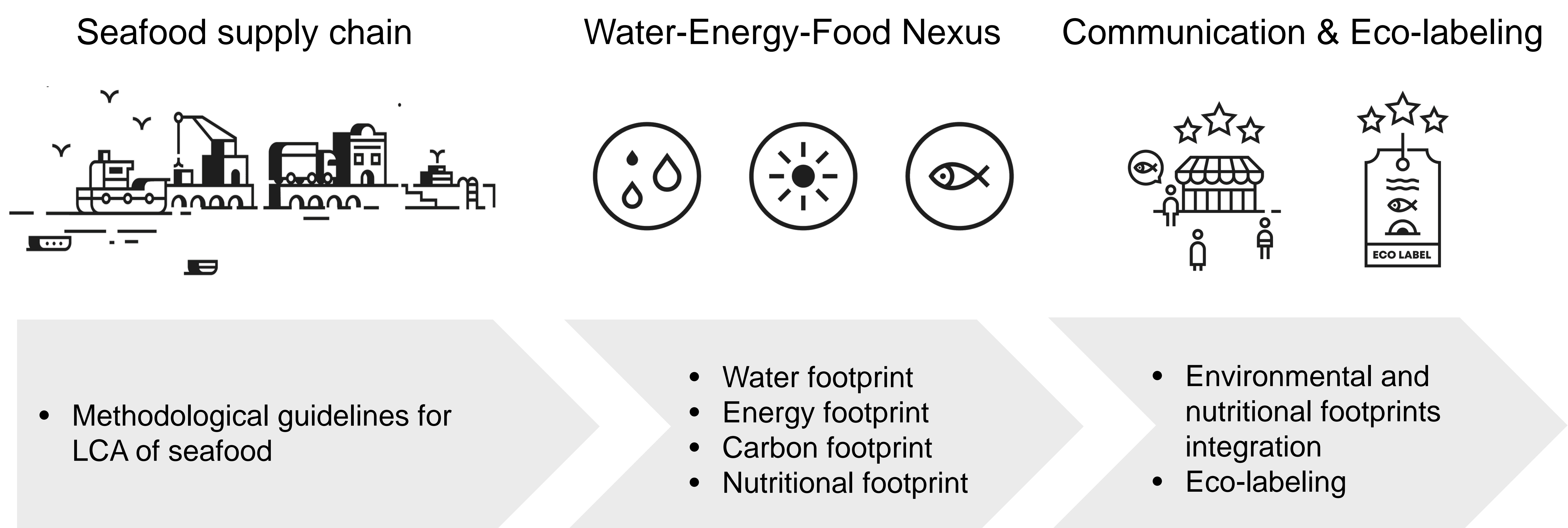


Figure 1. Conceptual framework of the Water-Energy-Food Nexus approach proposed in Neptunus project.

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### Acknowledgements

Project funded by the Interreg Atlantic Area Programme through the European Regional Development Fund