FEDERATION OF EUROPEAN
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FACTS ABOUT FINFISH AQUACULTURE

Sustainability and Environmental Impacts of Aquaculture

Understanding the Local and Global Sustainability of Fish Farming.

An article by Tamás Bardócz – FEAP associated expert – published on www.feap.info on June 2025

European aquaculture is at a critical turning point, balancing economic viability, environmental responsibility, and social well-being. While policy frameworks, technological innovations, and ecosystem-based approaches are driving sustainability, challenges like global competition and high production costs persist.

To address these challenges, the document **Strategic Guidelines for a More Sustainable and Competitive EU Aquaculture** for the period 2021 to 2030, outlines the European Commission's approach to fostering a sustainable, resilient, and competitive aquaculture sector. The document defines the sustainable development of aquaculture by aligning it with the objectives of the European Green Deal and the Farm to Fork Strategy. It highlights the potential of farmed aquatic food as a low-carbon protein source and emphasizes the role of aquaculture in job creation, economic development, and environmental sustainability. The strategy aims to make EU aquaculture more competitive, resilient, and environmentally friendly while reducing dependency on aquatic food imports.

The EU's aquaculture strategy strongly aligns with FAO's SDG framework, particularly in promoting sustainable food production, environmental responsibility, and economic resilience. The guidelines provide a blueprint for ensuring that aquaculture contributes positively to global sustainability goals while meeting EU-specific needs for food security and economic development.

The Food and Agriculture Organization of the United Nations (FAO) **defines sustainability** as meeting present needs without compromising the ability of future generations to meet theirs. Achieving this requires balancing **economic, social, and environmental** factors to support long-term sustainable development.

These three pillars of sustainability—economic, environmental, and social—are fully integrated into the **Aquaculture Performance Indicators (API)** methodology (Garlock et al., 2024), ensuring a balanced and comprehensive assessment of sustainability in aquaculture systems. Each pillar is represented by a set of quantifiable indicators that measure the sector's long-term viability from multiple perspectives. APIs are a standardized set of metrics designed to assess the sustainability of aquaculture systems. They provide a holistic evaluation by measuring economic, environmental, and social aspects of fish farming operations.

The most recent API based evaluation of the European aquaculture sector (Nielsen et al., 2025) shows that Europe outperforms the global aquaculture sector in all three sustainability dimensions. The results suggest that the commitment of European countries to policies and regulations has been successful in establishing a sustainable aquaculture sector. However, the relatively weak growth performance compared to the rest of the world indicates that this has come at a cost. Nevertheless, the sector still has considerable growth capacity, as it shows a relatively fast potential growth rate.

While API is the most recent method to assess aquaculture sustainability including all three pillars on local and global levels, from a practical perspective, like planning and licensing a fish farm, the local environmental impacts of aquaculture are the most relevant to measure. Nowadays the **ecosystem approach to aquaculture (EAA)** is widely used in planning and management of aquaculture activities and this approach is also integrated in the **Environmental Impact**

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