

Sustainably boosting seafood production

Takeaways from the annual aquaculture symposium

Ostend (Belgium), December 2024

The annual symposium titled "Navigating ecological considerations and sustainability in mariculture practices" brought together a diverse range of experts to address the challenges and opportunities of sustainable aquaculture in Belgium. This full-day event served as a platform for exchanging ideas, showcasing research, and identifying pathways to scale land- and sea-based aquaculture sustainably.

Key insights

Sustainable aquaculture: A challenging opportunity

While experts agree that sustainable aquaculture is achievable, it remains complex. Presentations highlighted promising technical advancements and pilot studies showcasing potential solutions for scaling up production. However, a recurring concern was the lack of comprehensive knowledge about the carrying capacity of marine ecosystems—a critical factor for defining sustainability boundaries.

Offshore vs. onshore: Distinct challenges, shared goals

Offshore mariculture: integrating sea uses

Offshore mariculture holds significant potential for growth. Yet, participants emphasized that lacking or overly rigid policy and regulatory frameworks are hindering its full-scale implementation. To address this, integrated management strategies are urgently needed to balance economic activities with ecological preservation.

A recurring theme was the potential of multi-use sea spaces, such as combining food production with renewable energy installations. However, such initiatives require frameworks to account for cumulative environmental impacts, underscoring the need for a robust, impact-sensitive management approach. Also from a marine spatial planning perspective, specific incentives are needed to facilitate multi-use of space.

Additionally, the concept of "regenerative aquaculture" emerged as a novel application of offshore techniques. This approach leverages aquaculture to achieve conservation goals, such as habitat restoration.



Land-based aquaculture: Opportunities and constraints

Land-based seafood production is viewed as a complementary counterpart to offshore systems. Discussions ranged from small-scale inshore aquaculture of marine mollusks to advanced recirculating aquaculture systems (RAS) or closed systems for species like sturgeon (caviar production). These systems offer benefits like controlled environments, reduced disease risks, and alignment with circular economy principles.

However, land-based systems face significant hurdles, including high energy costs and technological demands. Participants called for a strong regulatory framework—ideally at the European level—to support the development of circular, closed-loop systems that minimize waste and maximize efficiency.

Balancing upscaling and ecosystem limits

A central theme of the symposium was the tension between the need for upscaling and respecting natural ecosystem limits. Experts advocated for quantifying these limits before pursuing business models that align with them. Ecologists urged caution against unchecked expansion, while industry stakeholders highlighted the socio-economic need for scaling production to ensure viability.

Flexibility is also crucial to adapting to ecosystem changes driven by climate change. While such changes present risks, they may also open new opportunities for innovative aquaculture approaches.

A Belgian perspective: Specialization and collaboration

Belgium's potential for large-scale aquaculture is limited by its geographic and ecological context. Therefore, participants recommended:

Specialized production: Focus on tailored aquaculture solutions that leverage local conditions.

Regenerative practices: Explore the use of aquaculture for habitat restoration and ecological benefits.

Strategic partnerships: Foster collaboration across sectors to maximize multiple use of sea areas and resource efficiency.

Moving forward: Key recommendations

Standardized monitoring: Establish clear standards for assessing cumulative environmental impacts.

Regulatory evolution: Address gaps in policy to facilitate multi-use frameworks, cumulative impact assessments, and sustainability checks.

Forward-thinking policies: Develop proactive, collaborative policies to secure aquaculture's role in sustainable food systems and ecosystem resilience.

Data and models: Invest in robust models and datasets to guide sustainable practices and inform decision-making.

Despite the challenges, the symposium highlighted the significant promise of sustainable aquaculture. By embracing innovative technologies, fostering collaboration, and aligning policies with ecological realities, Belgium can play an important role in advancing aquaculture as a sustainable, resilient food source. The path forward requires a delicate balance of ambition, innovation, and respect for nature's limits.