

## FOSTERING THE ROLE OF AQUACULTURE IN THE BLUE ECONOMY WITH INTERDISCIPLINARY APPROACHES IN BRAZIL

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Humanity faces major global transformations as we enter the Anthropocene, marked by human-induced changes to Earth. New approaches are needed to address these issues, with sustainability gaining prominence. The Blue Economy offers solutions by providing food while reducing carbon emissions, pollution, and waste. Establishing effective aquaculture systems requires integrated disciplines and technologies to address complex challenges. Some Brazilian cases are shown:

**1. Sustainable Production Systems with low-trophic and aquaculture and terrestrial species integration:** The IFCL (Integrated Fish–Crop–Livestock Farming) is a program for the integration of agricultural activities, focusing on the development of effective technologies to successfully transition from traditional monocultures to integrated farming systems.

**2. Digital Innovation and Socioeconomic Inclusion:** Digital transformation in aquaculture plays a key role in an increasingly digital world. To support this transition, a mobile application and four application programming interfaces, alongside the integration of remote sensing technologies and deep learning tools. It contributes to an effective spatial planning and sustainable expansion of aquaculture.

**3. Financial Incentives and new economies:** The Brazilian Sustainable Taxonomy emerged to provide a structured catalogue of activities supported by scientific evidence to guide investors and financial institutions in allocating resources to a green economy.

Beyond being a relevant instrument, its significance lies in recognizing the limitations of the current neoclassical economic model, which has often contributed to environmental degradation and social inequality. Adopting alternative economic frameworks, such as biophysical economics and the Doughnut Economy, is essential. These approaches integrate planetary boundaries and social foundations into economic development, paving the way for a more just and sustainable future.