



Blue Frontiers

Managing the environmental costs of aquaculture

A comprehensive analysis of global aquaculture production across all major species and farm production systems. This global review aims to inform policy makers about the impacts of aquaculture on the environment and to stimulate debate on the optimal animal food production systems for tomorrow.

Aquaculture, the farming of aquatic animals and plants, is one of the world's fastest growing food production sectors. Today, almost half of all seafood we eat comes from this source.

Demand has been driven by increasing wealth and urbanization, awareness of the nutritional benefits of fish and keen pricing. Aquaculture's growth however, has raised concerns about its impacts on biodiversity, environmental degradation and the depletion of wild fish resources, resulting in questions about its long term sustainability.

KEY RESULTS

The report “Blue Frontiers: Managing the environmental costs of aquaculture” is a ground-breaking study that provides recommendations for action that can lead to a more ecologically sustainable aquaculture industry.

The ecological impact of aquaculture can be improved.

A comparison of countries with aquaculture for the same species found substantial differences in the ecological efficiency of their operations. Future study of best practices plus further innovation is proposed and can have significant benefits to the aquaculture sector.

The ecological impact per tonne of aquaculture production varies by species. Among the worst are production of eel and shrimp and salmon, with respect to fishmeal use. Among the best are bivalves and seaweed.

The overall impact is highly correlated the amount of production. Consequently, improvement in aquaculture efficiency in China and Asia where ~90% of today’s aquaculture occurs, will have the greatest impact on reducing the ecological impact.

Aquaculture is an ecologically viable food source.

Aquaculture, as a food production system, contributes less to global emissions of nitrogen and phosphorus than beef or pork production.

A review of published results show that fish, as compared to either pork or beef, convert a higher percentage of the food they eat into consumable protein.

The report concludes that aquaculture can be an ecologically viable component of food security for the future.



The increasing demand for aquaculture products is likely to continue. Published estimates suggest that aquaculture production may increase 50% from current levels by 2030. In the absence of significant innovations and improvements in management and technology, production at these levels will lead to significantly increased pressure on the environment.

The “Blue Frontiers” report demonstrates that there are significant opportunities for improvement in the ecological performance of aquaculture – across countries, regions and species groups. There are also important challenges to be met.

The full text of the report is available at
www.worldfishcenter.org/global_aquaculture/





The WorldFish Center is an international, nonprofit, nongovernmental research organization dedicated to reducing poverty and hunger by improving fisheries and aquaculture. WorldFish is one of 15 members of the Consortium of International Agricultural Research Centers supported by the Consultative Group on International Agricultural Research (CGIAR). The CGIAR is a global partnership that unites organizations engaged in research for sustainable development with the funders of this work. The funders include developing and industrialized country governments, foundations, and international and regional organizations.

The WorldFish Center is committed to meeting two key development challenges: 1) improving the livelihoods of those who are especially poor and vulnerable in places where fisheries and aquaculture can make a difference and, 2) achieving large scale, environmentally sustainable increases in supply and access to fish at affordable prices for poor consumers in developing countries.

www.worldfishcenter.org



Our **Vision**

We imagine a healthy, prosperous world in which societies are forever committed to caring for and valuing nature, our global biodiversity, for the long-term benefit of people and all life on Earth.

Our **Mission**

Building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature, our global biodiversity, for the well-being of humanity.

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