



Increased production of small fish in wetlands combats micronutrient deficiencies in Bangladesh



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Summary

Increased production of mola and other small fish can be achieved through stock enhancement and sustainable management of natural wetlands. Enhanced fish production can increase consumption and provide nutritional benefits, especially for women and young children, as they suffer from high rates of malnutrition, including micronutrient deficiencies. Mola and other small fish, which are eaten whole, have high contents of vitamins and minerals. In recent years, there has been a reduction in fish production and biodiversity in wetland areas of Bangladesh. Policies should be developed and implemented for sustainable management of wetland resources to enhance production and productivity of small fish species in the future.

Background

The consumption of small fish, caught from the vast wetlands of rural Bangladesh is integral to the culture of the nation. Traditionally, small fish have been a very common food in the rice-based diets of the people.

In recent years, there has been a reduction in the biomass and diversity of fish catches in wetland areas of Bangladesh. This is due to a range of pressures on fish populations and their habitats, including: siltation, construction of dams and canals for flood control and irrigation—which has prevented fish migration between rivers and floodplains, conversion of wetlands to farmland, use of pesticides in rice fields, overfishing, using unsuitable fishing gears and infilling of lowland areas for housing and roads.

Harvested mainly during the monsoon period, small fish have traditionally been an important source of income and nutritious food for the rural population. These small fish species, particularly mola (*Amblypharyngodon mola*), darkina (*Esomus danricus*) and dhela (*Ostreobrama cotio cotio*) contain more micronutrients than large fish such as carps. Small fish consumed whole (i.e. with heads, bones and internal organs) are particularly rich in micronutrients. Fish also aid the absorption of micronutrients from the other foods in the meal.

In Bangladesh, the rates of malnutrition have declined drastically since 1990 and it is on target to reduce the prevalence of underweight children under five years of age by half by 2015. However, levels of malnutrition are still high, particularly among women and young children, who are especially at risk of food insecurity and micronutrient deficiencies. An increase in the production of small fish through stock enhancement and sustainable wetland management can lead to increased fish production and biodiversity, and improved nutrition.

Stock enhancement

Stock enhancement for sustainable fish production and maintenance of biodiversity can be achieved through a combination of habitat restoration and maintenance, restocking, and implementation of fisheries regulations. Many small fish species breed at the start of the monsoon, and migrate between swollen rivers and floodplains. Improving the connectivity between rivers and floodplains will promote migration of brood fish and dispersal of fish fry.

During the winter period, when water levels are low, adult fish retreat to areas of permanent water in the wetlands. Some of these areas should be declared fish sanctuaries and be protected to ensure brood stock survival for the following season. This requires community participation and government support to properly manage these fish sanctuaries and restrict fishing.

Policy recommendations

Policies should be developed and implemented to increase the production and diversity of small fish species in wetland areas. The Ministry of Fisheries and Livestock, in particular, the Department of Fisheries and Bangladesh Fisheries Research Institute, together with the Ministry of Land, and the Ministry of Local Government, Rural Development and Cooperatives should consider adopting the following recommendations:

- expand and restore fish habitats in the wetlands.
- restock mola and other micronutrient-rich small fish in wetland areas.
- restore migratory routes and establish fish-friendly structures to allow movement of brood fish and fish fry between rivers and wetlands and vice versa.
- finance and support the sustainable management of fisheries in wetlands through the implementation of community-based approaches.
- provide financial support for research on the biology and nutrient composition of small fish species in order to select micronutrient-rich fish species for stock enhancement.

Acknowledgements

This document was prepared through financial support of the South Asia Food and Nutrition Security Initiative (SAFANSI). SAFANSI was established as a multi-donor trust fund by a joint undertaking of the World Bank, DfID and AusAID. SAFANSI is supported by both AusAID and UKaid from the Department for International Development; however, the views expressed do not necessarily reflect these departments' official policies.

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This publication should be cited as: Thilsted, S.H., Wahab, M.A. (2014). Increased production of small fish in wetlands combats micronutrient deficiencies in Bangladesh. CGIAR Research Program on Aquatic Agricultural Systems. Penang, Malaysia. Policy Brief: AAS-2014-10.

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