



WorldFish
C E N T E R

The WorldFish Center – Malawi

Reducing poverty and hunger by improving fisheries and aquaculture

The role of the WorldFish Center is to research and disseminate appropriate aquaculture and fisheries technologies for sustainable agricultural intensification. To achieve these goals the WorldFish Center works in partnership with the government of Malawi. It leverages success by collaborating with both local and overseas academic research organizations, drawing funding from the global development community.

The Center has been active in fisheries and aquaculture research in Malawi since the early 1980s. The main thrust of the research and development agenda has focused on five areas of concern: 1) enhancement of farmed tilapia by selective breeding, 2) development and transfer of integrated aquaculture-agriculture technologies, 3) the role of fisheries in mitigating the effects of HIV/AIDS, 4) fisheries and watershed studies, and 5) research on extension methods, especially the farmer-scientist partnership approach. All work has included institutional strengthening and capacity building as major elements.

Two of WorldFish's research efforts are directed specifically towards improving food security and risk management. These are the enhancement of farmed tilapia by selective breeding, and the development and transfer of integrated aquaculture-agriculture technologies (IAA).

ENHANCEMENT OF FARMED TILAPIA BY SELECTIVE BREEDING

WorldFish has a distinguished record of success in the application of sound animal breeding and genetics principles to the improvement of tropical food fish, notably the Nile tilapia. Using these techniques, WorldFish and its

partners have successfully improved the breeding stock of *Oreochromis shiranus*, a popular aquaculture species. Alongside the improved fish comes a fully developed aquaculture technology package that fully describes best practices. The improved strain

- performs 30% better than local ones,
- thrives in all ecological zones,
- can boost production to 6 tons/ha/cycle (5 times higher than current yields),
- can potentially increase fish production from the present level of 1,500 tons to 7,500 tons valued at MK 3.75 billion (USD 25 million).

In order to accelerate the production and dissemination of the new strain and best practices, WorldFish is facilitating the Fish Farming Innovation Platform—a coalition of actors in the fish value chain. Their activities are aimed at fast tracking the benefits of the improved strain, out-scaling best practices for improved *O. shiranus* production and ensuring that an enabling environment is created for the private sector.

INTEGRATED AQUACULTURE-AGRICULTURE TECHNOLOGIES (IAA)

The general idea of IAA is that a small pond, rather than merely producing fish, can actually increase farm productivity by enabling synergistic interactions among different farm activities. Crop wastes act as fish food, pond water can be used for irrigation allowing for the cultivation of higher value crops such as vegetables, pond sediments form valuable fertilizer, and fruit trees grow around pond margins, forming

a highly productive small-scale mixed-enterprise. A recent impact assessment (2010) showed that adopters of the IAA technology had

- 11% higher overall productivity,
- 134% higher farm income per hectare,
- 60% higher total farm income,
- more resilience in times of water shortage and
- a rise in per capita protein consumption.

Following development and expansion of this work over the past 15 years, WorldFish has taken up the challenge to expand dissemination of the IAA technology on a wider scale within the region. This initiative, funded by OPEC, is projected to impact 8,000 farming households, directly reaching 40,000 beneficiaries in Malawi and Mozambique.



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- University of Malawi
- Local non-governmental organizations
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