

In-Pond Raceway Systems for Fish Farming

Revolutionize your fish farming with IPRS for maximum yields and sustainability.



WorldFish Center
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The In-Pond Raceway System (IPRS) is an advanced aquaculture technology that maintains optimal water quality through continuous water flow and waste management, allowing for high-density fish farming.

This technology is **TAAT1 validated**.

7·7
 Scaling readiness: idea maturity 7/9; level of use 7/9

Inclusion assessment **4**

Climate impact **7**

Technology from
ProPAS

Commodities
Fish

Sustainable Development Goals

Categories
Production, Equipment, Production System

Best used with
All Male Tilapia Fingerlings with Greater Yield and Uniformity, Fast Growing and Hybrid African Catfish
[See all 2 technologies online](#)

Tested/adopted in

■ Tested & adopted
■ Adopted
■ Tested
■ Testing ongoing

Where it can be used

This technology can be used in the colored agro-ecological zones.

Target groups
Fish Farmers

Problem

- Traditional pond farming limits fish productivity per area, reducing profits.
- Inadequate waste removal causes pollution and harms fish health.
- Traditional methods demand extensive land and labour, raising costs.
- Inadequate water circulation and oxygen levels lead to inefficient feed conversion.

Solution

- The In-Pond Raceway System (IPRS) enables stocking densities of up to 150 kg per cubic meter.
- IPRS recreates the fish's natural environment, promoting faster growth and keeping them free from diseases and stress.
- Production of higher-quality fish in less water and often exceeding traditional pond production by 200 to 300%.

Key points to design your program

In-Pond Raceway Systems (IPRS) transform conventional ponds into precision aquaculture systems that improve water quality, feed efficiency, and fish productivity through continuous water circulation and waste management. Suitable for blue economy, food security, climate resilience, and aquaculture value chain development programmes, the technology contributes to **SDGs 2 (Zero Hunger), 8 (Decent Work and Economic Growth), and 13 (Climate Action)** while creating employment and business opportunities for women and youth in fish production, technical services, processing, and aquaculture enterprises.

Action Points:

- Target strategic aquaculture production areas with reliable water resources, affordable electricity, and strong market demand.
- Invest in raceway infrastructure, water circulation and aeration systems, and supporting facilities required for intensive fish production.
- Train farmers, technicians, and extension agents on raceway management, water quality monitoring, feeding systems, fish health, and equipment maintenance while promoting improved fish breeds and integrated aquaculture practices.
- Monitor programme performance through indicators such as fish productivity, feed conversion efficiency, water quality, profitability, technology adoption, and the participation of women and youth.

0.5882 kg of fish	1.57 USD	0.31 USD	IP
for 1kg of feed	8-month total variable costs per kg	8-month total fixed costs per kg	Patent granted

