Larval Feed

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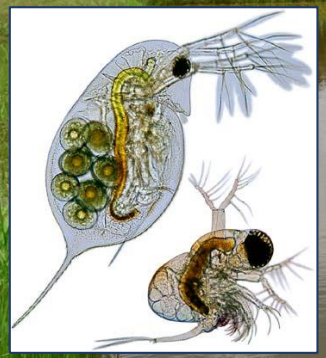
Hatchery Workshop Bunda, 2019

Food chain & Nutrient cycle in a Pond



Phytoplanktons → Zooplanktons → Fish

Grass → Rabbit → Fox

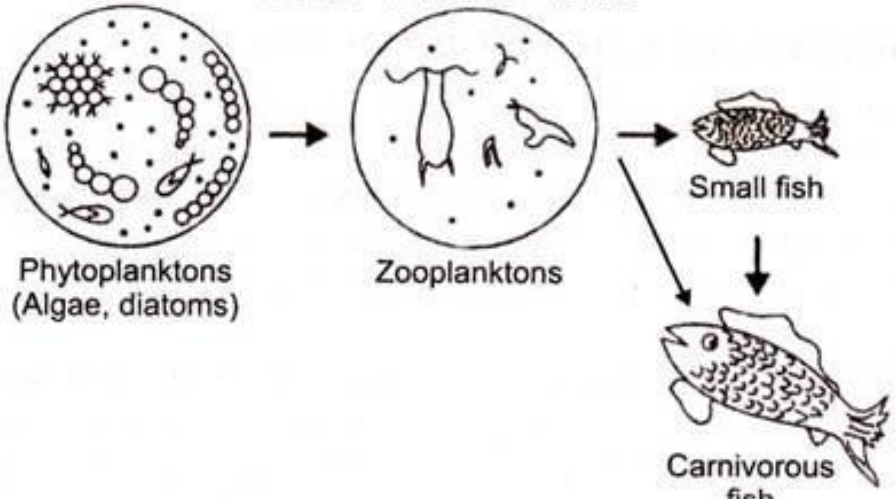
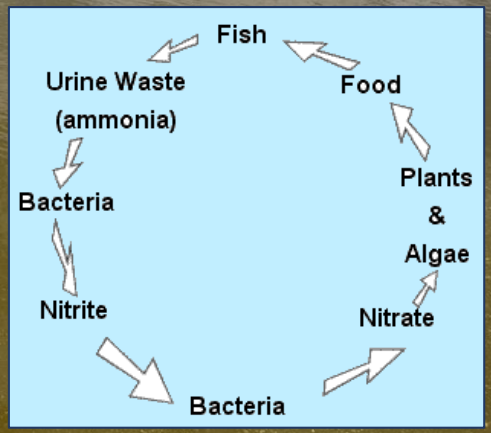


Fig. 2. A grazing food chain in a pond ecosystem.

Chambo larvae



Fingerling production under controlled conditions

Manual feeding required!

Pros	Cons
• No predation • No cannibalism (same stages in tanks) • Water parameter optimized • Known number of fingerlings • Single species production • Gender selection possible	• Feeding/feeding technology required • Costs for feed • Power required (light, pumps, heating, aeration) • Careness necessary (cleaning, water parameter water exchange etc.)


1cm 2 3 4 5 6 7 8 9 1

Typical composition of artificial larval feed

High Protein content required...

Brand	Othohime	INVE Orange	GEMMA Micro	BioMar	MicroPro, R 4
Macro Nutrients					
Moisture	6.3%				5.1%
Crude protein	56.3%	56%	59%	58%	49.14%
Crude fat	15%	13%	14%	12%	20.47%
Crude fibre	2.8%	1%	0.2%	0.5%	
Crude ash	14.2%	10%	13%	11%	17.3%
Caloric energy					22 MJ/kg
Minerals, Micro Nutrients					
Calcium	2.7%	2.7%	1,5%	2.08%	
Phosphorus	2.3%	1.3%	2%	1.64%	?
Copper (cupric chelate of glycine, hydrate)	7.0mg/kg	6mg/kg	10 mg/kg	8 mg/kg	?
Manganese (manganese chelate of glycin, hydrate)	31.8mg/kg	50 mg/kg	36 mg/kg	14 mg/kg	?
Zinc (zinc chelate of glycine, hydrate)		50 mg/kg	130 mg/kg	195.5 mg/kg	60 mg/kg
Selenium (b) selenmethionine, selenised yeast inactivated & a) sodium selenite (GEMMA))		0.3 mg/kg	a) 0.35 mg/kg + b) 0.03 mg/kg		40 mg/kg

Malawi-Feed (Hassib)

Malawi-Feed (Apatsa)

Malawi-Feed (Project)

Malawi-Feed (Farmer Feed)

Insect Protein Powder

Pellet Feed for Tilapia (Aller Aqua)

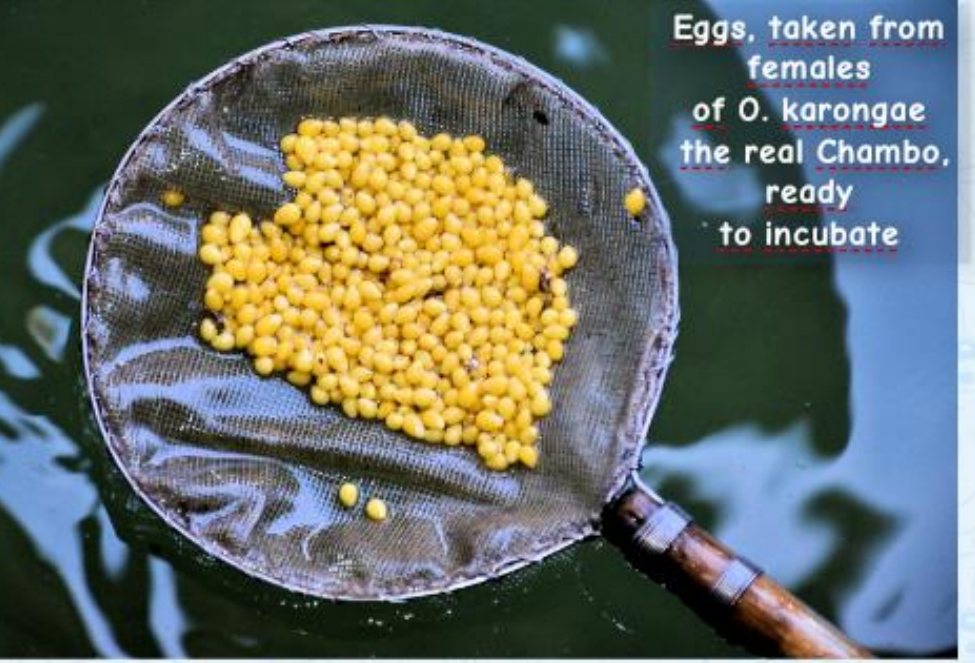
Summary

- Indoor rearing of Tilapia larvae has many advantages
- Main advantages: the species and numbers can be controlled, with approriate feed growth rates superior to pond culture

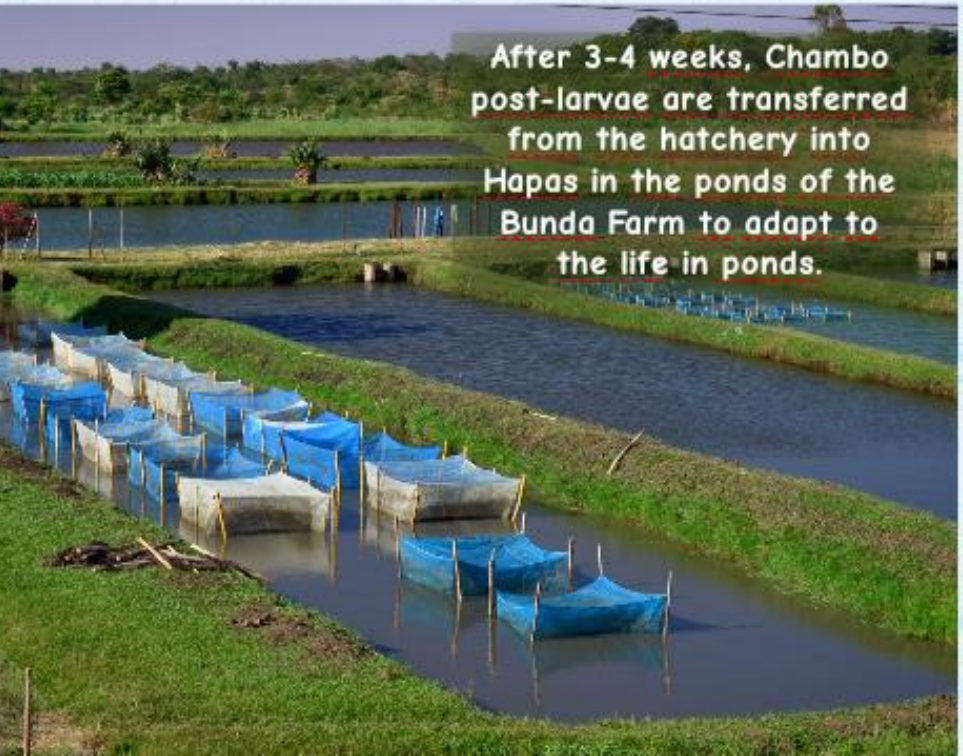
- However, advanced technology required
- Feeding (produce costs) and maintenance required
- Power for pumps, aeration, heating required

- Consideration of the "Return on equity (ROE)" ratio required before starting this business

- However, similiar production possible with small pond system; requires only artificial egg incubation unit and additional feed (natural feed may not be sufficient with high densities)


Eggs, taken from
females
of O. karongae
the real Chambo,
ready
to incubate


Eggs are incubated
in McDonald jars
until hatching and
yolk-sac larvae
incubated into the
indoor tanks


After 3-4 weeks, Chambo
post-larvae are transferred
from the hatchery into
Hapas in the ponds of the
Bunda Farm to adapt to
the life in ponds.


Fingerling size, ready
to be stocked
in farmers ponds