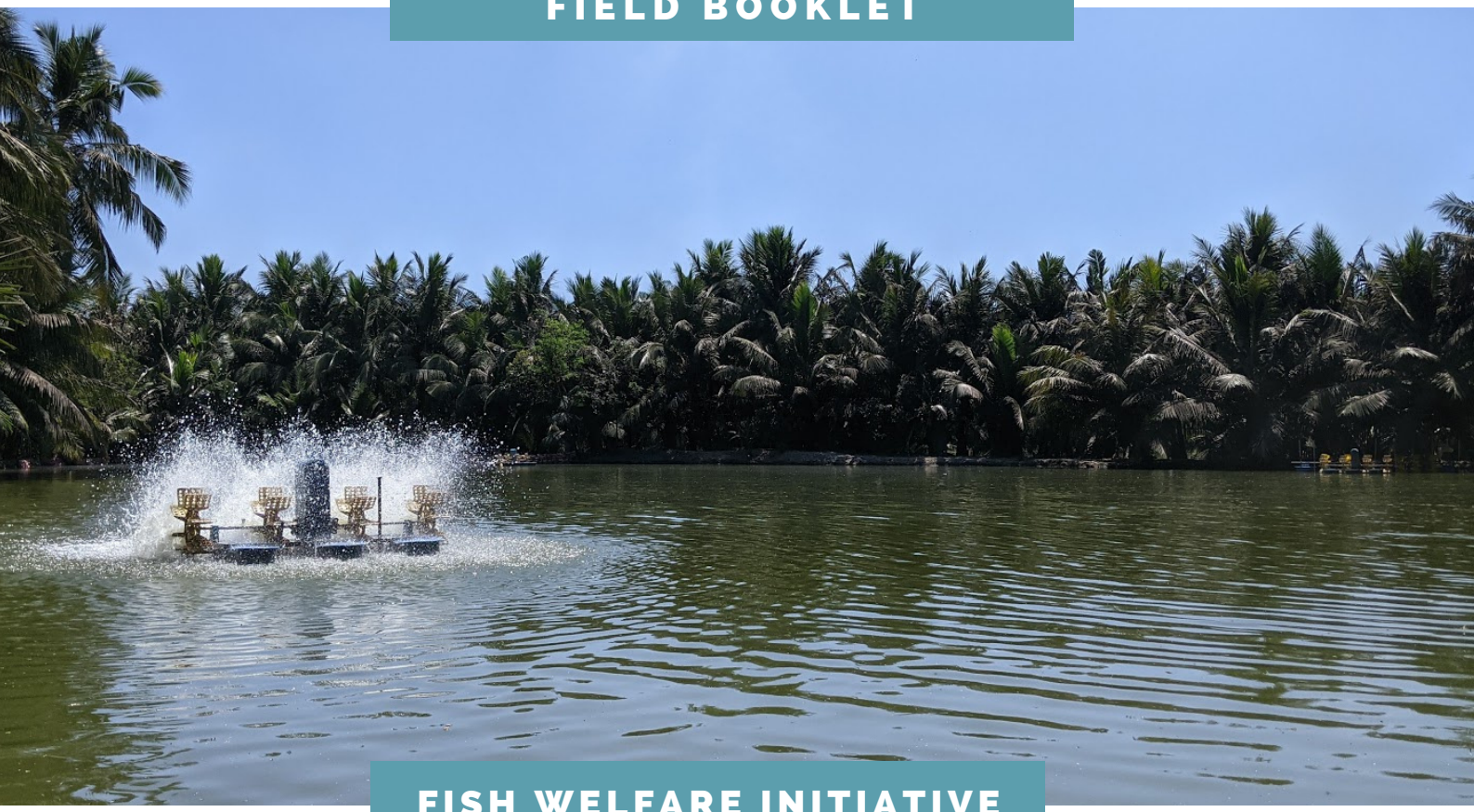
POND MANAGEMENT TO IMPROVE CARP WELFARE

FIELD BOOKLET



FISH WELFARE INITIATIVE

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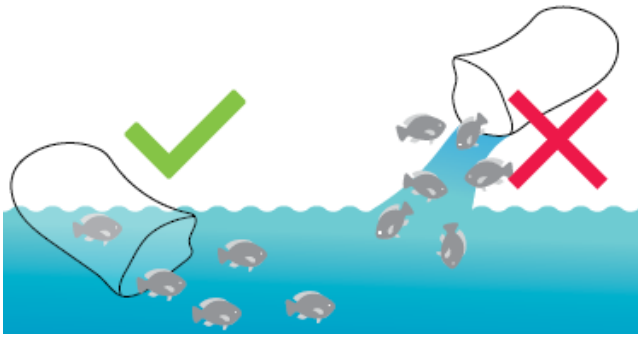
Pond management is imperative to provide high fish welfare and keep your animals healthy. **Managing your pond is built around two major tasks**:

Best Stocking Practices

Water Quality Management

BEST STOCKING PRACTICES

- Buy **good quality fry** of similar age and size.
- Obtain fish from **reputable, experienced, disease-free hatcheries**.
- Grade and separate individuals based on fish size.
- Introduce new fish to pond during cool hours.
- **Acclimatize** seed to new conditions by slowly adding pond water to the bag over 30 minutes.



Releasing fingerlings: float bags for ~30mins in the shade. Then slowly release fish into the water.

- Stock adult fish at **2500 to 3000 fish per acre.**
- **Feed frequently and consistently**.
- Distribute **fertilizers** evenly across the entire pond surface once a week.
- Fertilize only on sunny days.
- **Organic manure** should be free of chemicals, antibiotics, or hormones.

FINDING GOOD FRY

The following signs can help distinguish between good and bad fry.

Good fry	Bad fry
Restless and swimming fast	Calm and quiet
Shiny and bright color	Pale and dull colour
Smooth body / Glossy scales	Rough (not smooth) body/scales
No spot or mark	Red marks in the body, fins and gill
If tails are pressed, good quality fry shake head vigorously	If tails are pressed, shake head very slowly
Swim against the current	Sluggish or inactive
Not deformed	Deformed

TIPS FOR SOURCING QUALITY FRY

- Buy captive-bred species.
- Buy from reputable suppliers and visit fish nurseries.
- Ask other fish farmers about the quality and condition of fingerlings from that hatchery or nursery.
- Fish fry should look healthy.

WATER QUALITY MANAGEMENT

1. Monitor key parameters at least weekly, ideally daily.

For optimal levels, see the tables at the end of this guide.

2. Follow strict biosecurity plans.

Refer to the biosecurity farmer guide for more information.

3. Regularly change/renew pond water.

At least 2 to 3 times a week if biosecurity can be safeguarded.

4. Do not overstock the pond.

The government in Andhra Pradesh recommends 2,800 individuals per acre for carp.

4. Ensure an appropriate feeding regime.

Do not over- or under-feed your fish. Distribute feed evenly to avoid aggression. If water quality drops, reduce feeding.

5. Regularly remove pond vegetation.

Water plants can be beneficial if managed well but harmful if there are too many. Frequently remove some of the pond vegetation.

Signs of Poor Water Quality

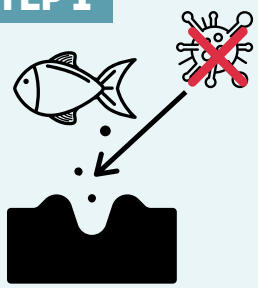
- Phytoplankton blooms.
- Fish gasping at the surface.
- Slow growth of fish.
- Fish groups gathering around fresh incoming water.
- Increase in turbidity (water looks muddy, murky).
- Changes in water color (e.g., too greenish/brownish) or smell.

CATLA AND ROHU WATER QUALITY NEEDS

Indicator	Catla Welfare Needs	Rohu Welfare Needs
Temperature	25-33 °C	25-33 °C
Salinity	< 6 ppt	<5 ppt
DO	> 5mg/L	> 3.6 mg/L
CO2	2.0 – 5.6mg/L	<60 mg/L (more research needed, likely lower)
pH	7 – 8	7 – 8
Turbidity	>30 cm // < 75 NTU	N/A
Ammonia	< 1 mg/L 0.01 – 0.02mg/L should be kept	<0.82 mg/L
Nitrite	<0.01mg/L	0.02 – 0.2 mg/L
Depth	1.5m	1 – 1.8m
Hardness	122 – 136mg CaCO3/L	<100 mgCaCO3/L
Organic carbon	1.5 – 2%	1.5 – 2%
Organic matters	2.5 – 4.3mg/100g	2.5 – 4.3mg/100g
Nitrogen	8 – 10 mg/100g	8 – 10 mg/100g
Phosphorus	10 – 150 mg/100g	10 – 150 mg/100g

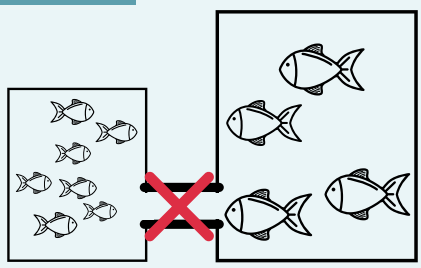
POND MANAGEMENT FOR HIGH FISH WELFARE

STEP 1



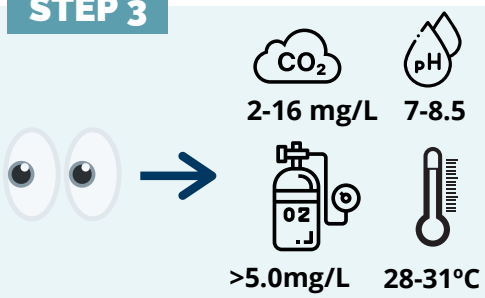
Get high **quality seeds** from disease-free hatcheries.

STEP 2



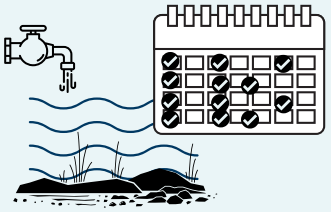
Separate fish in nursery and rearing ponds.

STEP 3



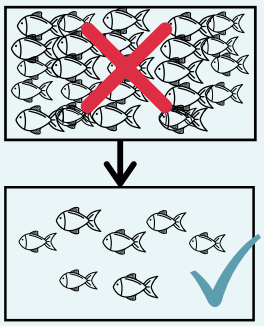
Monitor **key parameters** at least weekly, ideally daily.

STEP 4



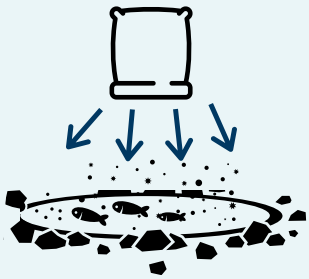
Regularly **change pond water**.

STEP 5



Do not overstock. Optimal density: **2800 fish/acre**

STEP 6

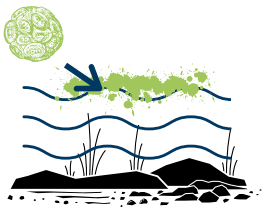


Ensure **regular and distributed feeding**.

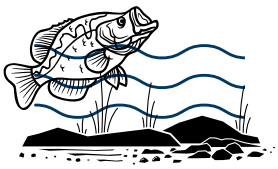
STEP 7

Stop feeding and fertilizing if **water quality turns bad**.

SIGNS OF POOR WATER QUALITY

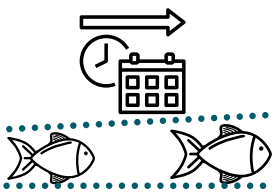


PHYTOPLANKTON BLOOMS



FISH GASPING AT THE SURFACE

FISH GROUPS GATHERING AROUND FRESH INCOMING WATER



SLOW GROWTH OF FISH

CHANGES IN WATER COLOR (E.G., TOO GREENISH/ BROWNISH) OR SMELL.

INCREASE IN TURBIDITY (WATER LOOKS MUDDY, MURKY)

For more information check the pond management farmer guide, or go to: www.fwi.fish/best-practices.