

# TRANSPORTATION OF FISH SEED

**Dr. D. K. Paul**

Associate Professor & Course Coordinator  
M. Sc. Environmental Science & Management  
Department of Zoology, Patna University  
Member, SEAC ( for EIA), Bihar, Constituted by  
MoEF & CC, Govt. of India  
[dkpaul.pat31@gmail.com](mailto:dkpaul.pat31@gmail.com)

# INTRODUCTION

- Transportation of fish seed is one of the major aspect of fish culture as per requirements. Fish is transported at half the usual rates but the fish spawn, fry and fingerlings meant for stocking operation at 1/4<sup>th</sup> the rates.
- During transportation several factors are taken into consideration such as-
  1. The species of fish
  2. Size
  3. Water
  4. Temperature
  5. Length of time taken
  6. Atmospheric pressure
  7. Length of stops etc.
- The transport of fry is carried our very carefully.

# Important Points for Transportation

Following points are considered-

- Reduction in the rates
- Movements of large quantities of fishes
- Introduction of refrigerated sail transport on all routes.
- But these general factors govern fish mortalities when applied to the transport of spawn, fry and fingerlings separately.
- So fish size is an important factor for the transport of seeds.

# Important points for fish seed transportation

- The rate of consumption of  $O_2$  of fish seed is lower than 2 mg/kg/hr body weight of fishes.
- Scales in the process of formation is considered during transportation.
- Dead spawn and fry pollutes the water more quickly.
- Seeds are less prone to suffer with hyperactive injuries and diseases.

# Methods of Packing and Transport of Fish Seed

- Transport of fishes depend on the size, number, locality and weather condition.
- Transport in airplanes provide excellent service particularly for food fishes, eggs and fry.
- Generally there are 2 systems for transport of fish seed.
  1. Open system
  2. Close system

# Details of Open System

- The open system is without artificial aeration/oxygenation water circulation.
- For transport of fingerlings, truck mounted open tanks with facilities for mechanical aeration and on water facilities for mechanical aeration and on water circulation had been used quite successfully (Horra and Pilly, 1962).
- Open canvas containers are already being used in Punjab and M.P. for transporting fingerlings.
- In China, bamboo baskets and wooden tubes are used.

## Details about Close System

- In this system, the source of O<sub>2</sub> supply is not the open air to which the water surface is exposed. But air is supplied into an enclosed atmosphere above the water. The oxygen sealed packing methods for transport of spawn and fry was gained very quick popularity in the country.
- In India, fry up to 3 to 4 mm size are transported in a manner (H<sub>2</sub>O : O<sub>2</sub> is 1:1) and packing density is 2000 to 4000 litre for duration of 20 to 30 hours.

# Other Methods

Some other methods for the transport of fish seed are also used-

- 1. Cans:-** When small quantities of fry or average size fishes are to be transported over a short distance , small cans are generally used. These are known as **goujonnieres**. But when large quantities of fry and average size of fish fry are to be transported ,flat bottom cans are preferred.
- 2. Polythene bags:-** Polythene bags are extensively used for carrying small quantities of seeds by Aeroplan. Generally  $1/3^{\text{rd}}$  of these bags are filled with water and fishes are kept in the bags.



# Other Methods

## 3. Traditional Method

- In this method earthen pots (of about 15 lit capacity) are used for the transportation of fish seed. The pot is first filled about 2/3<sup>rd</sup> with water of spawning ground.
- After filling the pot with water, about 50,000 spawns are introduced. Earthen pots are carried manually on bamboo slings.

## 3. Transportation in closed containers

- The seeds are transported by road, rail or air in plastic bags filled with water and compressed air packed in metal containers.
- Tins of 40 x 25 cm could be conveniently employed. The fry or fingerlings starved for 1 day are acclimatized and then carefully introduced in requisite numbers into the bags.

# General Rules of Transportation

There are some general rules which should be considered during transport of seed:

- a. The species of fish.
- b. Age and size of fish.
- c. Length of time of transport
- d. The temperature of water
- e. Relative resistance of fish
- f. The nature of the transport receptacles.
- g. Means of transport
- h. Length of spot
- i. Climatic condition

# Mortality during Transportation of Seed:

The mortality which is expected during transport occurring to following reasons:-

- Due to depletion of oxygen
- Due to accumulation of toxic gases
- Length of transportation time
- Ambient temperature time
- Accumulation of excretory wastes.
- Diseases
- Physical injury and predation.

# Transportation of Eggs

- The fertilized eggs and 24 hours hardened eggs of cold water fish could be transported by packing them in moist cotton wool and placed in plastic bucket with an outer container.
- For trout eggs, cardboard cartoons of 20 x 30 x 20 cm size with inner styrofoam lining are used.
- Eggs of major carps are generally transported by open system

# Transportation of Spawn and Fry

- Spawn and fry are transported in sealed metal container with oxygen.
- Polythene bag of different sizes are now widely used in India for transportation of fish seed.

# Transportation of Fry and Fingerlings

- Transportation of fry and fingerlings in open earthen vessels called 'Handis' have been traditional method in Bengal.
- During the recent years aluminum vessels are also used. The Handis are filled with water from the same source and 50,000 fry and 75,000 fingerlings are released in the vessels of 20 to 25 litre and 30 to 35 litre respectively.
- Vessels are transported in open motor vans fitted with hand pumps which circulate the water in the form of spray.
- By this method fry can be transported up to 500 km only 5% mortality.

# Conclusion

Transportation of fish seed to various places provide good steps and measure for aquaculture. And this way food problems of the world up to some extent may be resolved.

# Suggested Readings

1. Jhingran VG (1982).Fish and Fisheries of India . Hindustan Publishing Corp. Delhi.
2. Gupta SK and Gupta PC (2010).General and Applied Ichthyology. S Chand & Company Ltd. New Delhi



Thanks

**NURTURE THE NATURE  
FOR BETTER FUTURE**