

## Parental care in fishes

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Definition → Any behaviour of taking care of eggs and young one till they become independent in procuring food and protection is called parental care. Parent invests their time and energy in protecting their young ones, which helps in the survival of their young ones.

Types of parental care →

- 1) Maternal care → only female are involved
- 2) Paternal care → only males are involved
- 3) Biparental care → Male and female both involved in care (together or alternately)

## Type of Parental care in fishes.

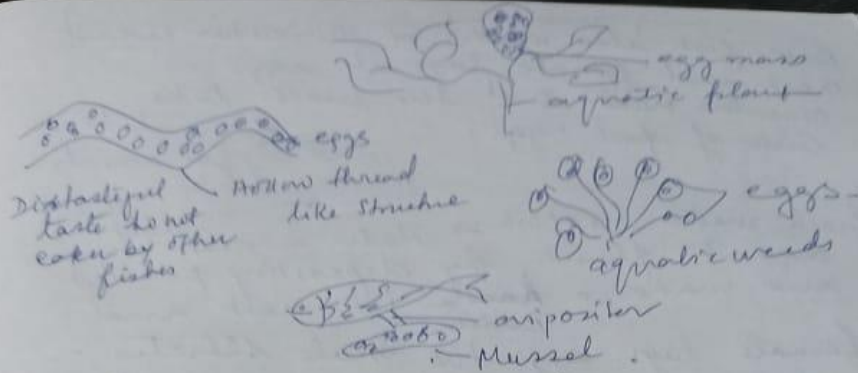
- Indirect methods
- 1/ Deposition of eggs in suitable places
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  - 3/ Hermit-like fishes

- Direct method
- 1/ Concealing eggs and young ones
  - 2/ Viviparity
  - 3/ Oviparity

## Methods of parental care in fishes

### Deposition eggs in suitable places

- 1/ Carp fishes → egg mass is deposited on plants, rocks by some sticky material
- 2/ Yellow perch fishes - makes a net of thread like structure and deposits on rocks or on plants
- 3/ Exocoetus → released sticky, thread like material from its kidney and deposits its egg in it and gets attached to rock or magnetic plants
- 4/ Common carp deposits eggs on dense aquatic plants.
- 5/ Female Rhodes fishes released on shell of mussels and deposits eggs by a tube like ovipositor



2) Deposition of eggs in nests.

- a) Bubble nest → Beta Splendens male fish keeps the egg in its mouth and produce bubbles of mucus and makes a nest of bubble and keep its eggs on it.
- b) Chinese paradise paradise fish also makes bubble nest

2) Weeds nest → Ophryotrocha fish makes nest in aquatic weeds and deposits its eggs. Called weed nest, both the parents care the nest and eggs.

Stickback fish → Male fish changes its colour during breeding and makes a barrel shaped nest and attracts the female to come inside barrel and fertilizes the female. The female lays eggs and when the barrel gets filled with eggs of different female fishes and takes care of it.



Road fish also makes a circular weed nest and female lays its eggs in circular nest and the male takes care of fish eggs.

fresh water ~~sunfish~~ <sup>sunfish</sup> makes a nest in aquatic plants by depositing pebbles and makes a basin like nest and female lays egg the male secretes a sticky material from kidney and covers the eggs till the young one hatches. The male fish takes care of eggs in basin nest.

### c) Pit nest and Burrow nest

Salmon fishes moves towards the rivers from sea and makes a pit nest the female lays eggs both male and female dies after spawning.

1) *Polypterus* or lung fishes lays in pit/burrow fish the female lays egg and after fertilization the male fishes takes care of eggs.

L shaped burrows is oxygenated by modified pectoral fins and blowing of air by mouth.

*Cyclopterus* fish lays its eggs in the cracks of rocks, males takes care of eggs

oxygenates it by pectoral small fins.

3) concealing eggs and young ones.

(a) Pholis butter <sup>male</sup> fish collects the eggs and coils around the fertilized eggs. Sometimes the male keeps the eggs in the holes made by molluscs.

(b) Attached to the cephalic hook & Kuntus male fish keeps the egg mass on hook like process of dorsal fin spine and binds it with thread like structures. The egg mass remains in body of male fish in cephalic pouch.

(c) Syngnathus or pipe fish the female deposits fertilized eggs in brood pouch at the ventral side of abdomen in male fish, which keeps it till hatching.

(d) Sea horse male keeps the fertilized eggs in brood pouch of male after hatching because it comes out in water the brood pouch is a modification of pectoral fins.

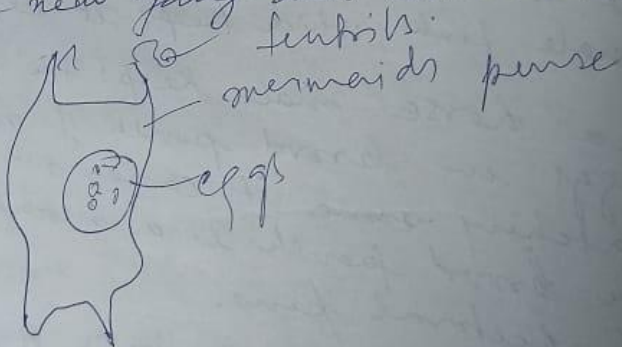
(d) eggs in mouth cavity → Arius fish keeps the fertilized eggs in mouth cavity. male stops eating food.

(e) Tiliapia keeps the egg in mouth cavity of female and remains protected till hatching. fish stops eating.



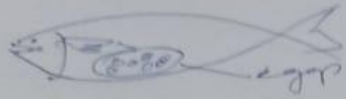
(H) Eggs in integumentary cups →  
 Asprey, platy staeus female keeps  
 fertilized eggs in integumentary cups  
 in ventral side of female fish  
 the egg remains attached to cups  
 by a stalk.

(I) Mermaids purse → viviparous shark  
 Syllium, keeps its fertilized eggs  
 in mermaids purse formed by  
 secretion of female body. These  
 purse floats in water with the help  
 of tentil like structure and gets  
 attached to aquatic weed, after  
 development the purse breaks and  
 the new young ones comes out.



(S) Viviparity → Scoliodon, gambusia, sword  
 tail have internal fertilization and  
 development is internal. Female  
 fishes gives birth to young ones. The  
 nutrition takes place by yolk  
 sac placenta.

This is the highest level of parental care in fishes



ovoviviparity  $\rightarrow$  Nurse shark (*Gingly mostoma*) shows this process which the middle type between oviparous and viviparous fertilization and development takes place in the uterus of female eggs are covered by egg shell, young ones develop inside the eggs in the uterus and after breaking the egg shell the young ones comes out, No yolk sac placenta is found in this case only the eggs are kept safe in uterus.

Merits of Parental care  $\rightarrow$

- 1) Increases the chances of development
- 2) ~~Improves~~ Improves the chance of survival
- 3) provides the suitable environment for development and growth.

Demerits  $\rightarrow$  It is costly, Reduces the growth of parents, Decreases the survival of these parents and, Increases the next breeding time, Disrupts the Biological activities and aggressiveness.