

PARENTAL CARE IN FISH

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Fish as a group pay little parental care to their eggs and young. Most of them are content to ensure fertilization of their eggs but bestow little attention on them. This lack of parental behaviour is correlated with production of great numbers of eggs and sperm. There are, however, some notable exceptions in which the eggs and young are guarded with great solicitude mostly by the male parent.

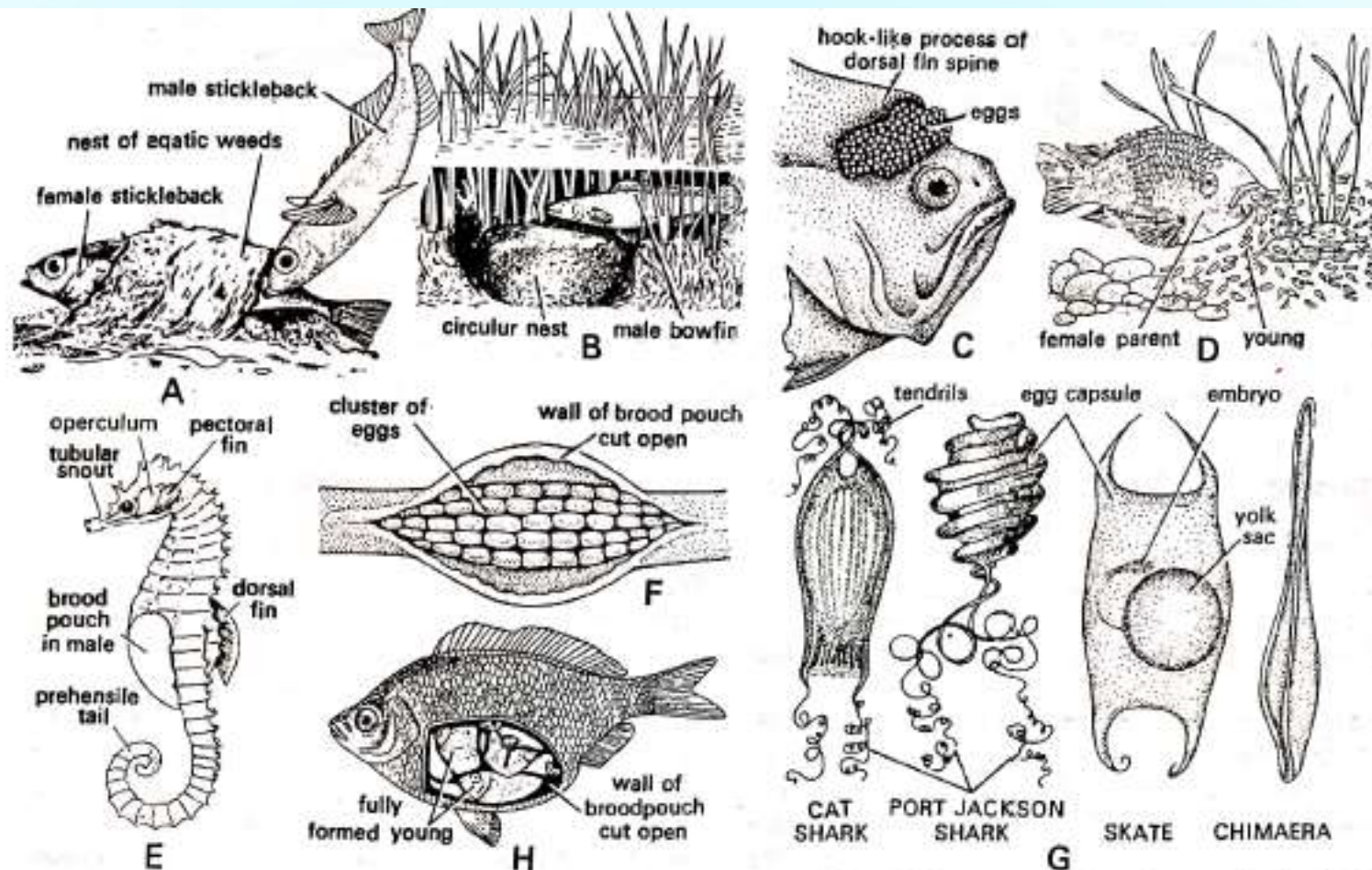


Fig. 18-10. Some interesting examples of parental care in fishes. A—Male stickleback (*Gasterosteus aculeatus*) muzzles female at the base of tail to stimulate her to lay eggs in a nest of dead aquatic plants. B—Male bowfin (*Amia calva*) guarding over circular nest. C—The male Australian *Kribia* incubates eggs on its forehead. D—Very young of *Tilapia mossambica* take refuge in female parent's buccal cavity in times of danger. E—A male *Hippocampus* carrying brood pouch. F—Brood pouch of male *Syngnathus* opened to show eggs. G—Mermaid's purses for eggs. H—Body cavity of *Cymatogaster aggregatus* cut open to shown fully formed young ready for hatching.

1. Nest building. Most interesting example is provided by the male stickleback (*Gasterosteus aculeatus*) .

a small freshwater fish of North American lakes and ponds. The male fish actually builds a nest of dead aquatic plants making use of a sticky secretion from his kidneys. By an elaborate courtship ritual, he induces several females to lay eggs in a tunnel in the nest. Then he guards over the fertilized eggs, keeping away all intruders in a fierce manner, till they are hatched. The bowfin (*Amia calva*) of the great lakes of North America builds a crude circular nest among aquatic plants. The male keeps guard until the eggs hatch and then keeps the young fish with him for some time afterwards. The male of African lung fish (*Protopterus*) digs oval pits or holes at the base of tall swamp grasses. As many as 5000 eggs may be laid in a single hole or nest by several females. The male vigorously guards them and even thrashes surface to aerate water around the eggs. The male of American lungfish (*Lepidosiren*) leaves the nest, a tunnel-like burrow, periodically to gulp atmospheric air so that oxygen diffuses from the freshly aerated blood of its modified pelvic fins near the eggs and young.

2. **Coiling round eggs.** In *Pholis*, the male guards by coiling round the eggs rolled into a ball or sphere until they hatch.

3. **Attachment to body.** The male of the New Guinea fish *Kurtus* entangles the egg mass on a hook like process on head until they are hatched.

4. **Integumentary cups.** In the siluroids *Aspredo* and *Platystacus*, the fertilized eggs are pressed into the soft spongy skin of belly of the female. Each egg becomes attached by a stalk into a cup-like depression of integument and carried until hatching.

5. **Shelter in mouth.** There are several species of mouth-brooding fishes. The fertilized eggs are carried in the mouth cavity by males in the catfish *Arius* and by females in the Cichlidae *Tilapia*. The very small young also take refuge in the parental buccal cavity in times of danger.

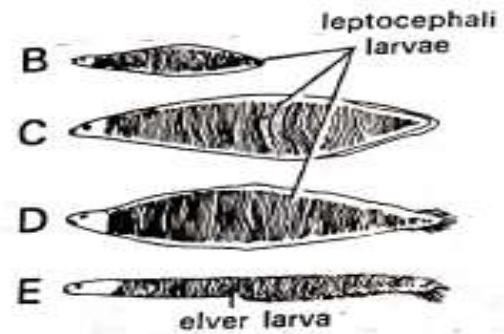
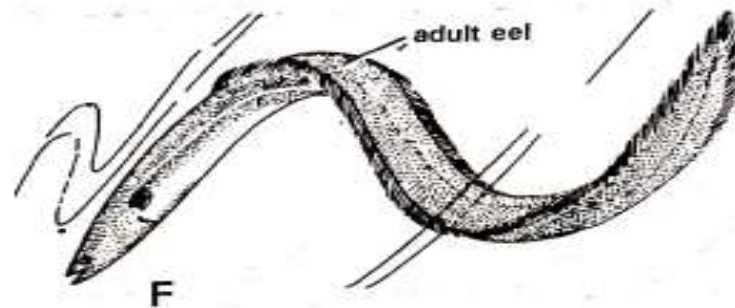


Fig. 18-11. Migration of fresh water eel, *Anguilla*.

A—Migration route and breeding place.

B,C,D—Leptocephali larvae. E—Elver or glass eel.



F—Adult eel

6. Mermaid's purses. Oviparous sharks (e.g. *Scyllium*) lay fertilized eggs inside protective horny egg capsules or mermaid's purses, which remain anchored to sea weeds by their long tendrils. The young hatch out after rupturing the egg case.

7. Viviparity. A few species of fishes are viviparous, such as the dogfish *Scoliodon* and the surf fish *Cymatogaster aggregatus*. Both fertilization and development are internal. Developing embryos are nourished mostly by a yolk sac placenta and the young are born with the characteristics of the adult. Viviparity provides maximum protection and represents the highest degree of parental care.