

Fish Migration

DEGREE - I

Fish Migration

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Fish migration may be defined as movement of fish from freshwater to salt water and vice-versa chiefly for the purpose of spawning. Many fishes show migrations in a particular season. For example, the barracudas (*Sphyraena*) and swordfish (*Xiphias*) living in warm tropical seas perform latitudinal migration by moving north in spring and south in autumn. Some deep-water fishes perform vertical migration per diem. Fish Migration can be classified as

Potamodromy or limnodromy: Migration is limited to freshwaters only

Oceanodromy: Migration is limited within sea.

Diadromy: Migration occurs between the freshwaters and seawaters. Diadromy is classified into two categories:

Catadromous migration: Movement of fish from fresh water to salt water for spawning. For example freshwater eel, *Anguilla*.

Anadromous migration: The movement from salt water to fresh water. Examples, salmon, shad, striped bass, sturgeon, *Alosa*, *Hilsa*, and some trout.

Amphidromous migration: It is completely free movement between fresh water and marine water without the purpose of breeding. It is shown by *Megalopa*, *Chanos* etc.

1. Eels

Eel shows the best example of catadromous migration. 2 common species of eels, *Anguilla rostrata* of European freshwater rivers and *Anguilla*

vulgaris of America are famous. With the arrival of autumn, they change their colour from yellow to

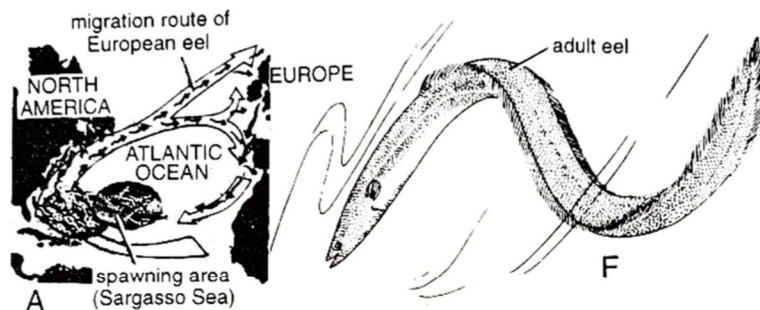


Figure 1 Migration of *Anguilla*. A. Migration route and breeding place F Adult eel

metallic silver. They stop feeding with the shrinking of their digestive tract. Eyes become larger, snout becomes sharper and lips become thinner and gonads become fully mature. The silvery eels then enter sea and migrate about 4500 kilometers Westwards from Europe or eastwards from America. They reach their breeding Place in the Sargasso Sea off Bermuda, adults die immediately just after spawning in deep seas. Eggs hatch into little transparent, flattened pelagic larvae, called *leptocephalia*, which is less than six mm long. They have sharp needle-like teeth for feeding. During their long return towards their parental homes, they grow into *dyers* or *glass eels* of about 8 cm long, with their cylindrical bodies. When they reach land, males stay behind in brackish waters near coasts, and females ascend freshwater streams and rivers. The elvers feed and grow to become yellow eels. Until the discovery of their real identity, the *leptocephali* larvae were called glass gishes.

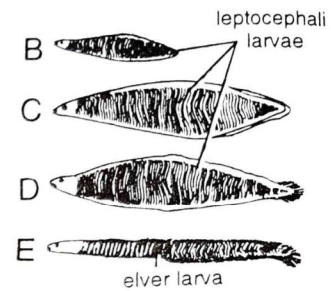


Figure 2B,C,D, - Leptocephali larvae E - Elver

2. Salmon

There is a single species of Atlantic salmon (*Salmo salar*) and 5 species of Pacific salmon (*Oncorhynchus*). They are the best example of anadromous migration. In winter, male and female leave their feeding grounds at sea to ascend the fresh water mountain streams, and reach the identical spot where they grew for some years before. They stop feeding, change to a dull reddish brown from silver and excavate shallow saucer-like pits in bottom gravel. Following spawning adults die, but some of the Atlantic species (*Salmo*) may survive, return to sea and spawn for a second or third time in life. After hatching, the larval fish feed and grow faster in ocean because of abundance of food.