

3. BRACKISH WATER FISHERIES

Line fishing. Rod and line fishing is widely practised in brackish waters as it is in coastal areas of the sea. The giant perch is regularly fished on hooks baited with live prawns. Other bait includes various worms and small fish found in lagoons and estuaries in such numbers that brackish waters are an important source of bait for use by all types of fishermen.

Cat-fish in the Negombo lagoon are caught by baited hooks on many short lines attached round the base of a stiff midrib of a coconut leaf. The midrib is stuck into the bed of the lagoon with the baited lines spread out at the bottom and the thinner end of the rib, often with a crown of small leaflets, projects above water acting as a marker. Several such devices are placed in rows and are lifted out every few hours to remove catches and re-bait hooks.

Almost as a pastime, prawns are caught by the unique method of noosing them. The noose consists of the fine fibres of the plantain tree attached to the rib of a coconut leaflet or merely the end fibre of a leaflet tied back on itself in a loop. With a great deal of patience and care the noose is lowered over the protruding eye-stalk of a resting prawn. It is only when a tug tightens the noose that the prawn vainly struggles to escape.

Net fishing. Cast nets are used to capture a variety of small-sized fish by fishermen wading in the shallow parts of a lagoon or estuary. The net is carried neatly arranged on the man's arm so that he can throw it to come down flat on the water spread as wide as its size permits. The net rapidly sinks to the bottom because of its marginal ring of lead weights and is slowly drawn into a closed bag using the rope round its circumference. Then its contents of fish are emptied into a basket. Cast nets are usually about 10 feet in diameter.

Stake nets consist of gill netting held across the water flow using stakes to keep them in position. They are successful in catching migrating species especially grey mullets and milkfish. Nylon netting is gaining favour among these fishermen as it has proved more durable and stronger than the cotton nets which are often torn by trapped milkfish. A second type of stake net consists of a small seine net with wings 10 yards long and a cone-shaped body and cod end about 5 yards long. This net is erected in lagoons using stakes so that the lower edge lies along the bottom and the top edge above water. This is specially used for prawns which are moving into the sea with the outgoing tide. The prawns reaching the wings are led down into the fine-meshed cod end which narrows to a diameter of 6 inches. A lighted lamp is kept near the cod end as an added lure for prawns and the fishermen visit this place at intervals by boat to collect the catch.

A modified version of a fine-meshed seine net is operated by two men each in his own canoe or raft. The bag and one of the wings (with its rope) are paid out from one moving boat while the second boat is rowed in a wide circle to meet the first boat, at the same time laying the second wing (and its rope) as it goes along. Thin strips of tender coconut leaflets are tied along the ropes in the form of streamers. These flutter in the water driving the fish towards the bag end as the net is hauled up by the two men. This net is principally used for taking cat-fish.

A distinctive fishing method is the use of brush piles to attract fish to one spot before netting them. Masses of leafy branches are placed in the water and held down by stakes if currents tend to move them. In the Panadura estuary when fishing for *Etroplus* in depths of 3 to 5 feet the fishermen scatter around the pile fried coconut poonac and grain as bait. After about half an hour a cast net is used around the pile to catch the fish. In the Negombo lagoon larger (8 to 20 feet diameter) piles are left in the water for about a month to grow algae which attract fish. For the fishing operation, several men encircle the pile with a fine-meshed net about 60 feet in diameter and rising 3 feet above water level. When piles of this type are used at Panadura, a close-set palisade of bamboo strips is used in place of a net. To start the fishing operation, most of the brush pile is removed from the enclosure to scatter the fish. Then by splashing the water in the central area, the fish are driven towards the surrounding net or palisade where they are scooped up with a large hand net.

Trap fishing. This is an extensively used form of fishing in brackish water areas. Trap fishing has even spread to the shallow areas of the sea in the north-west coast.

The simplest form of trap is a cone-shaped basket made of bamboo strips or rattan open both at its wide base and narrow apex. The apex opening is just large enough to admit the fisherman's arm. The fisherman wades across shallow banks and presses down the basket on places likely to shelter small fish or prawns. Then he puts his hand through the top opening and picks out the catch in the water and mud within the basket.

Rectangular or square basket traps with 1 to 3 inwardly-directed conical entrances leading to a chambered interior are used in lagoons and estuaries to catch fish and crabs. They are weighted and lowered from the boat to lie on or near the bottom attached by a long string to a marker float. The use of these traps has spread to shallow waters near the north-west coast such as Portugal Bay and Palk Bay where the catches include small-sized breams and other bottom-feeding fish. Canoes are used to reach suitable points for setting traps during the fishing season when these waters are quiet and clear.

A simple trap used for the lagoon crabs at Negombo consists of a 2 feet diameter circle of cane on which is fixed a stretched piece of wide-meshed net. This trap is suspended from a float by a long string which ends in three or four short lengths tied to the hoop to keep the trap horizontal, without tilting, when being drawn up. The float is usually a piece of coconut husk and the bait tied to the netting is fish or meat offal. Several of these traps are laid from a boat and are periodically lifted up quickly to catch crabs feeding on the bait. Crabs seldom escape as their legs become entangled in the netting with the rapid lifting of the trap.



A Fish Kraal

The most productive means of fishing and also the most destructive of fish stock is the use of fish kraals or weirs in the form of a set of traps constructed across tidal rivers and shallow estuaries. Strips of bamboo are tied by coir rope to form a close-set wall or barricade with very narrow spaces between the strips for the flow of water. Fish and prawns encountering the palisade are directed through its construction into a varying number of traps. At night lamps are suspended over these traps to act as lures. When this barricade stretches across the entire width of navigable streams, the central portion of about 20 yards is built up to lie just below the low tide water level. This gap serves for the passage of boats. Similar gaps about 10 yards long are left near the river banks for the passage of smaller boats. To frighten fish away a chain of young coconut leaflets is tied across the gap and left to flutter in the water. In Balapitiya lagoon a rope net several feet wide is stretched along the top of the enclosure to trap fish (e.g. milkfish) which try to jump over the barricade. The yield from these traps, especially of prawns, is of very great importance as bait for line fishing in the sea.

Investigations of the Negombo lagoon reveal that fish and crustaceans are extracted from it by all types of fishing at a rate of about 65 lbs. per acre per year. The other major lagoons are estimated to have similar productivity figures.

Window-Pane Oyster Fishery. The Window-pane oyster occurs in fishable numbers in Tanglegam lagoon on the east coast. Unlike the pearl oyster of the Gulf of Mannar on the west coast, the window-pane oyster yields fairly regular fisheries for which divers are employed. Window-pane oysters too are sought for the pearls they contain which are in general smaller and of less value than those in the Mannar pearl oysters. In both fisheries, shells and flesh are not made use of commercially. The rains of the north-east monsoon produce abrupt changes in the salinity and temperature of Tanglegam lagoon and these changes appear to act as a breeding stimulus. If however the rains are excessive, the beds can be damaged by flood waters as these oysters cannot survive long periods of immersion in fresh water.

Inspection of window-pane oyster beds are usually carried out in October or November and fisheries are organised between March and June of the following year. After the inspection, fishing rights are leased out to a private contractor on payment of an annual rental the only stipulation being that oysters of less than 5½ inches in diameter should not be collected.

Beche-de-mer fishery. Beche-de-mer is the processed sea-cucumber a fishery for which has been in existence for over 1,000 years. It is now worked by about 3,000 people in the shallow waters of large bays and lagoons of the north and north-west coasts. Sea cucumbers are collected with a steel pronged fork mounted on a long handle in depths of less than 3 fathoms. Slightly deeper waters are fished from boats by the same divers who collect chanks. The sea cucumbers are lightly boiled and the viscera removed. They are then washed in sea water and re-boiled before being sun-dried. About 50 tons of the dried product (beche-de-mer) are sent each year to merchants in Singapore. Collection and export are regulated under the Chank Fishery Act of 1953 which restricted the trade to Fishermen's Co-operative Societies. In 1957 the ban on private traders was lifted.

Shortcomings in processing especially the inadequate removal of viscera, sand and chalky material, and in marketing through absence of quality standards, have lowered the value of Ceylon beche-de-mer in the world market. Improvement of the product and a development of local consumer demand would greatly assist the stability of the industry and bring better living standards to these fishermen.

4. FRESH WATER FISHERIES

Early fisheries. Historical writings mention that the fresh waters of Ceylon were teeming with fish but there is no record of these fish being used as a food crop. The ponds and lakes in the pleasure gardens and palaces had fish in them for ornamental purposes only. The tanks or reservoirs were used solely for irrigation purposes without any organised attempt to make use of the fish in them. Nevertheless some fishing must have taken place for domestic consumption and limited sale. There are records of a fishery which took place about 60 years ago in the Barawe forest zone about 18 miles