



Chapter 18

Traps: Design and Operation Strategies for Resource Conservation

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1.0 Introduction

Trap is a traditional fishing gear into which an organism is lured inside and from which the fish gets trapped and the escape from which is made difficult. These traps may have one or more chambers for retaining the catch. Traps come in various shapes and sizes and are made up of many types of materials. Traps are used for catching fishes, crabs, lobsters or even molluscs. Traps have many advantages like it requires low energy as compared to active fishing method. The organisms caught in the trap can be retrieved alive in an undamaged condition and the trap can be operated continuously day and night. Trap fishing is economical as the capital investment is relatively low. Traps show a high degree of selectivity.

2.0 Fish traps

Fish traps are common and can be seen in both the inland and marine sectors of the country. Traps are operated in areas where other types of gears like trawls, seines, gill nets cannot be operated. Most common fish trap is the Kalava trap which are used in rocky sea bottom and in submerged reefs along the west and east coast of India. Modern collapsible traps have been developed for kalava and is made of 10 mm dia MS rods with strengthening ribs. The frame is covered with polyethylene netting. The trap is open on one side and is provided with two consecutive funnels or valves made of webbing inside the frame. Bait is used to attract the fish. At the end of the funnel the bait bag or bait is hung. Traps are set individually. A country craft is used to carry the traps to fishing ground in coastal waters

and mechanized boats are used in deeper waters. As soon as suitable ground is located the trap is released to the sea marked with a float on a line. The trap is hauled after desired soak time and the catch is retrieved.

Filter traps are used in sluices in bund areas. It is shaped like a cylinder with closely set mid-rib slivers of palm leaflets with a closed end. A couple of bamboo hoops encircle it at the out side to stop the slivers from closing/opening under pressure. The trap has a length of 55-60 cm and diameter of 25-30 cm. The filter trap is further improved by providing a fan shaped apron at the mouth and is known as 'aproned cone cage'. The length of the cylinder portion is about 80 cm and diameter of the mouth is about 25 cm. Basket traps are used for catching fresh water fishes from low lying deltaic regions of major rivers.

3.0 Lobster traps

Lobster traps are used in southwest coast of India for catching spiny lobsters. Baits are used to entice the lobsters into the traps. The trap has a tapered narrow entrance through which the lobster enters and becomes difficult to escape. Traditional heart shaped local traps made of palmyrah leaf stalk fibres or date palm leaf stalks are known as collachal traps. The traps are woven in hexagonal meshes and consists of floor, side and roof.

3.1 Modern lobster trap

The Central Institute of Fisheries Technology developed a modern efficient lobster trap which is semi-cylindrical in shape with rectangular frame and semicircular ribs made of MS rod. MS welded mesh is used as covering material on the skeletal frame work. The trap is single entry type with a trunk shaped funnel located at one end. The funnel is designed and attached in such a way that lobsters are guided by gradual inclination of the internal opening through which they fall into the trap. Hexagonal chicken wire netting is used to cover the funnel. An escape gap of 150x30 mm is provided at one side as a conservation measure. A lid is also provided at the upper middle portion for baiting and removal of the catch. The trap is plastic coated in full for preventing corrosion in seawater. Traps are laid and retrieved by fishermen by skin diving.

4.0 Octopus pot

In Palk Strait between India and Sri Lanka gastropod shells are used for catching octopus. Long lines with short branch lines at intervals with gastropod shells are set under water. These lines are lifted next day morning to collect the small octopus which seek shelter in the shells. The lines are set in 5-8 m depth and buoyed with wooden floats.

5.0 Crab pots

Crabs are caught with pots similar to lobster traps. CIFT developed collapsible crab traps for the traditional fishermen. Chicken waste was found to be a suitable bait for catching crabs. These traps were tried in backwaters of Kerala and was very successful.

6.0 Aerial traps

These traps are used to catch fishes that become excited and jump out of water when confronted with obstacles. A horizontal floating net, a raft or even boat or box is used to collect the jumping fish as they fall back. This type of fishing is practiced in different parts of the country especially to catch mullets and milk fish in backwaters of Kerala, parts of Andhra Pradesh and Tamil Nadu.

7.0 Plunge basket

Plunge basket is commonly seen in many parts of the country. It is employed to catch fish in knee-deep waters, particularly in inundated paddy fields and channels. It is typically semi spheroid in shape and is constructed using sub-conical, closely set ribs made either from branches of hard wood tree or splinters of bamboo. Both the ends are open, the upper being narrower just wide enough to admit the hand. The lower end of the mouth is widely spread encircled by free termination of the ribs. To keep the ribs in position the trap is hooped at intervals, with split cane or cord. The fisherman plunges the basket into water every few steps forcing the spike rimmed mouth into mud with one hand while groping around with the other for any fish that may have trapped in it. In shallow backwaters, fishing is conducted after sunset with the help of a torch, the glare of the light attracts the fishes and when once they come within the striking range, they plunge the basket skillfully over them.

8.0 Fish aggregation and trapping

Fishes are also trapped by using aggregating devices. Piles of leafy branches or twigs are placed in backwater channels with stakes around to keep them from displacement by currents. After a few days these are surrounded by circle of bamboo screens and the bushes are removed. The fish are caught by dip nets or scoop nets.

9.0 Pound traps

These traps are used in places where considerable rise and fall of tide is observed, huge semi permanent pounds are built up by poles and bamboo screens. Long leaders of converging screens lead the fish and prawns to the openings in the outer pound traps, while others within lead them towards smaller inner chambers. The catch is collected during low tide.

10.0 Resource conservation

Traps have high species specificity and size selectivity and offer high potential for survival of discarded non targeted species and low energy requirements in operations. Appropriate mesh sizes or gaps can be provided in the traps for the escapement of juveniles and thus making is selective. The fishes that are caught in the traps are in live condition and even after hauling, the small fishes and by catch can be released back to the water. However, disadvantage of trap fishing are relatively high loss rate during operations and ghost fish-

ing by lost traps. Bycatch in traps can be reduced by optimized trap design and trap mouth configuration according to the target species and provision of escape windows for juveniles and non target species in the design side and appropriate choice of bait. Fishing area, fishing depth, fishing time and season in the operational side to minimize gear interaction with on target species also play an equal and important role for conservation.

11.0 Further Reading

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