GEAR REVIEWS

3. Hoop Nets, Fyke Nets and Trap Nets

- ***Description and method of use***

These three gears trap fish inside mesh enclosures. The fish enter through constrictions, referred to as tunnels or funnels or throats.

In **hoop nets**, the mesh is supported by rigid frames or hoops. These frames were historically made of wood but today are usually made of aluminum tubing. The hoops may be round, D-shaped or square. The tunnels are cones of mesh that are attached to a pair of hoops, so that when the net is set and the hoops are separated the narrow end of the tunnel points to the rear. Usually there are two tunnels per net. The hoops can be held apart by spreader bars that are attached to the hoops, or by stretching the net between fixed points. (Fig.4)

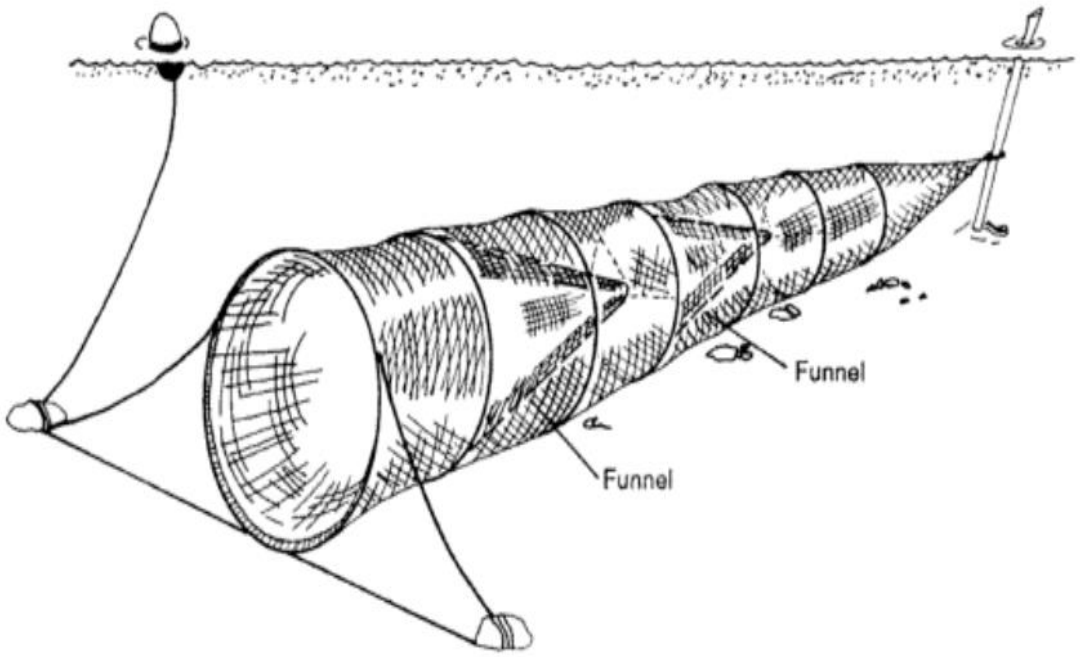

Fig – 4.7

A **fyke net** is simply a hoop net to which wings and a lead (or leader) are attached. (Fig.5) Wings are short lengths of mesh with float and lead lines that are attached to the lateral margins of the first hoop and extended at ∀45º to the longitudinal plane of the trap. A lead is a length of mesh that is attached to float and lead lines and is fastened to the midpoint of the first hoop and extended forward parallel to the longitudinal plane of the trap.

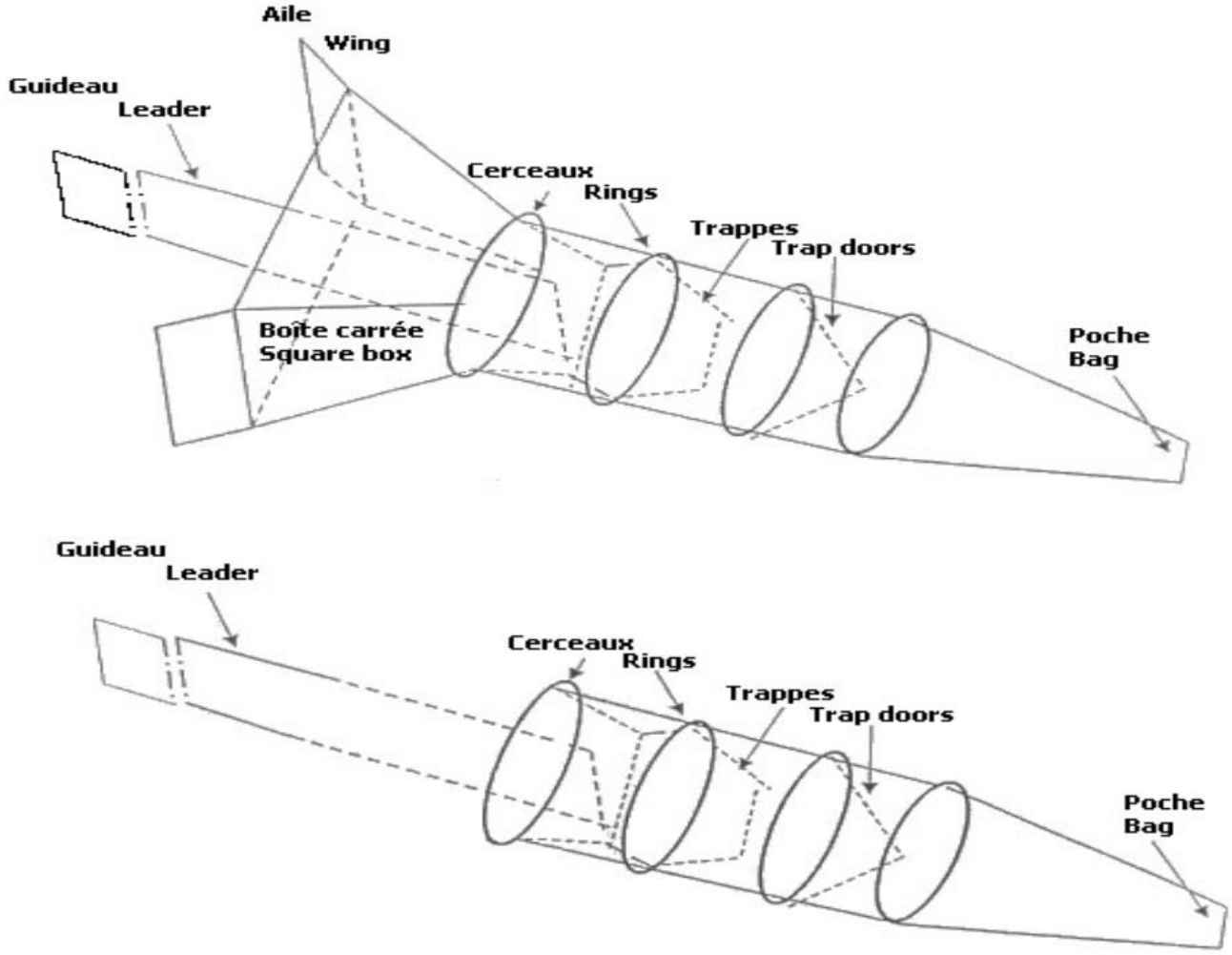

Fig – 4.8

A **trap net** is similar to a fyke net, in that it has wings and a lead attached and a tunnel or tunnels through which fish enter, but it is does not have rigid frames. It relies instead on floats, weights and attachment to anchors or other fixed points to maintain the shape of the enclosure (Fig. 6). Trap nets have a seam in the top of the heart, the mesh box that contains the trapped fish, that is laced or zipped closed while the net is fishing but can be opened to provide access so that fish can be removed, usually with a dip net. Variations on the basic design of these nets have been developed for specific applications, including a floating version (Miranda et al. 1996) and versions suspended from cables in fast currents (Tsumura and Hume, 1986).

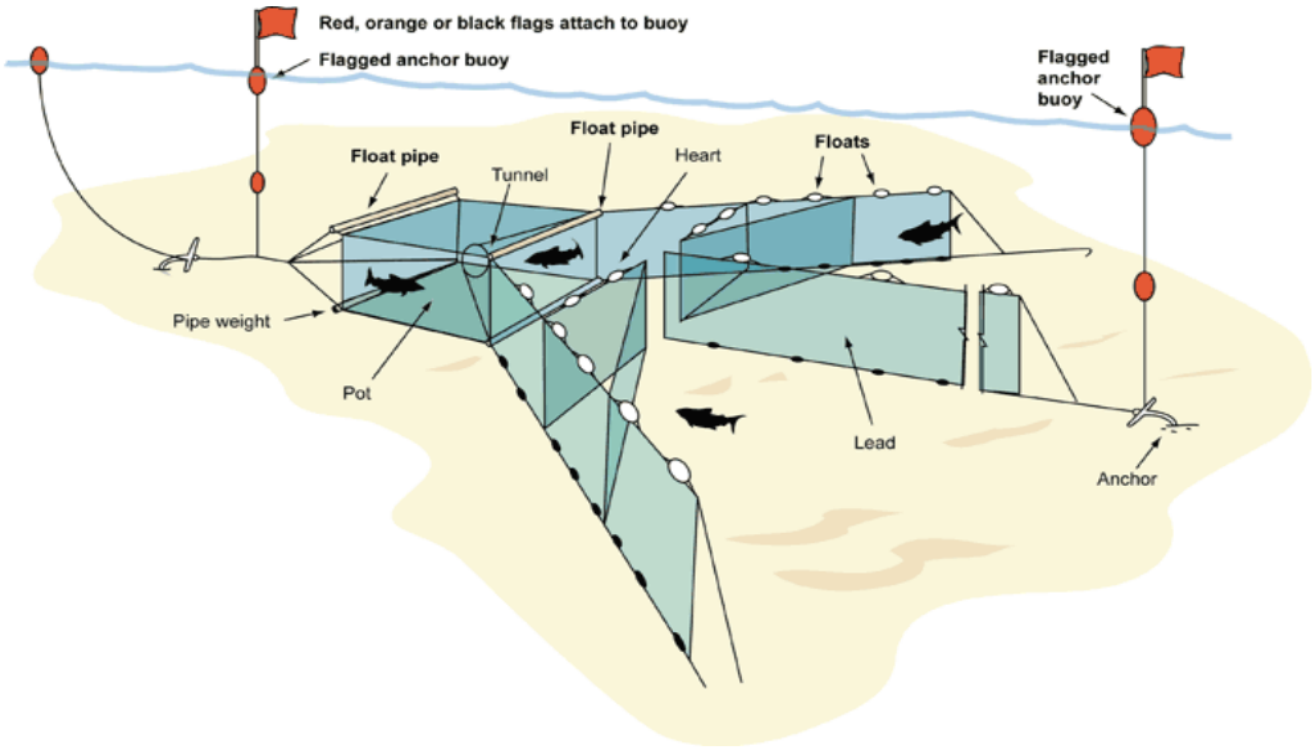

Fig – 4.9

Most hoop nets, trap nets and fyke nets used for research purposes can be set and lifted by two people. Both setting and lifting can be difficult in rough water, and lifting trap nets can be dangerous. Often, the lead is fixed to an object on shore and extended perpendicular to shore, with the trap portion at the offshore end. The nets can also be attached to anchors or to stakes driven into the bottom. If it is to be reset at the same location, a trap net is usually emptied by slackening the rope that is attached to the rear of the net, positioning a boat crosswise beneath this rope so that the rope straddles the boat, and then raising part of the heart out of the water so that the fish are confined to a smaller area. The seam is opened and the fish are removed. Once the fish have been removed the seam is closed and tension is re-applied to the rear rope.

Fyke nets and hoop nets are accessed at the posterior end, where the mesh that extends beyond the last hoop, sometimes referred to as the cod end, is usually closed by a drawstring and secured by a rope that is wrapped around the mesh forward of the drawstring and tied. To lift the net, the rope attached to the rear of the net is slackened. The hoops are then lifted sequentially from the front, forcing fish in the front of the net through the tunnels and into the rear. If the fyke net and its catch are light, the hoops can be raised sequentially by working over the side of the boat. If the net or the catch is too heavy it may be necessary to pass the hoops over the boat or to empty some of the fish before moving fish that are in the forward part of the net to the rear. The fish can be dip-netted through the opening in the rear of the net, or dumped out of this opening if the trap can be lifted out of the water. Hoop nets that use spreader bars are usually lifted completely out of the water and into the boat to remove fish.

Hoop nets are described by the size, shape and number of hoops, the size and material of the mesh that covers the hoops and makes up the tunnels, and the number of tunnels and the size of the openings in them. For **fyke nets**, the length, height and mesh size and material of the wings and lead should also be reported. **Trap nets** are described by mesh size and material, the dimensions of the heart, the number of tunnels, the size of the throats(s) and the wing and lead dimensions and materials. Many agencies have adopted standards for the construction of these nets, so that the term 4-foot trap net, for example, would imply all of the dimensions and characteristics of the gear. **Hoop nets** are often baited in order to entice fish to enter. **Fyke and trap nets** are normally not baited, relying instead on the lead and wings to guide fish into them. These nets can trap a variety of creatures other than fish, including turtles, waterfowl (especially diving ducks) and aquatic mammals such as muskrats, beavers and otters (C. Portt, personal observation). Turtles rarely cause damage to the nets, but waterfowl and mammals often chew holes (sometimes several) in the mesh that allow them and fish to escape and that take time to repair. The probability of catching waterfowl is greatly reduced if the front hoop is completely submerged, so that only birds that dive and enter the net are caught, instead of birds that are swimming on, or flying just above, the surface. The amount of damage caused by mammals is also greatly reduced if the net is completely submerged.