

## **CHAPTER FIVE**

### **METHODS USED TO CATCH TUNA**

The main methods that are used to catch tuna throughout the world are :

- 1) Longline
- 2) Pole-and-line
- 3) Purse seine
- 4) Troll line

#### **5.1 LONGLINE**

Forty to fifty percent of all tunas caught in the world are taken by the longline method. This fishing gear consists of thousands of baited hooks attached by short branch lines to a “longline” suspended from the surface of varying depths

of up to 150 metres. The majority of hooks are hanging in the upper mixed layer of the ocean where most tuna live.

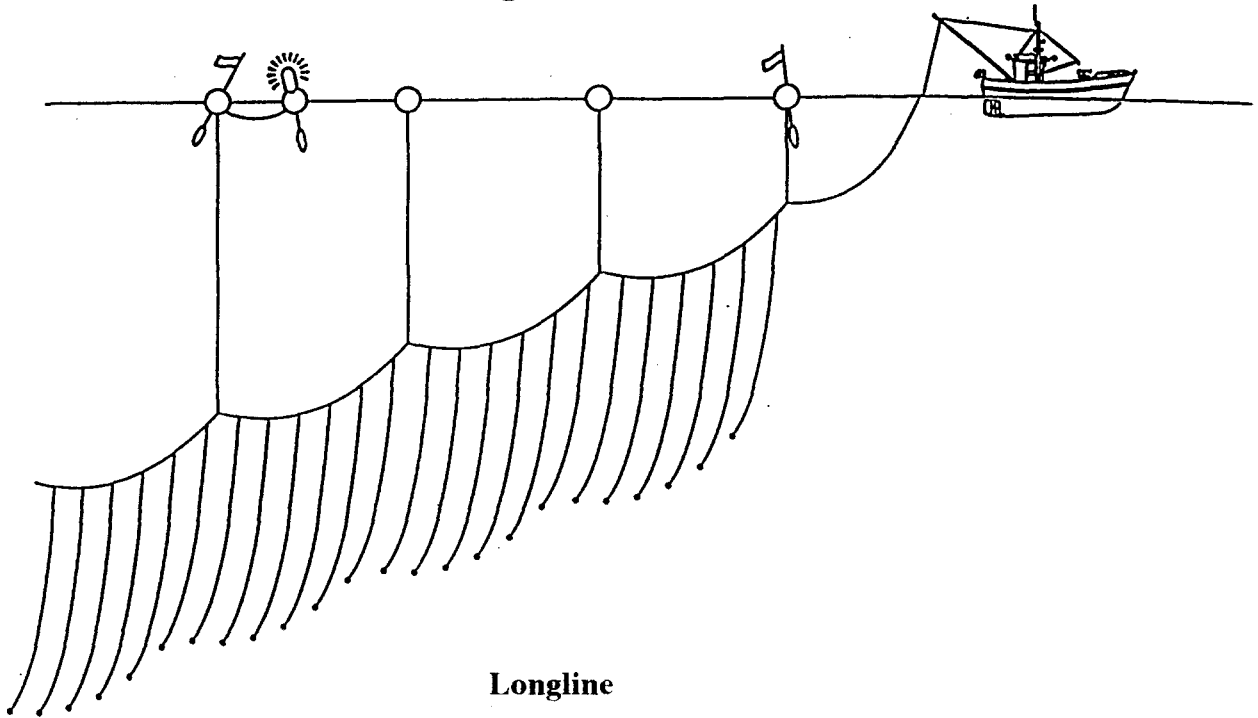
The longline is a very versatile gear as miles of lines with attached hooks can be set nearly anywhere in the ocean where tuna are known to occur.

(Figure 9 A). It catches scattered deep-swimming tuna as well as other species such as marlin, sailfish and swordfish that surface gear does not reach. The success of this type of fishing depends on the far-ranging fish finding the bait rather than the fishermen finding the fish, as is necessary with surface fishing. It is this remarkable longline gear that allowed the exploration of the world ocean for tunas.

## 5.2 POLE AND LINE

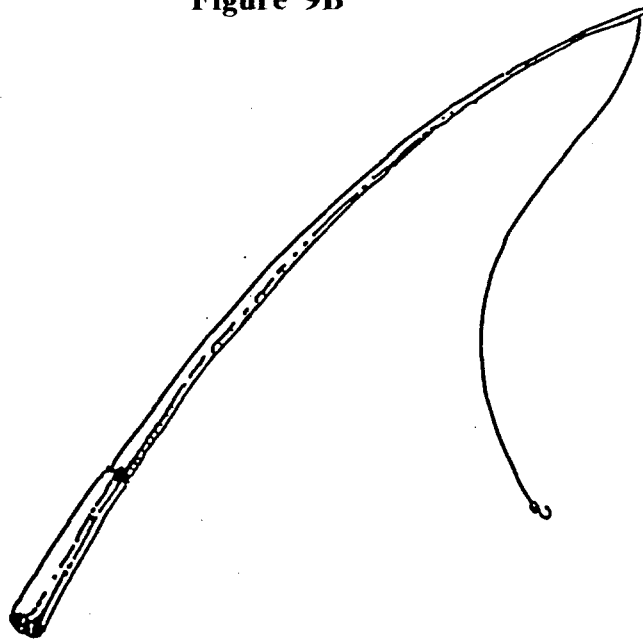
Pole and line method was the most common type of surface gear used a few years ago. However in some parts of the world it is still widely used. The clippership or baitboat fishes with pole and line and uses live bait to attract and congregate tunas in a concentrated school at the surface near the boat. The pole-and-line gear consists of a bamboo pole and line, a leader, and a barbless hook to which a bait is attached. The number of pole-and-line gear carried by a fishing boat

**Figure 9A**



**Longline**

**Figure 9B**



**Pole and Line**

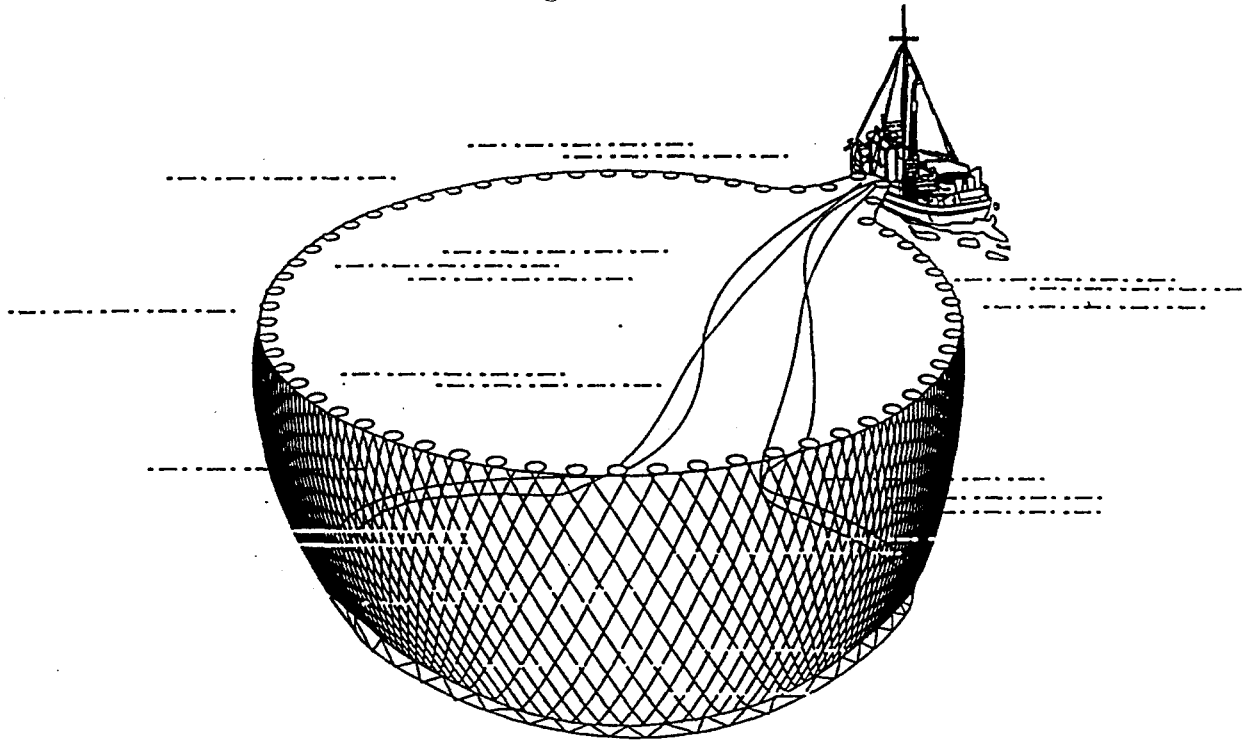
**Source** : Fabio Carocci and Jacek Majkowski (1996), "Atlas of Commercial catches, Food and Agriculture Organisation of the United Nations," Rome

depends on the number of fishermen. The pole-and-line method, also called live-bait fishing, involves locating a tuna school, chumming (or throwing overboard small live bait fishes ) and spraying and hooking. (Figure 9 B)

### 5.3 PURSE SEINE

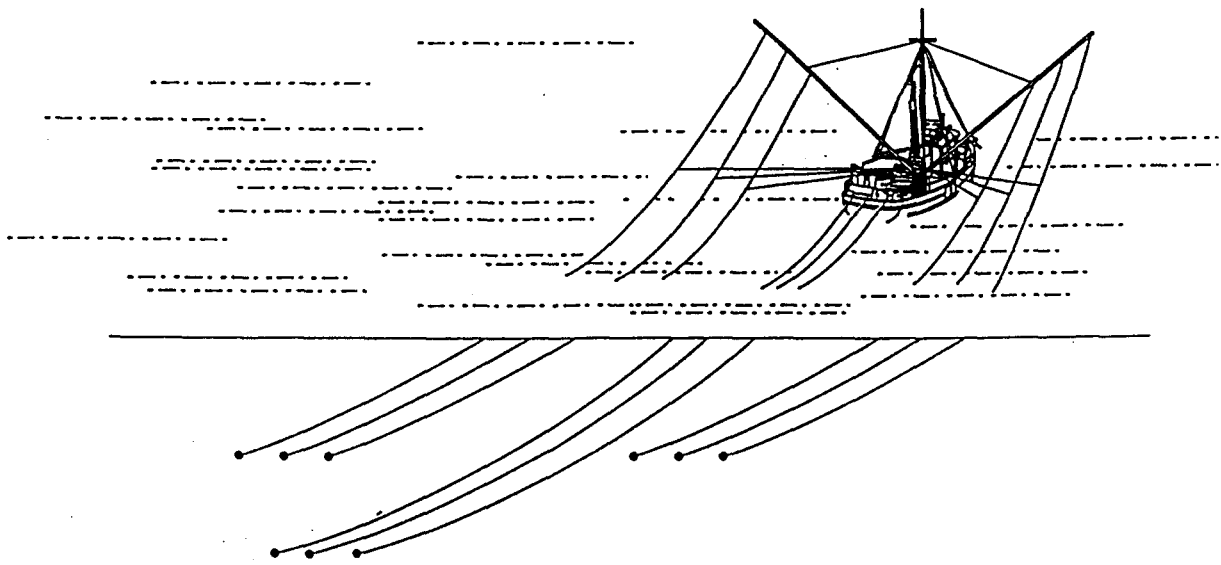
The other type of gear is the purse seine, which is a large encircling net used to surround and enclose or “purse” a tightly grouped surface school. It is a very long and deep sheet of netting with floats along one side and weights along the other. It is set around schools of fish at the surface in such a way that the net hangs down from the surface in the form of a cylinder. The bottom of the cylinder is then “pursed” by a cable drawn through rings attached to the bottom of the net. However unlike the longline, the purse seine tends to catch the younger, smaller, schooling, surface-swimming tunas. This type of fishing has been improved and operations mechanized recently to the point where in some areas, as in the eastern Pacific, this type of fishing has almost supplanted the bait-boat. (Figure 10 A)

**Figure 10A**



**Purse Seine**

**Figure 10B**



**Troll Line**

The basic design of purse seine equipment is not new. The extension of it in recent years to open sea use of very big nets, being dependent on efficient sonar and echosounder detection for precise location of fish shoals with power blocks and powered net winches for hauling the nets and the use of strong synthetic fibre for the nets has made a great impact in the fishing for tuna. Nets 200 metres deep and more are now in use. However the most important single factor in the development of high-seas purse seining has been the introduction of the hydraulic power block, facilitating the hauling of very big nets.

#### 5.4 TROLL LINE

Troll lines vary from region to region but use both natural and artificial baits (Figure 10 B). The artificial baits are hard plastic resembling a squid or octopus, while a cheaper material is multicolored silk cloth. Live milkfish or frozen squid are also used as baits. The shiny and moving fish bait attracts the tuna.

The nylon monofilament twine is the most common material for the mainline. The need for the hook to remain at the surface has introduced a modification by placing a foam float 1.5 meters before the hook. Often, stainless wire is part of the secondary main line which is placed before the hook.

Troll lines are not only single hook but also use multiple hooks to increase the catch when encountering fish schools. It is now common among fishermen to catch 5 or 10 fish in one hauling. Double hooks are also commonly used with artificial squid or octopus as baits to prevent the catch from escaping.