



## Fishing Techniques

# Tuna Pole and Line Fishing

## Main Components

### Aquatic species

#### Target Species

Tuna market species

- Skipjack tuna
- Albacore
- Yellowfin tuna
- Bigeye tuna
- Atlantic bluefin tuna

### Gear types: Pole and lines

Pole and lines



A pole and line consists of a hooked line attached to a pole.

### Vessel types: Pole and Line vessels

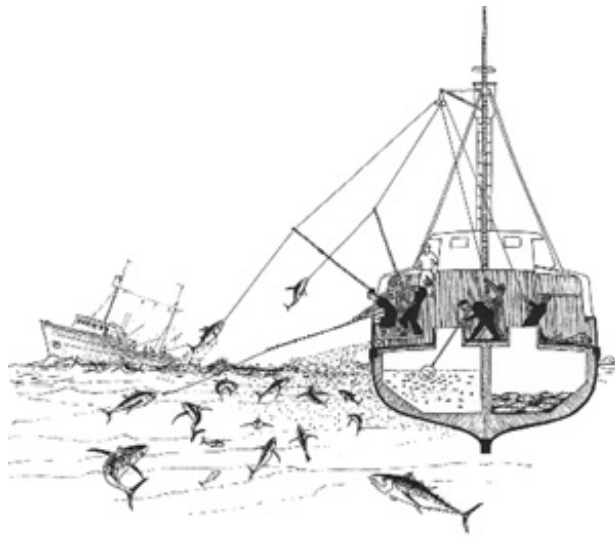
Pole and line vessels



On these vessels, used primary for catching of tuna and skipjack, the fishermen stand on the railing or on special platforms and fish with poles.

## Characteristics

Tuna pole and linesDrawing of tuna pole and lines fishing operation



**Species Environment** Tuna fishes being very close to the surface, certain species like skipjack and/or small juveniles of most of the tuna species inhabit all the time within the upper water layer or deeper waters species when they come close to it.

**Fishing Gear** The gear is composed of a rigid pole of 2 to 3 m (often in fiberglass) and a strong short line at the extremity of which hangs a feathered jig mounted on a barbless hook. The pole is held by a fisherman standing. About 10 to 20 fishermen are fishing simultaneously, standing on a platform running along the rear of the vessel, also called bait boat. In order to bring on board large to very large fishes, a unique line can be attached to 2 poles held by 2 fishermen (exceptionally 3) or, even, the extremity of the pole can be attached to a rope hauled by another fisherman when additional strength is needed.

**Vessel Overview** The pole and line vessels are, in general, medium size one, up to around 40 meters. The fishermen usually fish mainly from the rear part of the vessel, either directly from deck (as in the Western Pacific Ocean) or from steel racks mounted on the vessel just above the surface of the water (as in the Eastern Pacific Ocean). On board many pole and line vessels fishermen are handling poles almost all around the boat.

**Handling Mode** The best and the most generally adopted way of storing fish is to keep them in a light brine at about 0 °C, which prevents drying and damage by pressure. Usually when the bait tanks are emptied they are cleaned and used as fish holds.

**Fishery Production Systems** Possible exploitation forms using tuna pole and line fishing are: artisanal, semi-industrial and industrial.

**Fishing Environment** Pole and line fishing for tuna may occur almost everywhere, from the coast to the **high seas**, depending on the tuna species, their migrations and the move of the water layers with the appropriate temperature. Western, Central and Southern Pacific Ocean, Western and Central Indian Ocean, Eastern Atlantic Ocean, Western Atlantic Ocean.

**Fishing Operations** The first step is aggregating the fish along the board of the vessel by using bait and/or water spraying. Then a number of men, equipped with fishing poles, position themselves along the board, aft side or all around the vessel and heave the fish aboard as they strike at the hooks. Pole and line fishing operation can be divided into the following main sequences: In the Atlantic Ocean, baitboat vessels have developed an interesting modification of this method. Not all the fish are caught and the vessel remains near the school after fishing. By doing this, the vessel behaves just like a floating object which aggregates tunas (the midwater fish species are known for liking in open seas to aggregate themselves around or not far from floating objects). The tuna school associated with the vessel is then realimented every day by fish from other surrounding schools and can be fished again. When the vessel's wells are filled, a second vessel comes and takes the place of the former. Some fishermen can then spend all their fishing season on the same "school".

1. Pole and line vessels carry live bait to entice the fish to aggregate around the boat by using bait and/or water spraying. Therefore, pole and line vessels start by catching live bait (generally sardines or anchovies type of small bait fish) in

Bait fishing



inshore waters using a small seine. Occasionally if available, purchasing a supply of live bait (usually sardines or anchovies) from the livebait dealers, who keep the bait fish in cages alive and then only, proceed to the fishing grounds and begin to search for tunas. Considering the importance of keeping the bait alive on board, the vessel has special arrangement: the life bait is kept in a series of water tanks with circulating water temperature of which is controlled using water cooler and permanent lighting. Frozen bait can be purchased easily in most fishing ports but the very strong preference of most pole fishermen is to use live bait which proved being more effective feeding tunas may not respond to dead bait and are often more voracious with live bait.

School sighting and locating



2. Tuna schools can be located using different ways: by visual spotting (sea birds, or behaviour of fish species jumping, breezing, boiling, sea surface); by using acoustic instruments (echosounder, etc.) or by using a jig line towed behind the boat. Recently artificial fish aggregating devices are often used as the fish aggregate near this floating object.

Chumming of baitfish



3. Chumming is the scattering of live bait into the sea. The spray system is an important adjunct used in chumming and fishing. It gives the illusion that the water surface is alive with small fish causing the tuna to go into a feeding and biting frenzy. Once a school is sighted or located a given fisherman starts throwing live baits in every direction behind the vessel. At the same time, side and rear sprinklers are activated in order to create the illusion of a large school of small fish running near the surface. This illusion and the baits thrown continuously by the fisherman attract and concentrate the tuna school in the trail of the vessel. Small scoop nets are used to scoop the crowded bait out of the tank during the fishing operation. It may happen that large **purse seiners** makes an agreement with a pole and line vessel for encircling the tuna aggregated by chumming of baitfish (and the pole and line vessel) with its **purse seines**. In this case, the actual fishing is not done by the pole and line but only by purse sein. Baitboat gets its share in terms of fish or money. Some pole and line boats only operate in this way throughout a trip with a contract with a seiner. Therefore evaluation of effort of baitboats has to be made with much care.

Catch and haul fish



4. Fishing can then start: the fishermen cast feathered jigs into the water and haul them back systematically a few seconds later. When fish are larger than 8-15 kg, double poling may be necessary. If a tuna is caught, the movements is prolonged and the tuna lands on the vessel's deck where it releases itself from the hook (because it is barbless). The line is then ready to be thrown again. During this activity, several tons of tuna can be fished in a few hours. However, if a fish falls back in the water or if the amount of thrown baits decreases, the school can run away from the vessel and the fishing ends as quickly as it started. Many Japanese pole and line vessels use robot fishing gears, which act very similar to the human in hooking fish. However, not all the fishermen can be replaced by robots.

Tuna preservation on board



5. The tunas are then chilled as soon as possible after capture. Ice slurry is the most efficient cooling medium for rapid chilling of product.

**Fishery Overview** Tuna pole and lines is a fishing technique used all around the world from the following fleets: Ecuador, Mexico, Vanuatu, Japan, Rep. of Korea, Taiwan, Philippines, USA, China, Belize, Honduras, Indonesia, Australia, Panama, France, India, Iran, Sri Lanka, Maldives, Netherlands Antilles, Seychelles, Spain, Portugal, Ghana, Namibia, Senegal, South Africa, Morocco, Brazil, Venezuela, Uruguay.

**Seasonality** Pole and line fishing is, in many areas, a seasonal activity. The season may change zone by zone according to the target species and its migration patterns. In Japan for example, the fishing season for albacore starts at the end of July (and for vessels, this new season is normally combined with skipjack fishing because the two species are generally found in the same areas).

