

Fishery Basics – Fishing Gear

Gear Types

All types of fishing gear, regardless of how it might be used, are designed to lure and capture fish. Fishing gears are defined as tools used to capture marine/aquatic resources, whereas how the gear is used is the **fishing method**. Additionally, a single type of gear may also be used in multiple ways. Different target **species** require different fishing gear to effectively catch the target species.

Fishing gears fall under two general categories, active gear and passive gear. Active gears are designed to chase and capture target species, while passive gears generally sit in one place allowing the target species to approach the capture device. The [United Nations Food and Agriculture Organization \(FAO\)](#) further classifies fishing gear into 11 categories primarily based on how the gear are fished, we have provided detailed information about each category [See Fishing Gear](#). To browse a partial list of fishing methods and marine zones where they might be used [click here](#).

Surrounding Nets

Surrounding nets, also known as **encircling** or **roundhaul nets**, are large walls of netting. These nets take advantage of the shoaling behavior of the target species. The nets surround densely aggregated schools of **pelagic** fish like the **Pacific Sardine** (See California Fisheries) and the **Market Squid** (See California Fisheries) in coastal waters and various species of **Tuna** in the open-ocean.

The netting is designed to maintain a wall-like shape when being set. A **floatline** supports the net at the top, while a **leadline** ensures the bottom of the net sinks to create a wall-like structure. Surrounding nets can vary in size with lengths from less than 100 m (328 ft) up to 2,000 m (6,562 ft). Additionally, the depth of the nets varies between 30 m (98 ft) and 250 m (820 ft). Surrounding nets are typically operated from **seiners** (See Fishing Vessels – Seiners), but may be operated from other vessels ranging in sizes from 12 m (39 ft) to 45 m (148 ft) in length. Additionally, they may be operated from one or two vessels.

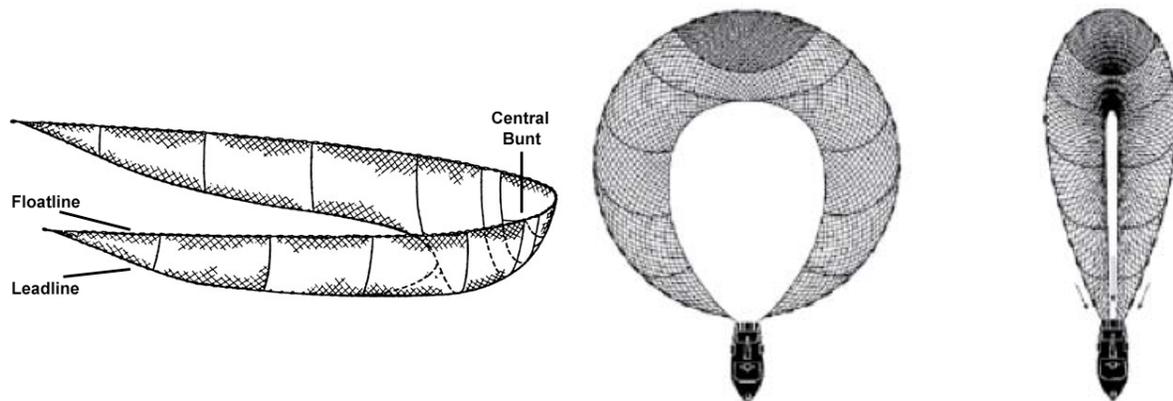
The general operating principle of a surrounding net is the same regardless of net size or the number of vessels used. When a school of fish is located, one end of the net is anchored to a surface buoy or a small **skiff** while the main vessel sets (puts out) the rest of the net in a large circle around the targeted school of fish, returning to the initial spot of deployment. The net end from the buoy or skiff is retrieved. The two net ends are closed. The bottom of the net is gradually closed as it is pulled towards the surface. As the net is hauled towards the vessel the captured fish are either forced to the surface or into a collection area of the net. Once the net is

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drawn to the side of the vessel at the surface the fish are retrieved from the net with **pumps** or scooped out of the net by hand (**brailed**). Surrounding nets may be drawn in by hand or mechanically by power blocks or drums.

There are three general types of surrounding nets: lampara nets, purse seines, and ring nets.

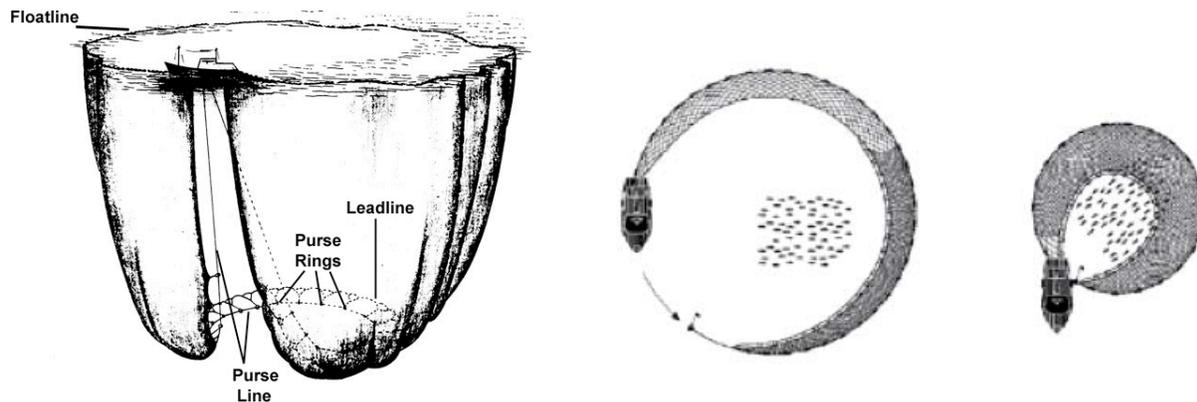
1. **Lampara nets** have tapered panels, created by a shorter leadline, giving the net a spoon shape when the ends are drawn together. As the vessel tows the lampara net forward, the bottom and top of the net close and the fish are retained in a collection area called the central bunt. Lampara nets originated in Italy and were brought to California in 1905 by Italian **Pacific Sardine** (See California Fisheries) fishermen. Lampara nets are used in coastal and **inland waters** primarily by countries around the Mediterranean Sea as well as the United States, South Africa, Argentina, and Japan.



A profile view (left) of a lampara net illustrating the tapered panels created by a longer floatline and a birds-eye view (right) of a lampara net depicting an open and closed lampara net with its characteristic spoon shape. (Credit: Food and Agriculture Organization of the United Nations and The Australian Marine Conservation Society)

2. **Purse seines** use floats to buoy the floatline at the surface and weights to sink the leadline, which is of equal or greater length than the floatline. A **purse line** made of rope or wire, threads through a series of rings along the bottom of the net, known as **purse rings**. Once the targeted fish have been surrounded the purse line is pulled tight, causing the bottom of the net to close similar to a drawstring purse. **Purse seining (animation)** occurs in both coastal and **high seas** environments throughout the world. The purse seine was developed in the U.S. for use in the Menhaden fishery on the east coast after the Civil War.

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A profile view (left) illustrating the setting of a purse seine and a birds-eye view (right) depicting an open and closed purse seine. (Credit: Food and Agriculture Organization of the United Nations and The Australian Marine Conservation Society)

3. **Ring nets** are a cross between lampara nets and purse seines. Similar to lampara nets, ring nets have tapered panels due to a shorter leadline and central bunt. However, ring nets also have rings and a purse line along the bottom of the net, thus allowing the net to be closed without having to drag it behind the vessel. Ring nets are used in waters all over the world.

References

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Additional Resources

[Bycatch Reduction Database](#)

FAO – [The Use of Technical Measures in Responsible Fisheries: Regulation Of Fishing Gear](#)

Marine Conservation Society – [Fishing Methods](#)