

UK P&I CLUB



HOMARUS Limited
Fisheries and Aquaculture Specialists

RISK FOCUS: REDUCING THE RISK OF COLLISIONS WITH FISHING VESSELS

A guide for Masters and their Bridge teams.



UK P&I CLUB
IS MANAGED
BY **THOMAS
MILLER**

CONTENTS

Reducing the risk of collisions with fishing vessels	3
The nature of fishing	4
How things should be	4-5
How things often are	5
Fishing gear and fishing methods	5
• Mobile or towed gear	
• Encircling gear	
• Passive mobile gear	
• Fixed or static gear	
Mobile or towed gear	6-10
• Single boat trawling or otter trawling	
• Pair trawling	
• Beam trawling	
• Dredging	
Encircling gear	11-14
• Purse seines	
• Anchor seine / Scottish seine / Pair seine	
Passive mobile gear	14-17
• Surface drift nets	
• Drifting long lines	
• Squid jigging	
Static or fixed gear	17-21
• Fixed longlines	
• Baited pots or traps	
• Fixed gill nets / tangle nets	
Lessons learnt from the incidents	22

Reducing the risk of collisions with fishing vessels

Close quarter situations with fishing vessels and/or their associated fishing gear remain common. This often results in loss of life, in addition to any damage to fishing gear or boats.

The range of equipment that fishermen deploy to catch fish is almost as varied as the fish themselves, but there are a number of common fishing methods that are used and these methods will be explained, together with the lights and shapes that should be exhibited, the likely position of the gear in relation to the boat and typical fishing manoeuvres to be expected.

During the Passage Planning process, it may be worth contacting the vessel's local agent or the local harbourmaster to enquire whether there are any particular fishing-related dangers to be considered when approaching a particular region or port. During calm weather, extra vigilance is required as this is the time when many small fishing vessels will go to sea.

IMPORTANT NOTE

The following descriptions and diagrams representing various types of fishing indicate what can be expected of small to medium scale fishing vessels fishing in coastal waters, (within 20 miles of land).

Small scale craft are more likely to be fishing in or around approach channels and ports and cause the most navigational problems and uncertainties. However, much larger vessels and gear also fish in the same way and in the same layout.

The upper sizes of vessels and gear used are generally not shown in the diagrams; to do so would make them almost meaningless. But mariners should be aware of these fishing practices and that fishing gear can extend a long distance from larger vessels, albeit in the same proportions as those shown in the diagrams herein.

Less focus is given to larger vessels as they should normally fish further offshore, keep a proper watch, use VHF and AIS and show proper shapes and lights and so cause fewer problems for safe navigation.



The nature of fishing

- Fishing boats get their cargo at sea so their main focus is on catching fish;
- Fishermen generally do not receive a wage, but are paid a share of the proceeds of the voyage;
- Fishing vessels often operate with minimal crew;
- Fishermen are sometimes poorly qualified;
- Fishing vessels often do not show correct lights or day shapes;
- Fishing vessels often operate in channels and harbour approaches.

Most maritime traffic involves carrying a cargo (goods or passengers) across the sea from point A to point B. This traffic is generally well regulated and is overseen by highly qualified personnel. A fishing vessel however leaves port empty and tries to find its cargo at sea, hopefully returning with a full hold. Hence the focus of a fishing vessel is not necessarily on safe navigation but on finding and catching enough fish to make a profitable voyage.

Fishermen generally do not receive a wage, but are paid a share of the profits of the voyage. Thus it is in the interests of the whole crew to catch as much fish as possible in the shortest time possible to achieve maximum profitability. This can lead, in some circumstances, to fishing becoming the primary objective and safe navigation a secondary consideration.

This share system also often leads to crew numbers being kept to an absolute minimum, in order to maximise each person's share. Consequently, unlike in the merchant service, watch arrangements, particularly on smaller vessels, are often haphazard. During periods of heavy fishing or when gear maintenance is necessary, it is often a case of "all hands on deck" and it is not uncommon for crew members to work for 24 hours or more without a break. This leads inevitably to fatigue and loss of concentration. Additionally, the crew may be involved in handling heavy and dangerous gear in poor weather and may not be fully focussed on keeping a good lookout.

On larger fishing vessels, particularly in countries where tight regulations exist and are enforced, this problem generally does not arise. Indeed in some countries larger vessels may carry a Captain who is responsible for the safe and efficient operation of the vessel and a Fishing Master (the "Patron") who is responsible for finding and catching fish.

However, on smaller fishing vessels and in regions where regulations either are poorly drafted and / or not enforced, the situation will be different. Many countries do not require any qualifications at all for a person to take a fishing boat to sea, and even where qualifications are required they are frequently fairly lax and do not require regular updating. In the case of small and / or single-handed fishing vessels, of which there are huge numbers across the globe, the focus is on catching fish and there will be no lookout and probably no fishing signals or lights and even no radar reflector.

On the high seas problems with fishing vessels are infrequent. The vessels are large enough to carry sufficient crew and are usually well regulated and maintained and there is enough sea room to manoeuvre. The closer to land, the more likely there are to be interactions between merchant vessels and fishing vessels, particularly in Traffic Separation Zones, narrow channels or straits and the approaches to harbours or anchorages. Here, small vessels may be common, and the larger merchant vessels are often restricted in their ability to manoeuvre.



Fig 1. Small fishing vessels in a crowded harbour approach, Lagos, Nigeria

How things should be

The International Regulations for Preventing Collisions at Sea (1972) ("COLREGS") specify lights or daytime signals that should be shown by fishing vessels engaged in different types of fishing, and which vessels have right of way under differing circumstances. The term "vessel engaged in fishing" means any vessel fishing with nets, lines, trawls or other fishing apparatus which restrict manoeuvrability, but does not include a vessel fishing with trolling lines or other fishing apparatus which does not restrict manoeuvrability.

In general both sailing boats and power driven vessels should give way to vessels engaged in fishing. Exceptions¹ to this rule include:

- A vessel engaged in fishing shall not impede the passage of any other vessel navigating within a narrow channel or fairway.
- For Traffic Separation Zones –
 - A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.
 - A vessel other than a crossing vessel or a vessel joining or leaving a lane shall not normally enter a separation zone or cross a separation line except to engage in fishing within a separation zone.
- A vessel engaged in fishing when underway shall, so far as possible, keep out of the way of:
 - a vessel not under command;
 - a vessel restricted in her ability to manoeuvre.

¹ This is merely an outline and should not be considered to be an exhaustive analysis of the Collision Regulations.

Lights and signals that should be shown by vessels engaged in different types of fishing are detailed later.

How things often are

Although the COLREGS should technically apply to all vessels of all Member States, they are very often overlooked or ignored. On small vessels in some regions of the world, it is common to have an unqualified skipper and crew who know little about safe navigation. Remember, many of these fishermen are poor, ill-educated and desperate to make a living. Safety is often a secondary concern.

What you may encounter is a number of unlit or poorly lit small vessels, with no radar reflectors, no lookout, gear stretching out to an unknown distance and unknown direction and working close to or within the confines of a channel or harbour approach.



Fig 2. Small fishing canoes in Lagos Harbour, Nigeria. Note absence of lights, day shapes etc.



Fig 3. Small static gear vessel, South Korea. Note the absence of any lights or day shapes.

Fishing gear and fishing methods – general features

There are countless methods that man has devised for catching fish. Many of these are specific to inland or coastal waters and will rarely be encountered. The remainder can be divided into four broad categories:

- Mobile or towed gear
- Encircling gear
- Passive mobile gear
- Fixed or static gear

There are some gear types that cross boundaries between the above classifications. Further details of each method are given later.

Mobile or towed gear

This category includes, among others, trawls and dredges. The primary characteristic is that the gear is dragged through the water and is not attached to the sea bed. Fish are generally caught in a bag of net which is hauled aboard and emptied. For trawls, the wires or warps that attach the net to the boat may also act as a herding mechanism, concentrating the fish at the mouth of the net at which point they are engulfed. The main difference between trawling methods is the means by which the cone-shaped bag of net is held open while being dragged through the water.

Encircling gear

These methods rely on surrounding the fish either with a wall of netting which is then closed at the bottom and hauled in (purse seining) or with ropes that herd the fish across the sea bed towards the net that scoops them up (anchor seining, fly dragging).

Passive mobile gear

Here the gear is mobile but it is not towed by engine power, but drifts with the tide or wind. This category includes drift nets, surface longlines and squid jigging. These gears may extend very long distances from the boat.

Fixed or static gear

These types of gear are generally fixed to the sea bed by anchors. They rely either on bait to attract the fish to the gear (hook and line, pots and traps) or on fish becoming entangled in the mesh of the nets (gill nets or tangle nets). These gears may extend very long distances from the boat.

Mobile or towed gear

General notes

This category includes trawls of various types and dredges. Vessels using this type of gear should all show the same day shapes or lights as follows:

- By day, two cones pointing towards each other in a vertical line one above the other. Small vessels may fly an inverted basket in the rigging.
- By night, all-round green light over all-round white light, plus sidelights and sternlight when underway.
- Additionally, a vessel over 50m in length should show a masthead light above and aft of the all round green light; for vessels less than 50m this is optional.
- When fishing in close proximity to other fishing vessels the following signals should be shown:
 - When shooting the net, two white lights above each other or Flag Z by day;
 - When hauling the net, a white light over a red light, or Flag G by day;
 - If net has become snagged on an undersea obstruction, a red light over a red light or Flag P by day

The above all-round lights should be fixed lower than the main fishing lights and of lower intensity, but still visible at 1 mile.

In addition, when pair-trawling (i.e. one net towed between two boats) each vessel should shine a searchlight forward and in the direction of the partner vessel (Flag T by day).

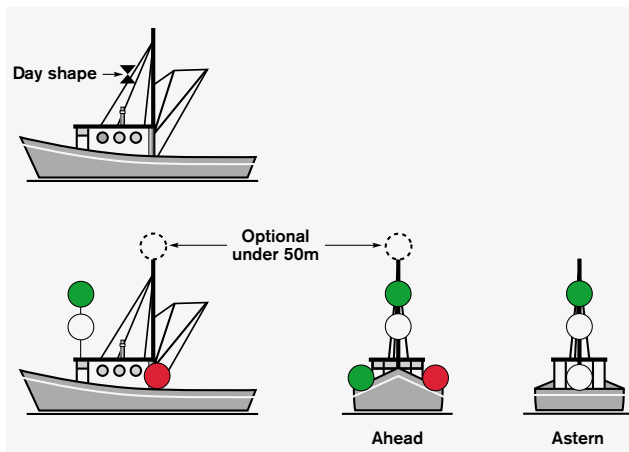


Fig 4. Day shapes and lights for trawlers

Single boat trawling or otter trawling

Brief description of fishing method.

Otter trawling is also known as dragging in some regions of the world, particularly in the US and Canada. With this method, the mouth of the net is held open by the shearing action of two essentially flat boards (otter boards or trawl doors), one either side of the net. These are angled in such a way that as they are dragged through the water they will shear away from each other and will exert an opening force on the net. The doors are attached to the vessel by wire warps (whose length is usually around 3 x the depth of the water) and to the net by wire sweeps, known as bridles. The action of the doors and the sweeps tends to create a sediment cloud which herds the fish towards the mouth of the net where they are caught.

The mouth of the net has floats along the top edge (the headrope) and a weighted line along the bottom (the footrope) which enables it to have a vertical opening. The far end of the net is tied closed; this is where the fish accumulate and is known as the "cod end".

The trawl is either dragged along the seabed to catch bottom-dwelling fish such as cod or flatfish (demersal or bottom trawling) or is used in midwater or near the surface to catch shoaling fish such as mackerel or herring (pelagic or midwater trawling). Towing speed varies according to the target species but is usually between 2 and 4 knots.

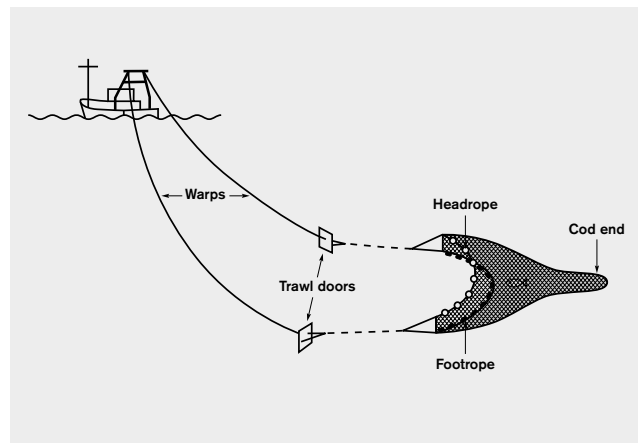


Figure 5: Otter trawling (3D view)

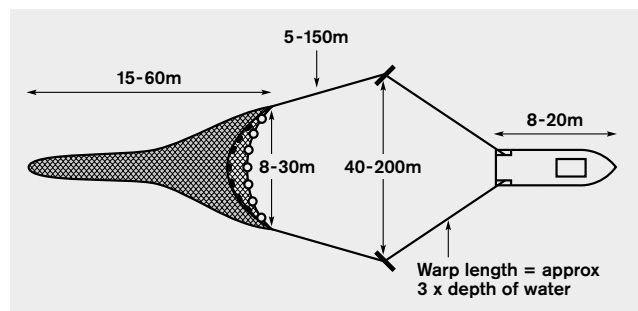


Figure 6: Otter trawling (plan view). Note: dimensions are for smaller, inshore vessels. Larger, offshore vessels can be up to >100m length and fish in waters up to >1000m deep.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a green light over a white light;
- Gear is generally astern of the vessel;
- Safe passing distance (astern) is at least 250m and may be more for a large vessel.



Fig 7. Typical small inshore trawler showing trawl doors hanging on aft gantry and net wound onto a net drum (UK).

Deploying and retrieving the gear.

In most modern vessels the gear is both deployed and retrieved over the stern. Some older vessels may set and retrieve the net over either side of the vessel. The net is shot away first, followed by the bridles or sweeps; the trawl doors are then clipped on to the end of the bridles. Then the main warp is paid off to approximately 3 times the depth of water.

After towing for the appropriate time the warp is winched back in and the doors unhitched; the vessel maintains way during this process, usually heading into the wind. After the bridles have been retrieved, the net itself is either brought on board completely, up a stern ramp or onto a hydraulic net drum mounted at the stern, or the cod end is winched round to either aft quarter and brought aboard there and emptied. In the latter case the vessel will come to a halt with the cod end on the windward side, thus blowing the boat away from the net to avoid fouling with the propeller. After the cod end is emptied, the net is shot away again and the process is repeated until the end of the voyage.

Some trawlers employ two or even three trawl nets together, with an arrangement of weights or skids to balance the configuration. This, however, does not radically alter the basic processes above.

Except during the final stages of hauling, a trawler always has the gear deployed astern. While the vessel is towing, the gear may be any distance from 100 m to 2,000 m astern, depending on the size of the boat and the depth of water. However, the great majority of this is likely to be underwater and, even in the case of midwater trawling, it is unusual (though not impossible) for the net to be close enough to the surface to present a fouling hazard.

What is likely to be seen from the bridge of a larger vessel?

Apart from the day signals or lights as outlined above, a trawler is likely to show some or all of the following characteristics:

- A stern ramp sloping into the water up which the net can be dragged onto the deck, or;
- A hydraulic net drum or drums mounted on an aft gantry onto which the net will be wound;
- A steel structure either side at the stern onto which the trawl doors are attached;
- When towing the net, 2 warps (or possibly 3 in the case of multi rig trawls) leading diagonally down into the water astern of the vessel.
- At night it is likely that bright working lights will be showing, generally around the stern of the vessel.

What manoeuvres are the vessel likely to make.

Once towing, a trawler will generally proceed more or less in a constant direction as the weight of the trawl on the seabed makes rapid change of course impossible. Deviations to the course will be made in order to avoid known seabed obstructions, but these will be gradual. When hauling, the vessel may turn fairly quickly upwind once the trawl is near the surface and, if hauling over the aft quarter will turn so that quarter is facing into the wind.

What are likely hazards / interactions?

Fouling of the trawl warps with the hull or rudder of a merchant vessel is possible if passing too close astern of the trawler – this will cause the trawler to be towed backwards and will very likely lead to capsize, particularly if it is a small vessel. If passing too close, the wake or wash may cause severe rolling or possible capsize of a small trawler. Merchant vessels should either pass ahead of a trawler, given sufficient room, or well astern (>500m) if possible.



Fig 8. Typical small inshore trawler (India)

Pair trawling

Brief description of fishing method.

With this method, the net is towed by two boats running a parallel course, providing the horizontal spread for the net. Each partner vessel will carry its own net; these are used alternately. Without the drag caused by using trawl doors, a much larger net can be used. Depending on the size of the net, the two vessels may be as much as half a mile apart. Pair trawling may be used in midwater or on the sea bed depending on the target species. Towing speed is likely to be between 2 and 5 knots.

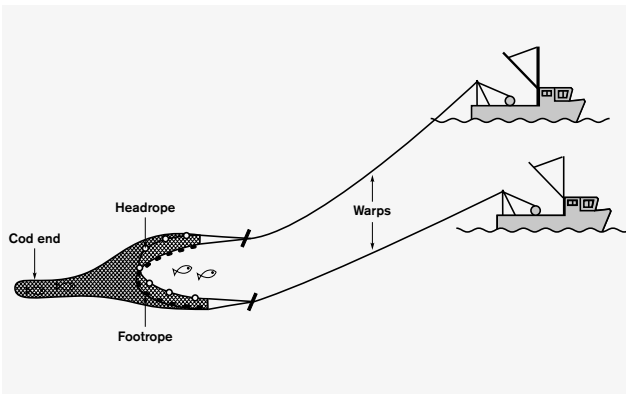


Figure 9: Pair trawling (3D view)

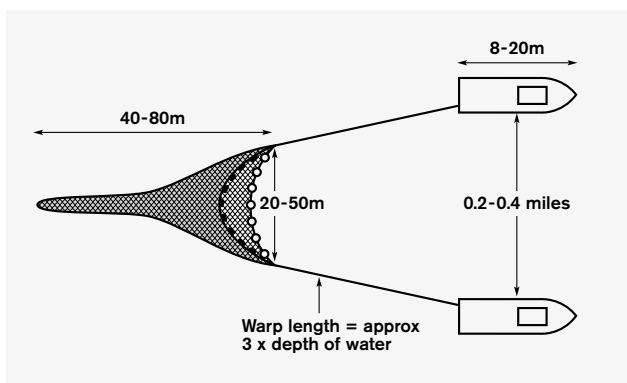


Fig 10. Pair trawling (Plan view). Note dimensions are for smaller, inshore vessels. Larger, offshore vessels can be up to >100m length and fish in waters up to 1000m deep.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a green light over a white light;
- Gear is generally astern of the vessel;
- Safe passing distance (astern) is at least 250m and may be more for a large vessel;
- Vessels are particularly vulnerable when close together to pass the towing warp.

Deploying and retrieving the gear.

The net is deployed from one vessel until it is streaming astern, at which point a messenger wire is passed to the second vessel which then attaches one side of the net to its own warp. The two boats then steam ahead and away from each other, paying out the warps, until the required distance apart is reached; they will then run on a parallel course.

When hauling the net, the reverse of the above takes place, and the net is hauled aboard and emptied. The second vessel will then shoot its own net and so the operation continues until the end of the voyage.

What is likely to be seen from the bridge of a larger vessel?

Day and night signals are the same as for the single boat trawling except at night when each vessel will shine its searchlight forwards and towards the partner vessel. Also look for:

- A stern ramp sloping into the water up which the net can be dragged onto the deck, or;
- A hydraulic net drum mounted on an aft gantry onto which the net will be wound;
- When towing the net, a single warp from each vessel leading diagonally down into the water astern of the vessel;
- At night, each vessel should shine its searchlight diagonally forwards in the direction of the partner vessel;
- At night it is likely that very bright working lights will be showing, generally around the stern of the vessel;
- Radar should show two vessels on a parallel course between around 0.25 and 1 mile apart.

What manoeuvres are the vessels likely to make?

When shooting or hauling the net the two vessels will come very close together – this is the most dangerous part of the operation, particularly in poor weather. Otherwise the two vessels will maintain a constant distance apart, and any changes to their course will be gradual. If hauling the cod end over an aft quarter, the vessel will turn to have the wind on that side.

What are likely hazards / interactions?

Fouling of the trawl warps with the hull or rudder of a merchant vessel is possible if passing too close astern of the trawlers. Getting between the pair of vessels should be avoided, particularly during hauling and shooting operations. If passing too close, the wake or wash may cause severe rolling or possible capsize of a small trawler. Merchant vessels should either pass well ahead of pair trawlers, given sufficient room, or well astern (>500m) if possible.

Beam trawling

Brief description of fishing method.

With this method the mouth of the net is held open by a steel beam (this might be wooden in a small scale fishery) to which the bag of net is attached. The beam is held off the seabed by steel skids or shoes. The top of the net is held off the seabed by the beam, while heavy chains along the footrope ensure good ground contact. This method is used to catch fish that live on or close to the seabed. The gear is often heavy and cumbersome with the beam on a larger vessel being as much as 12 m long and the gear weighing as much as 8 tonnes. Towing speed may be as high as 7 knots.

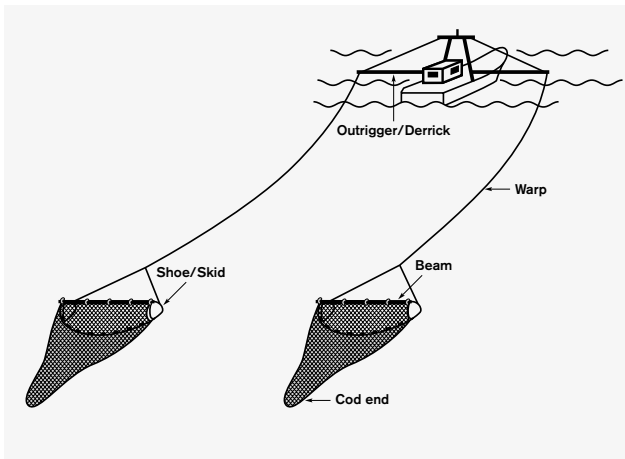


Fig 11. Beam trawling (3D view)

Most beam trawlers use two nets, with one deployed either side of the vessel usually from a derrick that can be swung outboard. Sometimes a single beam trawl is deployed over the stern of the vessel

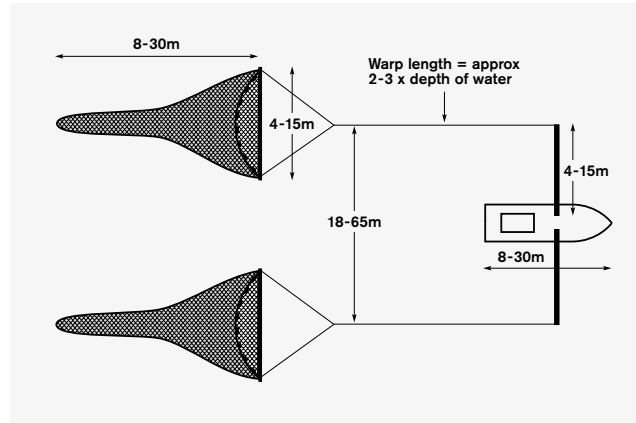


Fig 12. Beam trawling (Plan view). Note dimensions are for smaller, inshore vessels. Larger, offshore vessels can be up to >50m length and fish in waters up to 500m deep.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a green light over a white light;
- Gear is astern of the vessel or alongside at the hauling and setting procedure;
- Safe passing distance (astern) is at least 100m and may be more for a large vessel;
- Vessel is particularly vulnerable to wash or wake when deploying or retrieving the heavy gear.



Fig 13. A beam trawler deploying both nets

Deploying and retrieving the gear.

At the beginning of fishing operations the beams are winched outboard and the net deployed whilst the vessel is steaming ahead. The gear is then lowered to the seabed and towing starts. When the gear is hauled, the beam is brought up alongside the vessel while the cod end is winched aboard, emptied and re-set. The vessel is steaming slowly ahead during this operation.

At the end of the voyage the beams and the nets are winched aboard and secured.

What is likely to be seen from the bridge of a larger vessel?

Day and night signals are the same as for the single boat trawling. Also look for:

- An outrigger or derrick on either side of the vessel which will be near horizontal when fishing.

What manoeuvres is the vessel likely to make?

The boat is likely to steam into the wind when hauling or shooting.

What are likely hazards / interactions?

Due to the heavy gear, the warps will not extend very far astern at the surface, so there is little chance of entangling. Passing too close may cause problems with wash / wake.

Dredging

Brief description of fishing method.

A dredge is usually a steel frame with a bag of netting and / or steel rings attached. The front edge usually has teeth which dig into the sediment. Dredges are mostly used for catching shellfish such as scallops, oysters, clams, mussels etc.



Fig 14. Typical shellfish dredge

Dredges are either towed singly from the stern, in pairs with one towed from each quarter, or in larger numbers, attached to a steel beam similar to a beam trawler.

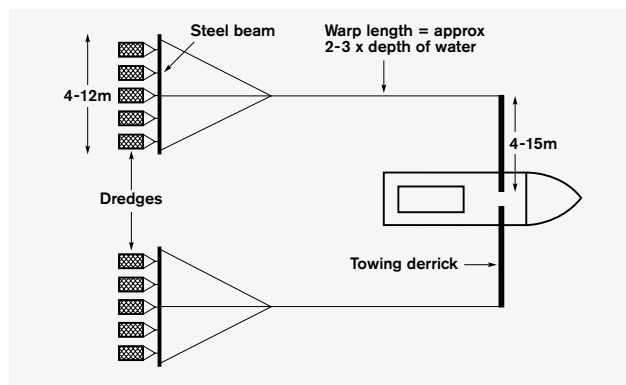


Fig 15. Typical dredge towing arrangement.

Deploying and retrieving the gear.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a green light over a white light;
- Gear is generally astern of the vessel;
- Safe passing distance (astern) is at least 100m and may be more for a large vessel;
- Vessel is particularly vulnerable to wash or wake when deploying or retrieving the heavy gear.

The dredge is deployed either over the stern from an aft gantry, or over the sides on a derrick that can be swung outboard (see Fig 15), much in the same manner as the beam trawl. On retrieval, the single dredge is winched up into the aft gantry and emptied from its lower edge. Multiple dredges are winched inboard and turned upside down to empty the catch.

What is likely to be seen from the bridge of a larger vessel?

Day and night signals are the same as for the single boat trawling (i.e. two cones with pointed end together or green light over white light). Also look for:

- An outrigger or derrick on either side of the vessel which will be near horizontal when fishing.

What manoeuvres is the vessel likely to make?

The boat is likely to steam into the wind when hauling or shooting.

What are likely hazards / interactions?

Due to the heavy gear, the warps will not extend very far astern at the surface, so there is little chance of entangling. Passing too close may cause problems with wash / wake.

ENCIRCLING GEAR

General notes

This category includes purse seines and anchor seines / Scottish seines. Vessels using this type of gear should all show the same day shapes or lights as follows:

- By day, two cones pointing towards each other in a vertical line one above the other. Small vessels often fly an inverted basket in the rigging.
- By night, all-round red light over all-round white light, plus sidelights and sternlight when underway
- When there is outlying gear extending more than 150 metres horizontally from the vessel, an all-round white light or a cone apex upwards in the direction of the gear;
- A purse seiner should show a yellow light over a yellow light, flashing alternately; these lights may be exhibited only when the vessel is hampered by its fishing gear.

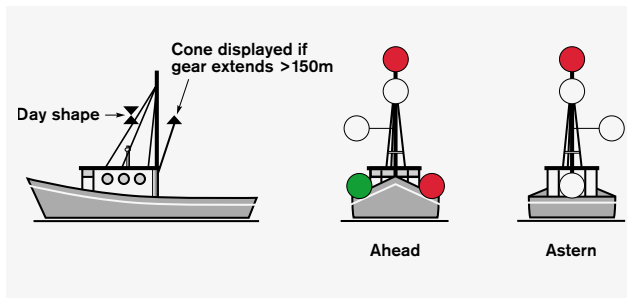


Fig 16. Day shapes and lights for fishing vessels other than trawlers

When fishing in close proximity to other fishing vessels the following signals should be shown:

- When shooting the net, two white lights above each other or Flag Z by day;
- When hauling the net, a white light over a red light, or Flag G by day;
- If net has become snagged on an undersea obstruction, a red light over a red light or Flag P by day.

The above all-round lights should be fixed lower than the main fishing lights and of lower intensity, but still visible at 1 mile.

Purse seines

Brief description of fishing method.

A purse seine is basically a wall of net that hangs vertically in the water with floats along the top and weights along the bottom. Also along the bottom edge is a series of rings through which a wire is threaded (purse wire). The net is set in a circle around a shoal of fish, then the purse wire is hauled in, causing the net to close at the bottom and thus trapping the fish inside. The net is then hauled on board until the fish are concentrated in a small volume of water from where they are removed.

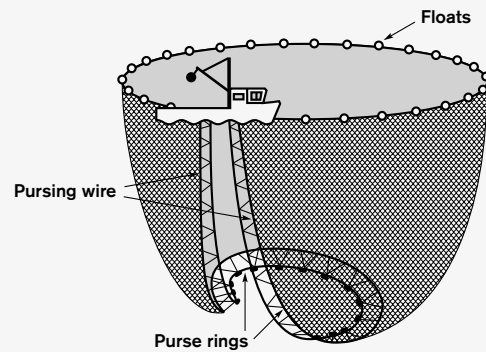


Fig 17. Purse seine, half closed.

The operation of a purse seine is often assisted by a small skiff or launch which is used to pull one end of the net off the larger vessel when setting the gear and may also be used to position the vessel or the net during hauling.

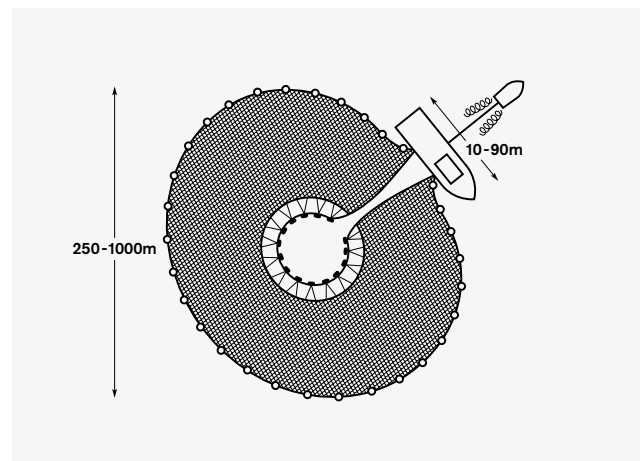


Fig 18. Plan view of purse seiner using a skiff to hold it clear from the net while hauling. Bottom of the net is almost closed.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display alternately flashing yellow lights;
- Safe passing distance is at least 500m from the vessel and may be more for a large vessel

Purse seining is used to catch shoals of free swimming (pelagic) fish such as mackerel, sardines, salmon, herring and tuna. Vessels using this method vary in size from small canoes of around 10m in length (common off the west coast of Africa in particular) to ultra modern vessels of 150m or more in length. The net on a large vessel may be as much as 2 km long and 200 m in depth.

Deploying and retrieving the gear.

Much of the time that a purse seiner spends at sea may be spent in searching for suitable concentrations of fish using sonar or visual lookout; during this time the vessel may steer a very erratic course.

When a suitable shoal of fish has been found the vessel will set its net around the shoal. In smaller boats, this involves heaving overboard one end of the net with a large float attached and steaming in a circle around the shoal until the float is reached. On larger vessels a skiff or launch may be launched, usually down a stern ramp, to which one end of the net is attached. This skiff steams in one direction while the main vessel steams away and in a circle until the two meet again, at which point the skiff hands its end of the net back to the master vessel.

As soon as the net is launched the vessel is very restricted in its ability to manoeuvre, and once the far end has been picked up, virtually no manoeuvring at all is possible.

The wire which passes through the rings at the bottom of the net (the purse wire) is drawn in as quickly as possible, preventing the shoal of fish from escaping downwards. At the same time, the body of the net is winched in, by hand on small boats or by the use of a hydraulic hauler (power block) on larger vessels. This process is known as "drying up" the net. The body of the net is stacked on board ready to be shot away again.

Once the net is dried up, the fish are removed by using a smaller net or, if the catch is small, simply by pulling the remaining bag of net on board. On larger vessels a fish pump will be used. The skiff is winched back up the stern ramp and the searching process starts again.

What is likely to be seen from the bridge of a larger vessel?

- Two yellow lights flashing alternately should be shown when the vessel has its nets deployed;
- Larger vessels are likely to have a power block at the end of a long derrick;
- Some tuna purse seiners operating in tropical waters will have one or more tall observation towers from where spotters will look for shoals of fish;
- On very large vessels, a helicopter may be used to assist in finding the shoals of fish;
- A skiff may be seen on a ramp at the stern of the vessel, particularly in tropical waters;
- When shooting the gear the vessel will be steaming in a tight circle (either to port or starboard, depending on which side the winches are situated);
- When hauling, a large amount of net will be seen passing through the power block;
- The floats supporting the net are often brightly coloured and easily seen;
- Small purse seiners commonly work at night, using bright lights to attract shoals of fish such as sardines;
- Smaller purse seine vessels may be indistinguishable from any other small vessel.



Fig 19. Large modern purse seiner showing two observation towers and two power blocks.



Figure 20: Older traditional purse seiner hauling nets over power blocks

What manoeuvres is the vessel likely to make?

When searching for fish the vessel may behave erratically and make sudden changes of course. When setting the gear the vessel will steam in a tight circle; the skiff may steam in the opposite direction. Small motorboats may be deployed to scare the fish away from the open section of the net. Once the net is deployed, the main vessel will not be able to make way through the water until hauling is complete.

What are likely hazards / interactions?

Entanglement with or crossing of the net would be very dangerous for the fishing vessel. With large purse seiners this should not occur, as the operation should be easy to identify, but with smaller, coastal vessels this may not be so easy.

Anchor seine / Scottish seine / Pair seine

Brief description of fishing method.

These methods are fundamentally similar and involve setting out long ropes on the seabed which, when hauled, are used to herd the fish towards the net. These seine ropes are weighted with a lead core and, when dragged along the seabed, create a large plume of silt or mud which the fish will swim away from and towards the mouth of the net. Consequently, these methods are most often used in daylight and in clear water. These methods are only suitable for use in

depths of up to around 150 m and on clear open ground, free of obstructions. Because the net is of lighter construction than a trawl and is not actively towed through the water, these methods are very fuel-efficient.

Anchor seining or Danish seining

Deploying and retrieving the gear.

An anchor is dropped and marked with a buoy; to this buoy the first leg of the seine rope is attached. The vessel then steams downtide and in a circle, paying out the ropes, setting the net across the tide and returning uptide to the buoy (Fig 21). Here, it ties up to the anchor, picks up the first seine rope and starts hauling both ropes (Fig 22, 1). As hauling continues, the net starts to close up and comes closer to the vessel (Fig 22, 2) until finally the net starts to close and the fish are herded into the net (Fig 22, 3). The net is then hauled on board and emptied, and is made ready for the next shot.

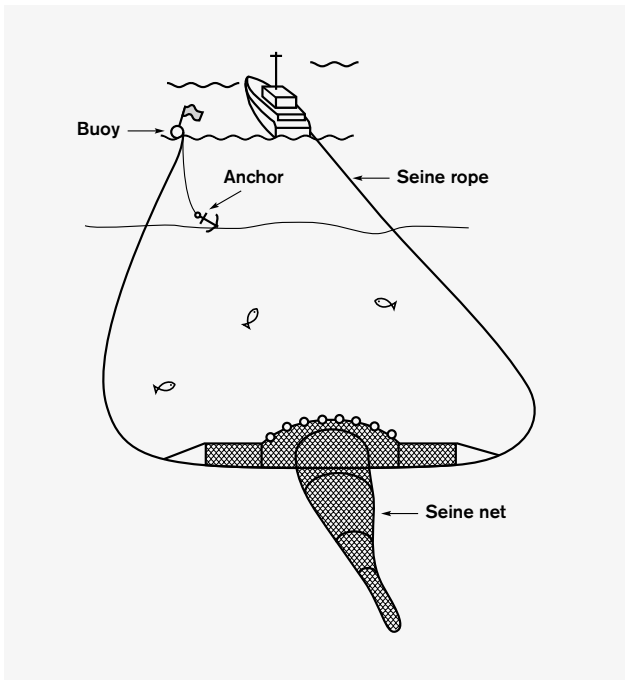


Fig 21. Anchor seine in final stage of deployment

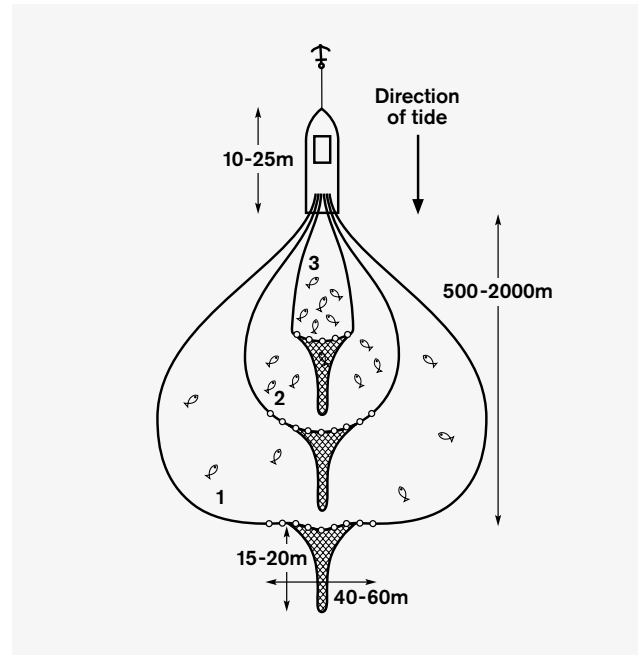


Fig 22. Plan view of anchor seine showing various stages of hauling.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Frequent changes of direction while laying out net
- Vessel should display a red light over a white light;
- Gear is generally astern of the vessel;
- Safe passing distance (astern) is at least 200m and may be more for a large vessel;

What is likely to be seen from the bridge of a larger vessel?

- Many modern seine vessels will have a large, hydraulic rope reel situated aft;
- The deployment of the buoy and anchor might be visible;
- Fishing signals / lights should be as shown at the beginning of this section.

What manoeuvres is the vessel likely to make?

After deploying the anchor, the vessel will steam downtide, turn across the tide to lay the net and steam back uptide to pick up the anchor buoy and lie to the anchor. From this point the vessel will be unable to manoeuvre until the net is hauled and the anchor retrieved.

What are likely hazards / interactions?

When setting the gear, the seine ropes are a potential source for entanglement up to around 100 m behind the vessel; fouling at this point would likely cause capsizing of the fishing vessel.

Scottish seining and Pair seining

Scottish seining (otherwise known as fly dragging) is similar in principle to anchor seining, except that the first rope is attached to a buoy without an anchor and the vessel steams against the tide to lay out the first rope, turns to lay the net across the tide and returns downtide to pick up the buoy. With both ropes now onboard, the vessel steams with the tide, hauling slowly until the ropes come together and the net is brought on board. The advantage of this method is that more ground can be covered during each operation.

Pair seining is similar to Scottish seining, except that instead of returning to pick up the buoy, this is done by a second vessel. The two vessels then steam on a parallel course, slowly winching the net back and gradually coming closer together. When the net is close by, a messenger rope is sent across to the hauling vessel and the end of the seine rope transferred. The net is then hauled aboard and emptied, whilst the other vessel deploys its net ready for use. This method is very similar to pair trawling.

The observations and hazards for both of these methods are similar to those for anchor seining.

Passive mobile gear

General notes

This section deals with gear that is mobile (i.e. not fixed to the sea floor), but moves with the tide or the wind, and is not actively towed through the water by engine power. This includes surface drift nets, drifting long lines and some other hook and line methods. Although many other gears exist, these mentioned are the most common types of passive gear likely to be encountered.

Vessels using these types of gear should all show the same day shapes or lights as follows:

- By day, two cones pointing towards each other in a vertical line one above the other. Small vessels often fly an inverted basket in the rigging.
- By night, all-round red light over all-round white light, plus sidelights and sternlight when underway.
- When there is outlying gear extending more than 150 metres horizontally from the vessel, an all-round white light or a cone apex upwards in the direction of the gear;

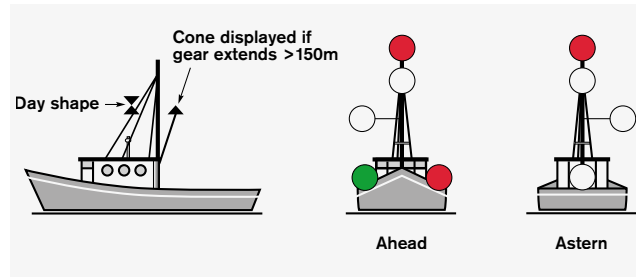


Fig 23. Day shapes and lights for fishing vessels other than trawlers

Surface drift nets

Brief description of fishing method.

This type of gear is a wall of netting suspended vertically in the water, with floats along the top rope and weights along the bottom. Fish swim into the net and are caught either by getting their gills lodged in the net, or they become entangled by their fins, spines etc. Different arrangements of gear may enable the net to fish below the surface, suspended from ropes and larger floats at the surface.

The net may vary in length between 100m and 25 km, though in some areas net length is restricted by legislation; for example drift nets of length greater than 2.5 km are banned in European waters. The longer nets are generally used on the high seas and away from major shipping lanes. Longer nets will generally have intermediate marker buoys and radar reflectors or radio beacons at intervals along their length.

These nets are used to catch many species fish that swim close to the surface, including tuna, salmon, herring, etc.

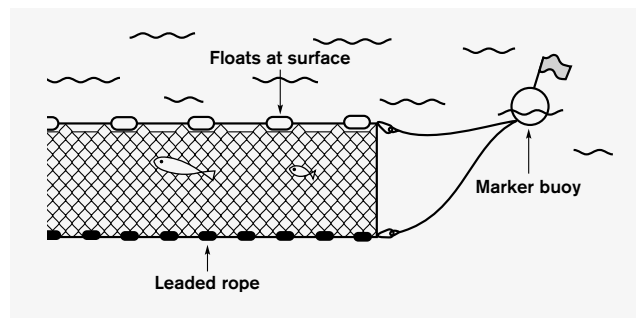


Fig 24. A surface drift net

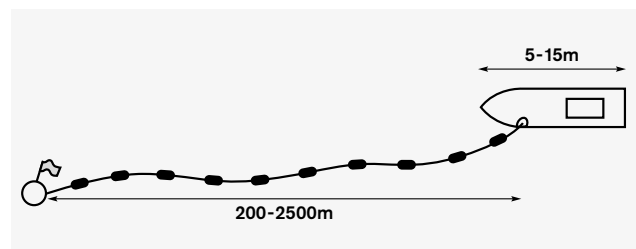


Fig 25. Plan view of surface drift net being hauled. Note that with larger vessels on the high seas, nets may be considerably longer than shown above.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a red light over a white light;
- Gear may extend on the surface for very long distances from the vessel;
- Gear will usually be astern of the vessel while being set and ahead of the vessel when being hauled.



Fig 26. Typical West African drift net canoe, about 12 m in length. Note the lack of lights, fishing signals

Deploying and retrieving the gear.

Surface nets are almost always deployed over the stern of the vessel, often steaming at around 4 – 5 knots. If possible, the nets are set downwind. Once set, the nets are left to drift with current or wind, usually attached to the vessel although they may be left to drift independently. Sometimes, particularly with very long nets, the boat may steam back along the length of the net to the end that was first shot and start hauling from this end, thus allowing most of the net to be in the water and fishing for a similar length of time.

Hauling the net usually takes place over the bow or forward quarter, either by hand in small boats or through use of a hydraulic net hauler on larger vessels. The net is then cleared of fish and made ready for the next shot.

Some vessels, notably in inshore waters of the northwest Pacific, have a hydraulic net drum at the stern of the vessel; from which the net is both set and retrieved. Again, some have the drum mounted at the bow, set the net going astern and haul back onto the drum going ahead. Both of these have a limited net length due to the capacity of the drum.

What is likely to be seen from the bridge of a larger vessel?

- When setting the gear, activity and / or deck lights are likely to be seen around the stern of the vessel; floats and marker buoys may be seen on the surface; the gear will be streaming away astern of the vessel;

- When hauling, activity and / or deck lights are likely to be seen at the bow or forward quarter; the gear will be ahead of the vessel;
- Radar reflectors attached to the net may show on radar, usually every mile or so and often in a straight line;
- On larger vessels a hydraulic net hauler may be seen at the bow or forward quarter; on some vessels a net drum may be seen at the stern or at the bow;
- Lights and signals should be as shown at the beginning of this section.

What manoeuvres is the vessel likely to make?

No particular manoeuvres can be predicted. Some vessels may set their gear going astern, but these will be short nets.

What are likely hazards / interactions?

Wake or wash could cause problems to small vessels. Entanglement with the net close to the fishing vessel could cause capsize and sinking; at a distance of more than a few hundred metres the net is likely to break. Pass ahead of the vessel at a safe distance if it is seen setting the gear, and astern at a safe distance if seen hauling the nets.

Drifting long lines

Brief description of fishing method.

Here, a number of baited hooks are attached by short lines (droppers or snoods) to a main line which is kept near to the surface by means of floats. The gear drifts with the current, and is often attached to the vessel. Surface long lines may vary in length from 100m with maybe 30 hooks to 25 miles or more, with many thousands of hooks. The longest lines are mostly found on the high seas and usually well away from major shipping lanes. The line is often marked with radar reflectors mounted on buoys. Vessels using this method vary in length from small inshore canoes to large (>70m) industrial ships.

Surface longlines are used to catch a wide variety of species, notably tuna, swordfish, sharks and sailfish.

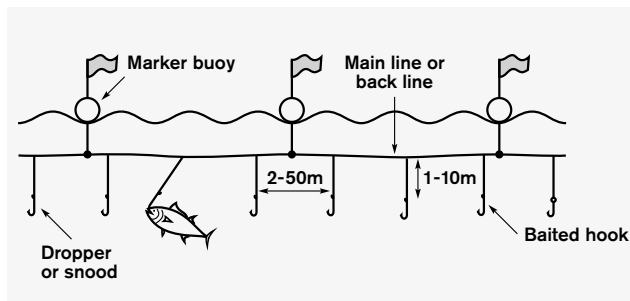


Fig 27. A surface long line.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a red light over a white light;
- Gear may extend on the surface for very long distances from the vessel;
- Gear will usually be astern of the vessel while being set and ahead of the vessel when being hauled.

Deploying and retrieving the gear.

Longlines are almost invariably set over the stern and hauled over either port or starboard forward quarter. With a long set of gear, the vessel may finish shooting the line, steam along the length of it to the end that was first shot and start hauling from that end, ensuring that all hooks get a roughly equal fishing time.

In any but the smallest vessels, hauling is by a mechanical (usually hydraulic) hauler mounted forward.

What is likely to be seen from the bridge of a larger vessel?

- When setting the gear, activity and / or deck lights are likely to be seen around the stern of the vessel; floats and marker buoys may be seen on the surface astern of the vessel;
- When hauling, activity and / or deck lights are likely to be seen at the bow or forward quarter; the gear will be ahead of the vessel;
- Radar reflectors attached to the line may show on radar, usually every mile or so and often in a straight line;
- On larger vessels a hydraulic hauler may be seen at the forward quarter;
- Lights and signals should be as shown at the beginning of this section.

What manoeuvres is the vessel likely to make?

No particular manoeuvres can be predicted. When shooting or hauling the vessel will have restricted manoeuvrability. When hauling it will probably be head up to the wind.

What are likely hazards / interactions?

Wake or wash could cause problems to small vessels. Entanglement with the line close to the fishing vessel could possibly cause capsize and sinking; at a distance of more than a few hundred metres the line is more likely to break. Pass ahead of the vessel at a safe distance if it is seen setting the gear, and astern at a safe distance if seen hauling the lines.

Squid jigging

Brief description of fishing method.

This is one of the main methods of catching squid and is used worldwide, especially by vessels from Japan, Korea and China. It involves using special lures which attract and hook the squid. Up to 50 of these are used on each line, with a heavy weight on the end. On most squid vessels each of these lines is operated by a programmable, automated reel which lowers the line to the right depth and, when squid have taken the lures, reels them in. As the lures come over the rail the squid fall off the lures and onto a collecting tray. Up to 50 reels per side may be seen on larger squid vessels.

Most squid fishing takes place at night and the squid are attracted to the vessel by the use of very bright lights which can often be seen beyond the horizon.

Vessels using this method may vary from small inshore boats of less than 10m in length (where the gear is hauled by hand) to large industrial vessels up to 80m in length.

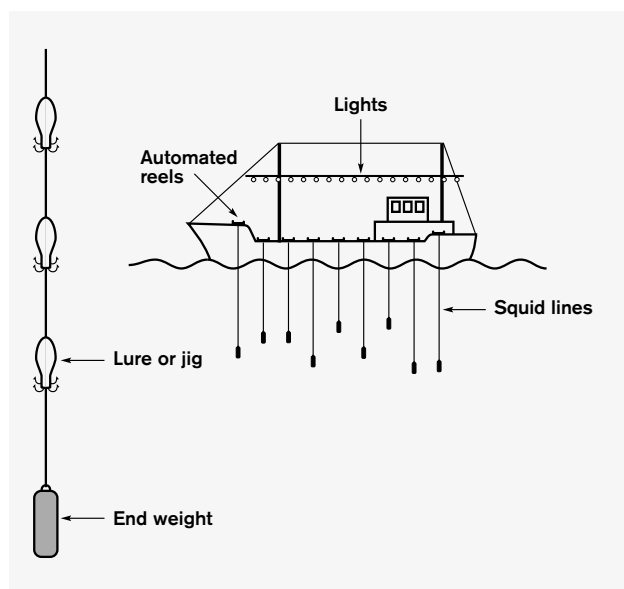


Fig 28. Diagram of squid line and of arrangement of lines on vessel.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a red light over a white light; this will probably not be visible due to the intensity of lights used to attract the squid;
- Fishing lights can be very bright and reduce visibility of other hazards or navigation marks
- A sea anchor or drogue is often deployed from the bow of the vessel to slow the rate of drift.

Deploying and retrieving the gear.

The vessel may spend considerable time searching for squid using sonar and echo location. Once a suitable concentration has been found a sea anchor or drogue may be deployed from the bow to slow the rate of drift due to the wind, and remain over the shoal of squid. In addition, a spanker or mizzen sail may be set at the stern of the vessel to bring the head up into the wind. The collecting trays are lowered over the side to an angle of around 45 degrees and the lines are let down into the water.



Fig 29. Squid jigger deploying sea anchor, with jigging machines ready for fishing.

What is likely to be seen from the bridge of a larger vessel?

- At night, very bright lights may be seen from a considerable distance and can distract from other hazards / navigation aids;
- Smaller vessels may show fewer lights, but still bright enough to obscure fishing lights;
- Jigging machines and collecting trays may be seen projecting from side of vessel.
- A squid jigger can often be recognised by black streaks of squid ink on the sides of the vessel.



Fig 30. Squid fishing vessels at night

What manoeuvres is the vessel likely to make?

The vessel is not able to manoeuvre when the sea anchor or fishing gear is deployed.

What are likely hazards / interactions?

Wake or wash could cause problems to small vessels. Entanglement with lines is not an issue as they are deployed vertically downwards. It is best to pass astern of the vessel to avoid the sea anchor or drogue which may extend up to 200m ahead of the vessel.



Fig 31. A typical inshore squid jigger. Note the lights for attracting squid.

Static or fixed gear

General notes

These types of gear are generally fixed to the sea bed by anchors. They rely either on bait to attract the fish to the gear (hook and line, pots and traps), or on fish becoming entangled in the mesh of the nets (gill nets or tangle nets). Usually the gear is rigged to fish on or close to the seabed, but it can also fish close to the surface while still anchored.

The gear is deployed and left for a period of time (a few hours to, in some cases, a few days) when the vessel will return, haul the gear and harvest the catch. A major advantage of these methods is that they are fuel-efficient, and do not require heavy gear to be dragged over the seabed.

Vessels often fish many sets of gear which can be positioned between a few metres or a few miles apart. The vessels can thus appear to move erratically, being almost stationary while servicing the gear, then on completion of one set moving quickly and in any direction towards the next set.

A general feature of most of these methods is that the gear is deployed over the stern and hauled over the bow or forward quarter. Vessels using these static methods should show day signals and lights as for non-trawling fishing operations:

- By day, two cones pointing towards each other in a vertical line one above the other. Small vessels often fly an inverted basket in the rigging.

- By night, all-round red light over all-round white light, plus sidelights and sternlight when underway.
- When there is outlying gear extending more than 150 metres horizontally from the vessel, an all-round white light or a cone apex upwards in the direction of the gear;

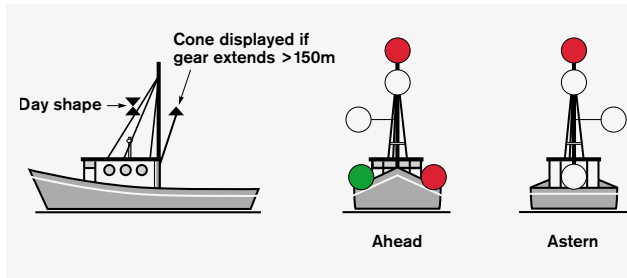


Fig 32. Day shapes and lights for static gear vessels

Fixed longlines

Brief description of fishing method.

Here, a number of baited hooks are attached by short lines (droppers or snoods) to a main line which is stretched between two anchors. Floats may be fixed along the main line to keep the bait away from the seabed. The ends of the line are marked with surface buoys. The length of the line may vary between 50m and 2-5 km; longer lines may have intermediate anchors along the length. Number of hooks may vary from 20 to 2,000. Lines may be set from a large reel at the stern of the vessel with the hooks being clipped on at intervals along the line. Vessels using this method range from small, inshore canoes to large, industrial vessels of 60m and over.

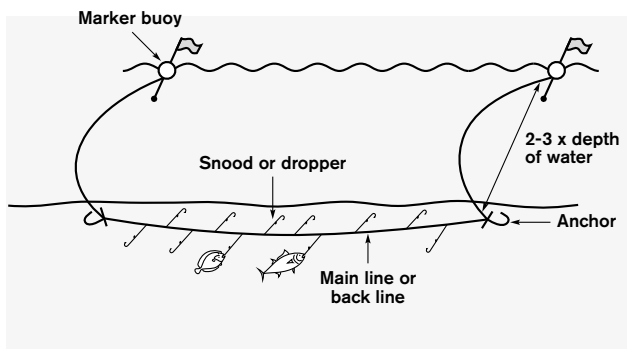


Fig 33. Bottom set fixed longline

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a red light over a white light;
- Gear will usually be astern of the vessel while being set and ahead of the vessel when being hauled.
- Vessels may move unpredictably and quickly between sets of gear
- Most of the length of the gear will be underwater; however, buoy ropes may extend a considerable distance aft when the gear is being set;

Deploying and retrieving the gear.

The gear is almost always set from the stern of the boat while steaming ahead. Typically the buoy and rope are set first, then the anchor goes over with the back line attached. The hooks may be baited before setting, or may pass through an automatic baiter which fixes the bait as the hooks go over the stern. Setting speed is usually between 2 and 5 knots. The line is generally (but not exclusively) set across the tide. One or more lines may be used. The gear is often targeted precisely on areas of rough ground or on wrecks as these are places that other fishing methods find difficult or impossible to work on.

The gear is left to fish until it is deemed time to haul – this can vary according to target species, bait type etc. When using a substantial length of line, the vessel may steam to the end of the line that was shot away first and start hauling from that end. Hauling usually takes place over the forward quarter, and, in anything but the smallest vessels, will be done using a hydraulic line hauler. The line is cleared of fish and made ready to be shot again. Sometimes two sets of gear are used, and the laborious task of baiting is done by a shore crew who prepare one set while the other is being fished.

What is likely to be seen from the bridge of a larger vessel?

- When setting the gear, activity and / or deck lights are likely to be seen around the stern of the vessel;
- When hauling, activity and / or deck lights are likely to be seen at the bow or forward quarter; the gear will be ahead of the vessel;
- On larger vessels a hydraulic line hauler may be seen at the bow or forward quarter;
- Lights and signals should be as shown at the beginning of this section.

What manoeuvres is the vessel likely to make?

- No particular manoeuvres can be predicted.

Vessels are likely to point upwind when hauling to avoid the line fouling the propeller. If the tide is stronger than the wind they will haul from the downtide end. They can move unpredictably and quickly from one set of gear to another.

What are likely hazards / interactions?

Wake or wash could cause problems to small vessels. The line should reach a safe depth within a short distance from the vessel, but entanglement could cause capsize and sinking of the fishing vessel. Pass ahead of the vessel at a safe distance if it is seen setting the gear, and astern at a safe distance if seen hauling the lines. Be prepared for sudden changes in speed or direction.

Baited pots or traps

Brief description of fishing method.

The baited pot or trap is a device which allows the target species (crabs, lobsters, shellfish, fish) to enter easily to attack the bait in the pot, but makes it difficult to leave the pot once inside. This is usually achieved by some sort of funnel device or one way valve. Traps vary between small devices, such as in the Korean octopus fishery where seashells of around 100mm are used to trap small octopus, to large wire mesh structures used in the Arabian Gulf, which may be as much as 2.5 – 3 m in diameter. Mostly they are in the range of 0.75m – 1.5m and light enough to be handled relatively easily, though some crab traps in the North Pacific may weigh as much as 120 kg even when empty.



Fig 34. Cuttlefish trap UK.

Traps are either used singly, with a buoy rope marking the pot, or in strings of up to 200, depending on the deck space of the fishing vessel. In the latter case, each pot is attached to a main back rope with a short dropper rope. Anchors or weights may be used at either end of the string to stop the gear moving in the current and a buoy used to mark each end.

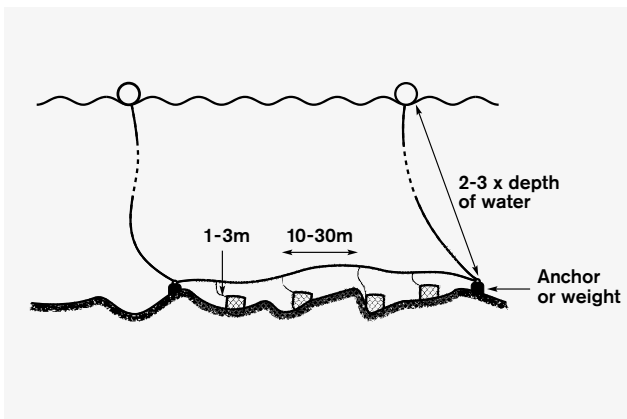


Fig 35. Layout of a string of pots. Number of pots per string varies with size of vessel.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a red light over a white light;
- Gear will usually be astern of the vessel while being set and ahead of the vessel when being hauled.
- Vessels may move unpredictably and quickly between sets of gear
- Most of the length of the gear will be underwater; however, buoy ropes may extend a considerable distance aft when the gear is being set;



Fig 36. Modern potting vessel with full deck load

Deploying and retrieving the gear.

Pots are almost invariably set over the stern or from the aft quarter with the vessel steaming ahead. If being used in strings they are arranged on deck in the correct sequence for safe deployment. Setting speed may be as much as 5 – 6 knots. Gear is often set on rough ground where other fishing methods cannot be used, but, depending on the target species, may also be set over clean, open ground. The pots are left to fish, usually for at least 24 hours and often for up to 3 or 4 days.

Hauling generally takes place over the forward quarter or the bow. The pots are emptied of their catch, rebaited and stacked ready to be shot again.

What is likely to be seen from the bridge of a larger vessel?

- When setting the gear, activity and / or deck lights are likely to be seen around the stern of the vessel; floats and marker buoys may be seen on the surface; the gear will be streaming away astern of the vessel;
- When hauling, activity and / or deck lights are likely to be seen at the bow or forward quarter; the gear will be ahead of the vessel;
- Radar reflectors attached to the marker buoy may be seen;
- On larger vessels a hydraulic line hauler may be seen at the bow or forward quarter;
- Pots may be seen piled high on the deck;
- Lights and signals should be as shown at the beginning of this section.

What manoeuvres is the vessel likely to make?

No particular manoeuvres can be predicted. When hauling or shooting, the vessel will have restricted manoeuvrability. After hauling or shooting away the gear at quite slow speeds, the vessels can move quickly and in any direction to relocate the gear or attend to the next set of gear.

What are likely hazards / interactions?

Wake or wash could cause problems to small vessels. Entanglement with the back rope close to the fishing vessel could cause capsize and sinking; the gear should sink to a safe depth reasonably close to the vessel. Pass ahead of the vessel at a safe distance if it is seen setting the gear, and astern at a safe distance if seen hauling. Be prepared for sudden changes in speed or direction.



Fig 37. Large wire mesh fish traps commonly used in Gulf of Arabia and Red Sea.

Fixed gill nets / tangle nets

Brief description of fishing method.

These nets are usually a single sheet of netting with floats along the top edge (the headrope) and weights along the bottom edge (the footrope). Different arrangements of weights and floats allow these nets to be fished on the seabed (as in Fig 38 below), in midwater or at the surface. The net is anchored at either end and marked with buoys and possibly radar reflectors. The length of the net may be between 50 m and 1 – 3 miles and vessels using them vary between small inshore canoes and large (>50 m) industrial vessels. The nets work by ensnaring the target species, which is either trapped by the gills or is entangled by its spines. These methods are used worldwide to catch a wide variety of species.

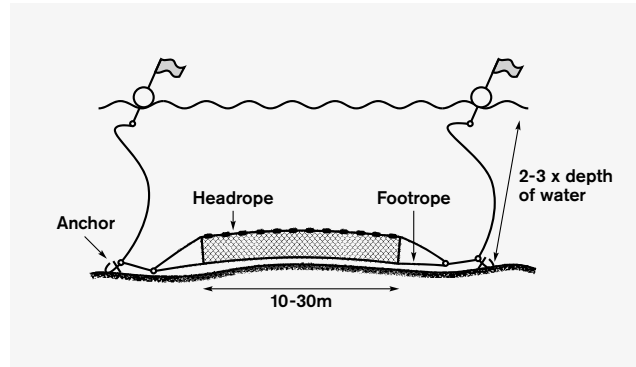


Fig 38. Anchored gill net rigged to fish on the seabed. Length of net used will depend on size of vessel.

Main safety issues

- Manoeuvrability is restricted during all parts of the operation;
- Vessel should display a red light over a white light;
- Gear will usually be astern of the vessel while being set and ahead of the vessel when being hauled.
- Vessels may move unpredictably and quickly between sets of gear
- Most of the length of the gear will be underwater; however, buoy ropes may extend a considerable distance aft when the gear is being set;

Deploying and retrieving the gear.

The nets are generally set over the stern or the aft quarter. The buoy is streamed away first, followed by the first anchor and the body of the net. The final anchor and buoy are then set. With very long nets there are sometimes intermediate anchors along the length of the net. On some vessels, notably in the northwest Pacific, nets are set from and hauled onto a large reel mounted either fore or aft.

The nets are left to fish for anything between a few hours and a few days. They are generally hauled over the bow or forward quarter often using a hydraulic net hauler. The fish are removed and the net is readied for its next use.



Fig 39. A typical gill net

What is likely to be seen from the bridge of a larger vessel?

- When setting the gear, activity and / or deck lights are likely to be seen around the stern of the vessel; floats and marker buoys may be seen on the surface;
- When hauling, activity and / or deck lights are likely to be seen at the bow or forward quarter; the gear will be ahead of the vessel;
- On larger vessels a hydraulic hauler may be seen at the forward quarter;
- Lights and signals should be as shown at the beginning of this section.

What manoeuvres is the vessel likely to make?

No particular manoeuvres can be predicted. The vessel will haul the gear with head up to the wind or the tide (whichever is stronger) to avoid tangling the net in the propeller. The vessels can move quickly and erratically from one set of gear to another.

What are likely hazards / interactions?

Wake or wash could cause problems to small vessels. Entanglement with the net close to the fishing vessel could possibly cause capsize and sinking; at a distance of more than a few hundred metres the net is likely to break. Pass ahead of the vessel at a safe distance if it is seen setting the gear, and astern at a safe distance if seen hauling the nets. Be prepared for sudden changes in speed or direction.

Lessons learnt from the incidents

- It is not always easy to determine what sort of fishing gear a boat is using, or sometimes even whether it is fishing or not;
- Fishermen are sometimes concentrating more on catching fish than on safe navigation; it may be best to assume that they are not aware of your presence;
- Fishing gear can sometimes extend very long distances from the vessel using it, sometimes many miles; if in doubt, assume the worst case;
- Fishing vessels can have many sets of fixed gear at sea at any one time and appear to move quickly and erratically between them
- Small fishing vessels may not show correct lights or signals, nor are they likely to have a VHF radio;
- Fishing vessels might use a number of bright lights to assist their crew when working on deck at night. These lights might interfere with the lookout on the bridge of the fishing boat.
- Do not assume that because you are in a channel, harbour approach or separation lane that the fishermen will know what regulations apply or that they will be in a hurry to get out of your way; sounding the ship's siren or horn will attract their attention;
- Any manoeuvres to avoid collision should start well in advance and should be large enough to ensure that the vessel passes clear from the fishing boat with adequate CPA;
- Always proceed with safe speed, making appropriate adjustments according to the visibility and intensity of traffic in the area;
- Inform Master if visibility reduces – lax practices in this regard should not be tolerated;
- When transiting areas where fishing traffic is to be expected, radars should be set in a way to facilitate the detection of small stationary or slow moving targets – long relative trails are a great tool in this regard. Clutter on the radar screen (especially in periods of rain) can prevent small targets to be discovered on time. Long relative trails will show that a target exists even though it might be hidden in the clutter. They also provide for an extremely useful visual indication of the danger of collision that a target on the radar screen might present.
- If possible, communicate, where necessary, with a loud hailer or VHF and find where the gear is deployed;
- Sound signals should be given as appropriate.
- In crowded areas it may be wise to station a lookout on the bow of your vessel, with means of communicating with the bridge;
- In a collision with a fishing boat, the fishing vessel will most likely suffer serious damages, will be in danger of sinking (with the associated loss of life) and will need immediate assistance. The main concern of the other ship, involved in the collision, should be to do their best to provide the required assistance. So if you think you might have hit a fishing vessel, stop immediately and check!

These notes are only intended as a guide and reference; they are not exhaustive and should not substitute the experience of the ship's Master.





HOMARUS Limited

Fisheries and Aquaculture Specialists

Homarus Ltd provides technical and expert advice in fisheries and aquaculture matters. The company works internationally and is a leader in the field of fisheries and aquaculture damage assessment.

The company has long standing experience in technical support for P&I insurers. Company staff have worked all over the world on numerous P&I assignments in the last 26 years. Such assignments fall into the categories of

- Physical impacts: shipping collisions with fishing vessels, fish farms, fish and shellfishing grounds
- Pollution impacts: pollution of fishing grounds, fish and shellfish farms, sensitive habitats
- Temperature and contamination impacts to fisheries cargo, usually bulk frozen, sometimes containerised

Assessment work ranges from relatively minor interruptions to fishing income to major oil spill incidents with damage to multiple fishing or aquaculture interests. Homarus Ltd staff have established a reputation for being at the forefront of loss assessment methodology and advising on fisheries related compensation issues.

Homarus Ltd also assesses disruption to fisheries from other sources such as offshore wind farms, pipelines installation, sea defence work etc.

The company has its roots in shellfish production and in addition provides wider advice on the fisheries sector for a range of public and private sector organisations in the areas of:

- fishing industry studies
- fisheries socio-economic studies
- market analysis for fisheries products
- feasibility studies corporate analysis/due diligence

For more details please refer to website
www.homarusaquafish.co.uk

GLOBAL NETWORK

