
FISHING VESSELS: The Hazards Associated with Trawling, including Beam Trawling and Scallop Dredging

Notice to all Owners, Operators, Crews, Managers, Gear Fitters, Shipbuilders and Designers

This notice replaces MGN 265(F).

Summary

This Note provides general guidance on the safe operation of fishing vessels engaged in trawling and twin beam trawling, including scallop dredging with derricks or booms.

Key Points

- Only those people fully experienced in handling the vessel and its fishing methods should be in charge of a watch;
- Everyone must be aware of what to do in an emergency;
- All loose gear must be restrained and secure;
- The Risk assessment must be undertaken and everyone must read it. In particular crew should be aware of:
 - Keeping out of rope bights and away from working machinery;
 - Never to stand in line with tensioned rope or wire;
 - Good communications between skipper and winch operator; or
 - Everyone being on deck in their lifejackets during gear recovery with all watertight and weathertight openings closed.
- All winch operators must be trained and experienced and the same person must not control the winch and be tipping the dredges at the same time;
- Emergency buttons must be within easy reach of operators so they do not have to reach them over machinery;
- Hauling and lifting gear must be inspected and maintained;
- Newly acquired vessels or those with structural alterations should have their stability appraised;
- Warp Tension Monitoring equipment can help detect excess loads;
- The condition of weak links in trawls must be checked whenever nets are on board;
- If snagged gear cannot be freed without hazarding the vessel, it should be released.

1.0 The Dangers of Trawling

- 1.1 The nature of trawling, especially beam trawling, can result in serious accidents occurring at sea. Analysis of casualty data has shown that human error, failure of equipment, snagging of gear and loss of stability are recurring factors.
- 1.2 This notice provides general advice on safety matters related to the operation of fishing vessels. It is the responsibility of the owner and skipper to ensure that all procedures in use whilst fishing are suitable for the vessel, its equipment and its mode of fishing.
- 1.3 A video titled "Level Headed" looking at the risks involved in beam trawling is available from the Maritime and Coastguard Agency by telephoning 02380 329100, or from EC Group at the address given below, by quoting the name of the video and MCA/216 .
- 1.4 Further advice is also contained in the Fishermen and Safety Guide (quoting MCA/034) which can be obtained from EC Group at:

EC Group
Europa Park
Magnet Road
Grays
Essex
RM20 4DN
Telephone number: 0845 603 2431
Email address: mca@ecgroup.co.uk

2.0 Before going to Sea

Knowing the vessel

- 2.1 The skipper should ensure that only persons who are fully experienced in handling the vessel and competent in its fishing methods are in charge of a watch. All watch keepers and engineers should be aware of conditions that can reduce the stability reserves of the vessel including the use of fuel, stowage of fish and the effects of entrapped water when scuppers are restricted by debris or gear. Watertight and weathertight doors should always be closed when at sea. They may be opened to pass through and then be closed again.
- 2.2 All crewmembers should be made aware of the procedures to follow in the event of an emergency, these should include ensuring the tight dogging of watertight and weathertight doors and hatches to spaces which are needed to maintain the stability of the vessel. They should be made aware of the location and correct operation of all safety related equipment on board the vessel.
- 2.3 Know the position and the operation of the quick release gear.
- 2.4 Has bigger gear been fitted than that allowed for in the stability book.

3.0 Whilst at Sea

- 3.1 Loose gear should be restrained and secured. In particular booms, beams, nets, trawl doors and attached chains should always be securely lashed when not in use, even in fine weather. This safe working practice also helps to prevent inadvertent loss of gear, injuries to crew and the blockage of freeing ports and scuppers due to loose gear. It also reduces the dangers of sinking following a snagging with open hatches and doorways.

- 3.2 Watertight and weathertight doors and hatches should be kept closed at sea when not in use. This reduces the number of vital tasks that need to be completed in the event of an emergency. They should not be left open to assist in ventilation. Inadequate ventilation should be rectified by improvements to the ventilation system. If possible, openings for winches or winch wires should be positioned well above the weather deck.

4.0 When Shooting and Recovering Gear

- 4.1 Crew working on deck should be aware of the dangers of equipment failure and the simple precautions they should take to avoid injury. These include keeping out of the bights of ropes and keeping away from working machinery unless directly involved in its operation.
- 4.2 Sudden rolling of the vessel followed by a heavy list may arise when hauling or towing equipment fails or a load is lost from one side. This may happen whilst clearing sand, stone or weed from a trawl that is clear of the seabed.
- 4.3 Methods of restraining the net prior to release should not cause crew members to become fouled in bights of lifting ropes. Crew members are also reminded never to stand in line with any tensioned rope or wire which can break and whip back with fatal results. Sharp course alterations should be avoided whilst lifting the cod end.
- 4.4 On vessels where the winch controls are on deck, or poorly placed within the wheelhouse, care should be taken to ensure good communications are maintained between the skipper and the winch operator, especially if the skipper has only a restricted view of the winch operator. This is particularly important on smaller vessels with powerful winches where they may be less time to react to a dangerous situation. If problems occur the load should be lowered as quickly and safely as possible to the deck or onto the seabed.
- 4.5 Be aware of the additional risk from use of dog-clutch type winches. Dog-clutch winches should always be de-clutched when fishing as they cannot be disengaged when under load.
- 4.6 Wire attachments to drums should be able to be released quickly. A rope tail to the winch may be cut easily and no load comes on it if three turns remain on the drum.

5.0 When Recovering Fouled or Fastened Gear

- 5.1 It is clear from speaking to experienced fishermen that there are no standard answers on what action a Skipper should take when a vessel is restricted by snagging on a fastener. Only the experience of the Skipper and his correct actions at the time and in the circumstances experienced will result in success.
- 5.2 Recovery of fouled gear can impose extra loads on wires and machinery, particularly in adverse weather conditions. Failure of either may result in excessive rolling or a dangerous list to the vessel.
- 5.3 The vessel's stability reserves may be seriously reduced when hauling on fouled gear with the winches working hard. Additionally winches should not be braked and used in conjunction with a vessel's motions to free fouled gear; a heavier than normal swell may be sufficient to bring about the vessels capsize in this condition. Engaged Dog-clutch winches are particularly hazardous in these circumstances.
- 5.4 Unusual or potentially dangerous operations should always be carried out under the supervision of the skipper.

5.5 There should be an emergency means for the fast release of snagged gear.

6.0 Additional Considerations for Beam Trawling

6.1 A recent study undertaken with the co-operation of the fishing industry has emphasised the particular risks of beam trawling. Appropriate precautions should be taken to ensure safe fishing. The study emphasised a number of other important safety issues.

6.2 Even with the increased stability reserves that are required for beam trawlers, the vessel's stability may not be adequate in some sea conditions when recovering the fishing gear and catch with the derricks raised.

6.3 No beam trawler should be operated without fully experienced beam trawler crew in charge of the vessel and in control or mentoring of the winchman.

6.4 All winch operators should be fully trained on the job and be experienced in the whole operation.

6.5 The skipper's understanding of how the stability is affected during fishing operations can be enhanced by the ready availability, in the wheelhouse, of simplified stability information. In general the lower the weight or place of attachment the better.

6.6 A beam trawler at sea with gear deployed can behave differently to vessels using other fishing methods. The fishing gear has a damping effect on the roll of the vessel. This damping effect masks the signs that indicate the vessel's true stability state. A longer than usual roll period indicates reduced stability.

6.7 It is important to guard against riding turns and, whenever possible, the same person should not be tasked with controlling the winch and "tipping" the dredges at the same time.

7.0 Risk assessment

7.1 Under the 1997 Health and Safety legislation, a thorough safety risk assessment should be carried out before fishing operations are commenced. The Seafish safety folder includes a risk assessment questionnaire that is excellent for this purpose. Guidance on carrying out risk assessment is also contained in Marine Guidance Note 20 (M+F).

8.0 What the Owner should do

8.1 The owner should take into consideration the following suggested requirements, as appropriate, which is by no means an exhaustive listing:

- Crew should be fully trained and both experienced in beam trawler methods and familiar with the vessel and its operation. This training may have to be undertaken as familiarisation on board.
- Emergency stop buttons to be fitted so the operator of the equipment can reach them without endangering themselves by leaning across the equipment or risking any other hazard.
- Bridge control of winches to include warp and topping lift as well as control of the engines.
- Bridge control or a suitable alternative method for the release or lowering of derrick head blocks. This will enable controlled lowering of the point of

suspension of the load from the head of the derrick down to the shoulder block. This can prevent a dangerous list or capsize occurring if the gear picks up an abnormal load.

- Warp-tension monitoring equipment.
- Sounding equipment that can reduce the possibility of the trawl snagging or picking up excess loads of sand and shells or snagging an obstruction on the bottom.
- Past experience of safe working with gear of similar sizes and weight.
- Particular care when working on fishing grounds where the features of the sea bed are not known.
- Past experience of safe working with a vessel whose structure, weight distribution and stability characteristics are similar.
- Avoiding the use of systems with dog clutch winches. These winches often take considerable time to de-clutch and re-clutch preventing a rapid response to sudden load changes. Operators should be aware of these additional risks. Dog clutch winches should be always be de-clutched when trawling.
- The normal operation of the vessel is unsafe if a crew member has to work upon, or reach outboard of, a gunwhale rail. If there is an exceptional requirement a safety harness should be worn and a safety helper should be provided. Ideally the gear and operation should be designed or modified to avoid this.
- That all of the lifting or hauling gear has been maintained and inspected and is in good order

8.2 Owners should note that possession of approved stability is no guarantee of satisfactory operation during fishing operations. An assessment of safety for beam trawling should be based on three principles:

1. **History** – Generally a beam trawler will continue to operate safely if it has a history of safe operation and its operating profile remains substantially unchanged. This includes factors such as the vessel's characteristics, its gear, the fishing grounds, its crew and the worst weather conditions in which the vessel operates;
2. **Stability** – On vessels new or newly acquired, or after structural alterations, before working with a new arrangement of fishing gear, an appraisal should be made of the vessel's stability during fishing operations. Such information should supplement the relevant sailing conditions that are contained in the approved stability book. For normal fishing operations the worst case is generally shown to be when the vessel is recovering her gear and catch; and.
3. **Control** – Control generally means control of winches in addition to engines and helm. A skipper's ability to respond and the speed of response is enhanced by full and immediate access to these separate controls which ideally should be located on the port and starboard sides of the wheelhouse.

9.0 General Operations

- 9.1 Every effort should be made to avoid an excessive list by ensuring uneven loads are kept to a minimum during recovery of gear.
- 9.2 When hauling on snagged gear, this should ideally be carried out with the warp load acting as low and as close to the vessel's side as is possible and not from the derrick head. The lifting of the un snagged net, well of the bottom, will ensure that the weight distribution is maintained and reduce the possibility of snagging or twisting about the snagged warp.
- 9.3 Generally when gear is stuck fast on an obstruction such as a rock or wreck, the vessel is stopped and hauled back over the obstruction. It is possible that the gear on the free side may be raised to act as a counterbalance to the snagged gear however this is a dangerous operation and capsize may occur if the snagged gear is suddenly released. All crew members should be advised when gear recovery operations commence and when they are completed. During recovery, they should all be on deck with their lifejackets with all watertight and weathertight openings closed.
- 9.4 Great care should be exercised during adverse weather conditions where there is a significant swell or tidal current. These conditions can impose a sudden increase in the loads on the trawl warps and the forces exerted upon the vessel.
- 9.5 Vessels sometimes pick up excess loads of sand, rocks, shells, weed or man-made debris from the sea bed. Without warp-tension monitoring equipment it can be difficult to detect excess loads on the gear. Subtle indications may come from an extra strain on the winch, changes in vessel handling or steering, or from increased engine exhaust temperatures.
- 9.6 For beam trawlers the use of a "weak link" near to the cod end can increase the chances of capsize during trawling or gear recovery operations. The problem will arise if a "weak link" parts in one of the trawls when both trawls are laden and at or near the sea surface. The condition of these weak links is therefore very important and these should be inspected whenever the nets are onboard. Care should be taken when cleaning heavy debris from nets and all crew members should be advised whenever an abnormal load has been trawled. In this situation they should be on deck with their lifejackets. Both trawls should have a freefall quick release.
- 9.7 Experienced skippers apply a range of methods to clear fouled gear of debris however care should be taken when raising heavy loads as this can have serious effect on the stability of the vessel. A vessel's centre of gravity rises proportionally to the magnitude of the weight that is being lifted and the vertical positioning of the derrick head lifting block. Vessels become less stable as the centre of gravity is raised so if there are any doubts about the ability of the vessel to raise a load safely, then the lift should not be attempted. Always remember that with fouled gear that the hazards increase as the vessel size decreases. Always consider the consequences of the practice of steaming out sand from the net. Sand can be steamed out of the net but with the excess weight if gravel is present, the cod end may break causing a distinct weight imbalance.
- 9.8 It is important that all watertight and weathertight doors and hatches are closed and freeing ports are checked free and clear, before the recovery operation takes place. Unless this is done, and if the vessel heels suddenly, it is possible that water may downflood into the hull and this, if unchecked, will invariably lead to capsize and the loss of the vessel.

- 9.9 If snagged gear cannot be freed without hazarding the vessel, the safe course of action is to release the gear, mark it with a buoy and leave it until conditions improve or a more capable vessel can recover it.
- 9.10 All those involved in the catching operation should fully understand their role and be familiar with the equipment that is in use.

10.0 Experience and Training

- 10.1 It is essential that all crew members are aware of the particular risks of beam trawling. Special training by experienced beam trawler fishermen is essential, the crew should have time to become accustomed to the work and equipment and be supervised appropriately during all aspects of the trawling.

11.0 Stability Information

- 11.1 It is recommended that the weights and positions of fishing gear and the lengths of beams and derricks should be recorded in all future revisions of beam trawler stability information. Changes in fishing gear can have significant and detrimental effects on a vessel's stability and unless such changes are investigated their effects on stability will remain unknown.

More Information

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