GUIDANCE BOOKLET
for the
FISHING VESSEL SAFETY FOLDER

All Vessels

Boarding and Leaving the Vessel

Use of ladder or gangway

Is the ladder in good condition and safe to use? Are there hand rails or hand holds at the top to enable persons to safely step on to the ladder? It is the responsibility of the Harbour Authority to ensure that harbour ladders are maintained in good safe order, but it is your duty to report any unsafe facility and to try to ensure that your crewmembers have a safe means of boarding.

Boarding via a dinghy

This can be potentially very dangerous because it is easy to fall into the water and dinghies can be quickly overwhelmed, especially if overloaded. Suitable buoyancy devices must be worn, the dinghy must not be overloaded and a light should be available in the dark to avoid being run down. Oars/paddles must be carried in case the engine fails.

Poor lighting

The lighting in harbour locations should be sufficient to enable persons to see any potential dangers. Request that adequate lighting is installed in the vicinity of ladders.

Obstructions

Obstructions, (netting, rope, wires, boxes, trawl doors, rubbish etc) both on the quay side and on vessels can result in trips and falls.
Remove any unnecessary obstructions from your vessel and co-operate with the Harbour Authority in keeping quay side areas clear adjacent to ladders.

Unprotected openings

Open hatchways, that a person could trip and fall down must always be guarded. Similarly, temporary openings, such as when maintenance work is being done, must be guarded and warnings displayed.

Slippery decks

Decks that are slippery through fish, or spilt oil etc are a safety hazard to all who have to use them. Decks should have a non slip surface that is kept clean to be safe in all circumstances.

Unsafe handrails

Missing handrails or handrails that are liable to break are a major hazard to anyone boarding the vessel, especially anyone who is unfamiliar with the vessel. Replace and repair immediately.

Access across vessels

It is usual for vessels to moor alongside each other and crews and other persons; repairers, officials etc, will need access across your vessel. You must ensure that safe passage is possible and co-operate with other vessels in mooring such that access from vessel to vessel is as easy as possible.

General Working on the Deck of the Vessel

Wet and cold conditions

Crewmembers must be equipped with suitable clothing, boots, and gloves to protect against the wet and cold conditions. In extreme cold, special suits may be required.

Objects which may be dropped onto feet

Numerous items on a fishing vessel may be dropped onto feet crushing toes; for example fish boxes, tools, coils of wire, stones from the net etc. Safety boots, with protective toe caps should be worn by all persons involved in handling gear and fish.

Handling fish and fishing gear

Protection for hands is necessary with many operations on a fishing vessel. Handling fish and wet objects will cause cold hands and ropes and wires can result in rope burns or lacerations. Appropriate gloves are required for persons carrying out handling operations.

Falling overboard

Whilst the likelihood of anyone falling overboard may seem unlikely on a small vessel and very unlikely on a larger vessel, the consequence may well be death and thus the highest 'severity rating' must be given. This means that action must be taken to lessen the risk.

Notes

Handling on Deck

Being struck by the heavy mass of gear swinging as it is lifted

The consequence of being struck by a swinging beam trawl or a dredge assembly would be serious injury or even death. In beam trawling, the beam is normally held by restraining chains when lifted in an inboard position and the size, length and mounting of these chains and the rigging and layout of the vessel should enable the chains to be attached and detached with safety. Crewmembers should be instructed to take great care.

Hands/limbs trapped by gear

Great care is needed to ensure that hands or limbs are not trapped between the vessel structure and the heavy gear. Provision needs to be made to ensure that crewmembers can handle and repair the gear in safety (restraining chains, location cradles etc).

Stability

Vessel stability affected by uneven loading on the derricks

An awareness of stability in all vessel conditions is essential by all persons who may have control of the vessel. Uneven loading on the derricks, especially in a 'light ship' condition, may cause vessel capsize.

Gear fouled on seabed

In attempting to free gear, it is very easy to apply an uneven loading on the vessel. The quick release devices should be utilised to transfer the load from the derricks to the side of the vessel thus reducing the overturning moment.

Quick release devices will not work

The quick release devices to transfer the warp from the end of the derrick to the side of the vessel must be maintained in good working order.

Bag Lifting/Dredge Discharge

Reaching outboard to hook into lifting becket

Consider ways to avoid the need for a crewmember to lean over the rail to hook in the bag lift wire or rope. Perhaps, reposition the pulley block or adjust rope lengths to give a little more lift from the 'lazy decky'. If it is not possible to avoid the need to lean over the rail, a safety harness should be worn by the crewmember involved.

Struck by swinging 'bag' or dredge

On those vessels where the cod end/dredge can swing across deck areas as it is being lifted, a means of restraining it must be installed.

Winch operator cannot see the crew handling gear

Many vessels use the warping heads of the main winch to discharge the catch and it is essential that a clear system of signals is established with the person at the winch to ensure the safety of the crewmembers.

Excessive loads (gear full of stones or mud)

Unexpectedly heavy loads in the cod end/dredges can endanger crewmembers and vessel. High loads can cause lifting derricks to break injuring crewmembers and attempting to lift a heavy mass on board may result in loss of vessel stability risking capsize. Extreme care is to be taken and crewmembers instructed to stand clear when high loads are experienced. The net should be cut open to clear it if the load is too great.

Mechanised handling systems

Only crewmembers who have been trained in the correct and safe use of such machines should be allowed to operate them. Ensure that all the manufacturers guards and safeguards are fitted and working.

On a small vessel, where the risk may be greater, actions such as, increasing rail heights, (where appropriate), wearing safety harnesses and the wearing of a suitable buoyancy aid should be taken. On a larger vessel, it may be reasonable to ensure that crewmembers wear a suitable buoyancy device when working on deck and especially when working in exposed positions.
Crewmembers must be warned about the dangers of sitting on rails, climbing or reaching over and also warned about the very real risk of falling overboard whilst relieving themselves at the rail.

Sudden capsize or loss of vessel

Most deaths occur when vessels are lost and although this is very unlikely the consequences of multiple deaths mean that it is a risk requiring action if it is reasonable and sensible to do so.
Sudden loss of the vessel gives no time for crewmembers to retrieve and put on lifejackets and hence it is desirable that crewmembers are encouraged to wear a suitable buoyancy aid when working on deck. The well being and stability of the vessel are of course the first considerations.

Manual handling of fishing gear and the catch

All manual handling operations are a potential hazard because back injuries can easily result. Ensure that all crewmembers are instructed in correct lifting techniques and do not try to manually lift very heavy loads.

Noise

Noise on the working deck area of a vessel is a serious hazard not only from the potential to damage hearing but also though misheard instructions resulting in accidents. If a high level of noise exists, measures must be taken to reduce it or to protect against it.

Shooting and Hauling Operations

Clothing snagged in fishing gear

The wearing of unsuitable clothes with buttons that may snag in netting and loose cuffs or scarves that may become entangled makes it likely that one could be snagged in the fishing gear or equipment, suffering major injuries or death. Similarly, the wearing of rings, watches and long hair is a hazard that must be considered.
Crewmembers should wear suitable clothing with no obvious snag points, remove or cover jewellery and tie up long hair when shooting and hauling fishing gear.

Unsafe deck area

A deck area that has many obstructions i.e. spare netting, ropes and wires laid across it, fish boxes, oil drums, unnecessary stanchions etc is a dangerous area in which to have to work. It is likely that trips and falls will occur with harmful consequences. Decks should be kept as clear as possible and have non slip surfaces. Gear should be properly stowed away from areas of activity.

Working above deck level

On many vessels there are occasions when crewmembers ‘step up’ to reach to perform a task. Typically, the crew stand on a spare net across the stern when shooting away the trawl or they ‘step up’ at the gantry to chain up the trawl door. In such situations they are above the protection of the vessel’s rails and are likely to fall overboard. Increased rail heights, the wearing of a safety harness or at least the wearing of a suitable buoyancy device are measures that can be taken to reduce the risk.

Poor onboard communications

Accidents often occur through misunderstandings, i.e. the winch is started when the man handling the trawl door is not ready. To avoid such accidents it is essential that communication between the wheelhouse, the winch operator and the men on deck are very clear. Hand signals should be used and men should stand where they can be seen to show that they are clear of danger. Shouts should only be used in an emergency.

Inadequate lighting

Poor lighting on the vessel can result in ‘harmful’ consequences because dangers are not seen. Good lighting is essential, including lighting to illuminate gear emerging from the sea.

Gear parting

Wires, ropes, shackles, fittings etc will eventually wear or corrode and may fail when high loads occur. The consequences of ‘gear parting’ can be serious injuries or even fatalities and hence it is essential that ‘gear’ is well maintained and correctly sized.

Inexperience in a new fishing method
When vessels decide to change to an alternative fishing method, it is essential that all involved are aware of any dangers. Use someone with experience of the method to train crewmembers and allow time for everyone to become accustomed before attempting a full fishing trip.

Handling the Catch

Unsafe deck area
Trips, slips and falls whilst handling boxes/baskets of fish around a slippery deck in rough sea conditions are likely to result in injuries. Consider the situation on your vessel. Remove any unnecessary obstructions such as spare gear or redundant stanchions. Provide non slip deck coatings or coverings. Make sure that baskets can be securely stood with sufficient space for the crew to walk. Where warps etc have to be stepped over, build a guard which is strong enough to rest a basket on as the man steps over. Install hand rails where suitable to help the crew move around safely and a rail, or some form of back support, where crewmembers stand gutting, will help them balance against vessel motion.

Limbs or clothing caught in conveyors or elevators
With mechanised systems consider what potential accidents could occur and the safeguards necessary to prevent them. Is there an emergency stop for the conveyor/elevator and is it in a suitable position? Do crewmembers have to pass close by equipment and would they be in danger if they stumbled?

Gutting machines and mechanised fish processing equipment
Only crewmembers that have been trained in the correct and safe use of such machines should be allowed to operate them. Ensure that all the manufacturers guards and safeguards are fitted and working. The equipment must be isolated from the power supply when being cleaned.

Dipping prawns in antioxidant
In some persons, the antioxidant which is used to dip prawns can produce an allergic reaction causing heart damage or asthma attacks. Crewmembers should be warned of the risk and those who are susceptible to asthma attacks must not be involved with the prawn dipping operation.

All precautions given by the chemical supplier are to be followed.

Stowing the Catch (Fishroom)

Unsafe fishroom floor and working area
A fishroom floor that is slippery has obstructions, or missing gratings, can easily cause a person to fall with serious consequences. Equally, if the area is restricted by badly stowed boxes, or bins which crewmembers to have to climb over, or to lift full boxes of fish over, there will be a risk of falls and injuries.

Inadequate lighting
Without adequate lighting a person may fail to see a danger and fall or trip. Good uniform lighting is necessary in all areas of the fishroom.

Basket of fish dropped from the hatch
Typically, full baskets of fish will be lowered down from the hatch using a pulley block. Basket hooks can slip or the basket may fall from the edge of the hatch before the hooks have been attached. A falling basket weighing 25-40 kg would cause serious injuries if it struck anyone working below. Hence, crewmembers should be instructed to stand clear when fish is being lowered down. An alternative to lowering baskets, is to 'chute' the fish down a large tube. This eliminates the risk to persons below.

Unsafe fishroom ladder
Check on the safety of access into your fishroom. Make sure that the ladder is in good condition and cannot slip. Ensure that there are convenient handholds to enable persons to step on and off the ladder safely at the top.

Lone working
It is preferable not to work alone down the fishroom but if it is necessary, ensure that the wheelhouse is informed. Regular checks need to be made that the person is alright.

Beam Trawling & Dredging

Winch and Warp Dangers

Dragged into warping head
Using warping head can be very dangerous as a riding turn can quickly pull the operator into the drum. Loose clothing must not be worn, the operator must be able to stand in a comfortable safe position free from obstructions and only experienced crewmembers aware of the possible danger should use a warping head. Ideally, the use of warping heads should be avoided and a dedicated winch installed to do the tasks.

Unguarded moving wires/ropes
Many vessels have unguarded warp runs and the consequences of anyone falling on to the moving warp could result in serious injuries. Whilst it can be argued that the crewmembers are not in the vicinity of the warps when the winches are in operation, there are exceptions. Guards or barriers should be installed in all areas where it is conceivable that a person could make contact with the moving warps. Failing this, a system prohibiting persons being in the vicinity when the winches are in operation should be instigated.

Unguarded winches and machinery
Winches and similar equipment with exposed moving parts are often sited in locations where persons may have to pass close by. The consequences of anyone falling onto such equipment could be serious injury or possibly death and hence, if it is possible that contact with moving parts can occur guards or barriers must be installed.

Worn components
Rollers and sheaves can suffer rapid wear and if badly grooved will damage the warps. The brakes, clutches, bearings, controls and structure of winches must be maintained in good order as failure could result in serious injuries to crewmembers.

Winch operator cannot see the operations on deck
On some vessels, the winch operator does not have a clear view of the operations that the winch is carrying out and crewmembers are at risk if the winch is operated before they are ready. If reasonably possible, changes should be made to give the operator a clear view otherwise a clear system of signals needs to be established. Visual signals are preferred as shouts can be misunderstood.

Inadequate emergency stop facilities
In an emergency it may be essential to be able to quickly stop the winch from a position other than the normal control position. You should consider the layout and operations on your vessel and assess how likely it is that serious injury or vessel damage will occur. If appropriate, provision should be made to give emergency stop facilities.

Inability to jettison gear/dredges
In an emergency situation or when snagged on the seabed, the safety of the vessel may require the gear to be jettisoned. Strong tides with big waves could cause a vessel, held by its gear, to capsize or founder with disastrous consequences. Hence, even though it may be highly unlikely to occur, provision needs to be made to be able to quickly and safely jettison the trawl gear/dredges.

Winch has Dog Clutches
Dog clutches cannot disengage when under load and hence, it may not be possible to rapidly pay out warp in an emergency. When towing, the winch barrels should be declutched and held on the breaks. Ideally for beam trawling and dredging where overbalancing loads can quickly occur, winches should have friction clutches and full wheelhouse control.

Fittings and Rigging

Worn shackles and rigging
Corrosion and wear and tear can rapidly reduce the capacity of shackles, rigging and fittings to safely withstand loads. Whilst in normal circumstances, no problems occur, an unexpected high load may result in items breaking with the result that crewmembers are injured or killed.

Hooks flying off at fish stripper

On some vessels the use of a fish stripper can result in the occasional hook jamming and then flying off randomly when the snood breaks. If this a problem on your vessel, face masks or safety glasses should be worn by the crewmembers at risk.

Mechanised lining systems

For the safety of all involved, it is essential that crewmembers have had full training in the use of the equipment and are aware of the hazards and precautions to be taken.

Jigging/Mackerel with lures

Entanglement with lures/hooks

Lines with lures or hooks passing across the deck or over the gunwale have obvious dangers for crewmembers. Where guards or barriers are practical, they should be installed. Power systems must have effective stop controls within easy reach of the operator.

Fouled Gear/Gear Mending

Leaning over the rail to reach

When things go wrong, such as the gear becoming fouled or damaged, people are inclined to take risks to resolve the problems. Leaning over the rail to reach or, climbing up are such risks and crewmembers should take sensible precautions, such as wearing a safety harness. Safety harnesses should be readily available on the vessel.

Gear suddenly frees

When gear becomes 'hung up' crewmembers are often stood on the netting as they work to free it. If it should suddenly become free it is liable to take them overboard with it.
Crewmembers could avoid standing on gear which potentially could suddenly 'run out'. Securing lashings are to be rigged before attempts are made to free gear.

Frayed wires

Damaged gear will often involve handling and repairing frayed wire rope. Tough leather gloves are necessary to protect hands.

Angle grinders

In the urgency to repair gear quickly people are tempted to overlook safety precautions. Angle grinders should only be used by persons wearing suitable gloves and safety goggles and great care should be taken to avoid an electric shock. A safety circuit breaker should always be used. Keep safety equipment in a place where it is readily available and will not be damaged.

Lifting of heavy items

Replacing damaged gear may involve lifting heavy items and it is tempting to simply use a convenient length of rope to sling items from. The rope may not have sufficient strength, or it may slip and for safe lifting, suitably rated slings should be used. Equip the vessel with a range of tested slings and keep these in a convenient place for all your lifting requirements.

Inadequate tools

Worn, seized up or inappropriate tools can be a big hindrance and result in accidents. A range of appropriate tools, in good condition should be kept in a suitable container where they can be conveniently reached to repair gear.

Wheelhouse Operations

Falling asleep on watch

The consequence of the watchkeeper falling asleep could be disastrous and hence it is essential that safeguards are in place. Persons taking the watch should have had adequate rest and there should be coffee or tea making facilities available to keep them refreshed. Unless trip lengths are only a few hours, vessels should have 'watch alarms' installed to reduce the risk. Specify a type which will eventually sound in the cabin if response does not occur in the wheelhouse.

Leaving the wheelhouse unattended

Skippers should ensure that an adequate lookout is kept at all times and that the vessel can be controlled to respond to any situation. Watchkeepers should not leave the wheelhouse unattended. A thermos flask, prepared prior to the watch will remove the temptation to visit the galley to make a drink.

Inexperience

Vessels have run aground and lives have been lost through inexperienced persons being left in charge in the wheelhouse. Skippers must ensure that the experience and training of watchkeepers is sufficient for all possibilities.

Galley

Inexperienced persons
Cooking with the hazards of hot stoves, boiling water and hot fat, also coupled with vessel motion can have harmful consequences for inexperienced persons. Ensure that instruction and training is provided for any inexperienced person who is to work in the galley in order to make them aware of the dangers.

Cluttered working area
Galley areas are often quite small and in many vessels, the access into the wheelhouse is through the galley. Boxes and sea gear in the walkway can easily result in someone tripping and perhaps knocking the person cooking at the stove with serious consequences. Make proper provision for the safe stowage of stores and other items

Slippery floors
Ensure that floors in galley areas have a non slip surface and are kept clean. Severe scalds or burns could easily result from a person slipping whilst carrying boiling pans etc.

Lack of hygiene
Without adequate hygiene precautions in the storage, preparation and serving of food there is a risk of food poisoning. All who are involved with food must be aware of and take suitable hygiene precautions.

The condition of LPG (Calor gas) equipment
LPG (Calor Gas) is very hazardous and being heavier than air it will accumulate at the bottom of the vessel if a leak should occur. Any spark or naked flame will cause a major explosion. Check on the condition of LPG equipment and on the alarm system which must be fitted. Instruct all on board of the need to turn off the gas bottles when not in use.

Accommodation

Cluttered passageways and floor areas
Walkways and floor spaces that are restricted with boxes of stores, sea gear and clothing can cause trips, and falls. In an emergency situation, cluttered floors and passageways could have very serious consequences. Provide proper storage so that floors and walkways can be kept free of obstructions.

Inadequate lighting
Lighting needs to be appropriate for the circumstances. Dimmed/full lighting should be possible in the cabin area with individual lighting and curtains for each bunk. Inadequate lighting does not enable people to see obstructions and hence injuries may occur. Repair any defective lights and check to make sure that the lighting is sufficient in all areas. Make sure that emergency lighting will work.

Floor access openings
Falling down a floor access opening could result in serious injuries. Consider the access openings on your vessel and if necessary install additional handrails or barriers to remove the risk of persons falling down the opening. Make sure that convenient handholds are at the top of stairs or ladders.

Noise
Exposure to excessive noise will cause hearing damage dependent on the level of noise and how long you are exposed to it. Even exposure for short periods, several times a day, will total up to a time period long enough to cause damage. It is important that crewmembers are not exposed to noise when resting and therefore a high level of noise in the cabin or mess area could have harmful consequences for the longer term hearing of crewmembers. Assess the noise levels on your vessel and if necessary fit sound insulation and other noise reducing measures.

Ventilation and temperature
Without adequate ventilation the crewmembers' health will be at risk from stuffy, damp conditions. The temperature in the accommodation areas of the vessel should be at an appropriate level. Quite often, areas can be excessively hot due to exhaust ducts passing through. Ensure that clean fresh air is supplied to all living space areas and insulate exhaust ducts to reduce excessive heat levels.

Badly maintained heating
The consequence of toxic fumes or a fire as a result of faulty heating systems would be extremely harmful. Check all heaters on the vessel to ensure that they are safe.

Netting

Crewmember snagged in netting when shooting

Monofilament netting snags very easily on the least obstruction and hence it is essential that great care is taken when shooting. Crewmembers should wear sea gear which is free of snag points. Rings, watches or jewellery etc should not be worn.
A knife should be kept to hand to be able to cut away the netting and the bins from which the nets are being shot and must be secure to ensure that they do not fall over with vessel motion.

Net bins can fill with water

Net bins will have a serious affect on vessel stability if they are allowed to fill with substantial quantities of water and this is especially so on small vessels. Bins must have an adequate means of drainage and covers to prevent waves or spray filling the bins in heavy weather conditions.

Potting

Crewmember tangled in back rope when shooting

This is the major hazard in potting and will result in serious injury or the person being dragged overboard and drowned. You should consider the risk on your vessel and take appropriate measures, such as; limiting the number of pots per string, sensible shooting speeds, rope barriers and ensuring that all crewmembers are aware of the dangers.

Out of sequence pot

The consequences of a pot unknowingly being out of sequence could result in crewmembers being seriously injured or dragged overboard. Any pot placed out of sequence for repair should be clearly marked and pots must be securely stacked to ensure that they cannot fall and their sequence be confused.

Pot snagged by rope

The consequences of a loop or rope snagging on a pot and pulling it across the deck, striking a crewmember could be extremely harmful. Ensure that the pots are stacked such that they are clear of the loops of back rope. A barrier between the pots and rope may be ideal.

Repeated bending and lifting when handling pots

Working fleets of pots involves a great deal of manual handling and therefore it is important that the pots are emptied and baited at a good working height that avoids the need for repeated bending and twisting. Ensure that the davit block allows the pot to be hauled high enough to be easily swung onto the gunwale without the crewman having to exert a lot of effort whilst reaching over.

Vessel overloaded with pots

When taking pots/creels to and from grounds it is very tempting to try to carry as many fleets as possible. This may seriously overload the vessel with the result that it lacks sufficient stability causing it to capsize.
Installing overhanging platforms and stacking pots/creels to a high level to be able to work a large number of pots/creels on a small vessel is likely to overload it and stability must be checked.

Longlining

Crewmember snagged by hook when shooting

Shooting longlines can be quite dangerous and the consequences of a crewmember being snagged by a hook could lead to a nasty wound or even death if dragged overboard. The method of shooting should avoid crewmen handling the hooks and a shooting fairlead or a shooting stick used to lift the lines over the rail. A knife must always be to hand to cut the line in an emergency**.**

Netting/Potting/Longlining/Jigging

Shooting General

Crewmember tangled in rope or struck by pot/creel

Is there is a risk of crewmembers becoming entangled in the rope or pots/creels when shooting? The speed of shooting will have a big effect on the safety of the crew especially if each pot/creel has to be lifted in sequence onto the rail.

Reducing the shooting speed slightly will ease the pressure on the crew lessening the chance of a mistake being made. Can the risk be reduced by improving the working arrangement such as by using a detachable pot system, installing a rope barrier or by shooting off the deck via ramp or opening stern gate?

Struck by anchor/weights/dahns

How likely is it that someone could be injured when carrying or attaching anchors/weights or dahns? Are they stored where the crewmen can take them easily without the risk of tripping or falling?

No provision for emergency action

Should anyone become entangled in the gear, fall or be dragged overboard, it is essential that all onboard know how to react. An action plan needs to be agreed. a knife or axe should be readily available.

Hauling General

Failure to stop hauler

Particularly when hauling long anchors tows there is a temptation to leave the hauler control to attend to other tasks. Sometimes, the person returns just too late to stop the hauler as the anchor hits the davit block, swings over it and strikes the person on the head. The hauler control should never be left when using a rail roller as the pots will come straight over the roller and strike crewmembers

Control faulty or badly located

Any faulty control is a serious hazard that should be attended to immediately. A badly located control that is difficult for the operator to reach may be a hazard in an emergency. Rotary control valves that give a progressive start and stop, with speed control, are preferable for smooth control. The spool valves that just provide stop/start and speed adjustment is via a screw down flow control valve result in jerky operation.

No emergency stop facilities

Consider the layout of the vessel and consider if an additional stop facility, other than the normal control is desirable to ensure safety if there is a situation in which the hauler operator cannot operate the control.

Worn hauler sheaves

Worn hauler sheaves will cause the hauler to slip and may allow the rope to pull back out unexpectedly with possible injuries to crewmembers.

Damaged or missing ejector knife

The ejector knife is an essential component to ensure that having passed around the hauler sheaves, the rope is ejected clear of the ‘V’ section. To use the hauler with a damaged or missing knife piece can be very dangerous as the rope may be carried around the hauler pulling the person handling the gear after the hauler into it

Guarding of hauling equipment

Look carefully at the installation on your vessel and if there is any possibility of a person's fingers or clothing becoming trapped in moving components, guards should be fitted if at all possible. If guards are not practical, other safeguards, such as emergency stops must be in place.

Restricted or jammed escape routes

In an emergency situation, escape routes are vital and the consequence of crewmembers being unable to escape may result in deaths. Check that the escape routes are not blocked with stores and gear; hatchways will easily open and are not jammed with paint or seized through corrosion. Ensure that escape routes are practical to use: can all persons reach and can everyone fit through the opening?

Smoking in accommodation

Smoking can be a nuisance and a health hazard to non-smokers and in the long term could be considered to have potentially harmful consequences. Ensure that smoking does not adversely affect non- smokers on the vessel.

Insufficient sanitary facilities

Inadequate facilities for the personal hygiene of the crew could result in harmful consequences. A vessel simply doing day trips will require the minimum of facilities but vessels that are at sea for a few days must have a toilet and suitable washing facilities.

Engine Room

Poor Access

There is the potential for persons to fall down or to trip over obstructions with serious consequences when gaining access to the engine room. Ladders should be in good condition with adequate handholds at the top. Oil drums lashed to the foot of the ladder are a typical hazard.

Unsafe walkways

Walkways with damaged/missing or slippery floor plates and inadequate handrails are a hazard which could result in a serious accident. Floor plates must be safe and secure and handrails should be present to ensure that anyone who stumbles does not fall onto dangerous machinery.

Inadequate lighting

Failure to see dangers because the lighting is inadequate is a hazard that is common in engine rooms. Good lighting is necessary, not only in the main walkway areas, but also in areas behind machinery or low down where good vision is required for maintenance work. A light switch should be easily found at the top of the ladder to give safe access.

Head level obstructions

Obstructions at head level are sometimes unavoidable in engine rooms but they are liable to result in serious consequences. Lighting should be sufficient to ensure that they are clearly visible. Warning signs should be positioned and protection such as padding installed on sharp corners etc.

Unguarded machinery and drives

Unguarded machinery is a hazard with the potential that someone could be seriously injured. Belt drives are often used and these are very dangerous if unguarded or fitted with inadequate guards. Drives are often left unguarded because they are out of the way, below the deck plates or away from where persons will stand and walk. This may seem reasonable in normal circumstances but in situations when things have gone wrong, deck plates are lifted and people climb in to gain access and are at risk from the unguarded drive.

Exposed hot surfaces

Hot pipes and surfaces are an obvious danger, not only those that people have to regularly pass near but also those who may be a danger when routine maintenance work is being performed. Lag exposed hot pipes and ensure that manifold heat shields are in place and in good condition.

Noise

Engine room noise is fairly widely understood to be a hazard to hearing and generally people do wear ear defenders. At levels of 100 dbA or more, typical of most engine rooms, hearing damage can occur in minutes and hence you must ensure that all persons wear ear defenders in the engine room.

Leaking fuel or oil

Fires are major risks in engine rooms and are often caused by leaking fuel or oil coming into contact with hot surfaces. Regular checks need to be made.

Batteries
Batteries have the potential to explode if the hydrogen and oxygen gas given off is not properly vented away. Smoking or any naked flame/spark could ignite an explosion. Check that the battery compartment is well ventilated, maintain the batteries in good order and ensure that no spare gear or tools are allowed to accumulate on top of them. Smoking or naked flames must be prohibited near batteries.

Electricity
Various electrical systems may now be used on fishing vessels ranging from 24 V DC to 240 V AC and 3 phase systems. Such high power systems are potentially dangerous and proper precautions must be taken. The consequences of poor maintenance, incompetent repairs or alterations could be extremely harmful. Even 24 V DC systems are potentially dangerous, as short circuits can cause fires and give a fatal shock in wet conditions. Ensure that electrical fittings are in good order and that fuses or circuit breakers are correctly rated. Only competent people should be allowed to work on electrical systems.

Compressed air
Compressed air has lots of potential energy which may result in an explosion if receivers or storage bottles are damaged. A blast of compressed air from a pipe can cause injury and crewmembers must be instructed never to misuse air lines or compressed air equipment.

Hydraulics
Aside from the fire risk from hydraulic oil, the hazards which hydraulic systems pose are generally of system failure which results in the vessel being incapacitated i.e. the failure of the winch or net drum etc.
Ensure that hydraulic systems are well maintained. Cleanliness is essential. If working on equipment with rams, make sure that it cannot fall when fittings are released

Corroded pipes, loose fittings, worn seals
Flooding is the cause of a high proportion of vessel losses and many more vessels are only saved by pumps being air lifted to them. Corroded pipework, fittings coming loose, valves and seals failing all can result in the vessel rapidly filling with water. Regularly check and maintain all sea water systems.

Bilge level alarms not fitted or working
Early detection of any flooding situation is essential in order to have any chance of stopping it. Bilge level alarms should be fitted and tested regularly to ensure that they are working.

Sea inlet valves seized or cannot reach them
In many instances, it would have been possible to stop the flooding by simply closing the seacocks, but this was not possible because they were seized or the flooding was too deep to allow anyone to reach them.
Ensure that seacocks are well maintained and consider fitting extension handles so that they can be operated even if they are under water.

Inexperience/lack of training
The person in charge of the operation and maintenance of the engine and other equipment on the vessel must have sufficient experience/training to be able to ensure the safe working of all essential items. Lack of experience and knowledge could result in very serious consequences.

New equipment or systems
New items of equipment, or new systems e.g. a refrigeration system may be installed on a vessel. Without proper training and instruction the person operating or maintaining such equipment may place themselves, or the vessel in danger through lack of knowledge. Ensure that training and instruction is given when having new equipment installed.

Lone Working
One man looking after the engineering requirements is normal on most fishing vessels. He will visit the engine room at various times to make checks, operate pumps, transfer fuel etc. and will be alone in the engine room. Should an accident occur no one would be aware. A system of reporting to the wheelhouse should be used when persons are working along.

Inadequate emergency stops
In an emergency, it may be essential to be able to quickly stop the winch from a position other than the normal control position. You should consider the layout and operations on your vessel and assess how likely it is that serious injury or vessel damage will occur. If appropriate, provision should be made to give emergency stop facilities.

Inability to jettison trawl gear
In an emergency situation or when snagged on the seabed, the safety of the vessel may require the trawl gear to be jettisoned. Strong tides with big waves may cause a vessel held by its gear, to capsize or founder, with disastrous consequences. Hence, even though it may be highly unlikely to occur, provision needs to be made to be able to quickly and safely jettison the trawl gear.

Seining - Rope Reels

Falling onto rotating reel
Whilst rope reels are often sited away from areas where the crew will be working, occasionally, persons will have to pass close by to pick up fish boxes, gear from the store etc. Tripping or being thrown by vessel motion, on to the reel may result in serious injuries or even death and hence the reel must be adequately guarded on all sides.

Reels cannot be seen from the control position
Rope reels are often sited under the shelterdeck but controlled from the wheelhouse and hence cannot be directly viewed from the control position. When connecting or disconnecting ropes, the crewmember involved may be at risk of being dragged into the reel if a mis-understanding should occur. A system of viewing (CCTV) and other safeguards such as additional local control for each reel or emergency stops should be in place.

Bag Lifting

Reaching outboard to hook in the lifting becket
Consider ways to avoid the need for a crewmember to lean over the rail to hook in the bag lift wire or rope. Perhaps, reposition the pulley block or adjust rope lengths to give a little more lift from the 'lazy decky'. If it is not possible to avoid the need to lean over the rail, a safety harness should be worn by the crewmember involved.

Crewmembers in exposed positions
Climbing through the bag hatch or standing outboard of the handrails should be prohibited. If it is essential that persons have to be in exposed positions safety harnesses are to be worn.

Struck by swinging 'bag'
On those vessels where the cod end can swing across deck areas as it is being lifted, a means of restraining it must be installed.

Winch operator cannot see the crew handling the cod end
Ideally, a dedicated bag lift winch should be installed with the controls in a position where the operator can clearly see all operations. However, many vessels use the warping heads of the main winch to lift the cod ends and it is essential that a clear system of signals is established with the person at the winch to ensure the safety of the crewmembers handling the cod end.

Excessive loads in the net
Unexpectedly heavy loads in the cod end can endanger crewmembers and vessel. High loads can cause lifting derricks to break injuring crewmembers and attempting to lift a heavy mass on board may result in loss of vessel stability risking capsize. Extreme care is to be taken and crewmembers instructed to stand clear when high loads are experienced. The net should be cut open to clear it if the load is too great.

Independent Links and Towing Chains

Sweeping sideways or suddenly becoming tight

Operations which involve transferring load do have potential hazards such as wires or chains sweeping sideways or suddenly becoming tight. This can be quite unexpected perhaps when the vessel slews round or if a stopper chain should slip.

Crewmembers should be warned before the vessel is manoeuvred and instructed to stand clear.

Pair Trawling Warp Transfer

Crewmember struck by weighted end of heaving line

Throwing a line across between two vessels does present the risk of someone being struck by the weighted end. Such an occurrence may be unlikely but the consequences could be harmful and hence you should take action if sensibly possible e.g. ensure that the weight is padded, a warning is to be given before throwing the line.

Slip hook flying back as tension is released

Releasing the slip hook needs to be carried out with great care as the unit can spring back with considerable force as the warp is released. A bar should be used to knock open the slip hook and the task should only be performed by a person who is aware of the hazards.

Winch and Warp Dangers

Dragged into warping head

Using warping head can be very dangerous as a riding turn can quickly pull the operator into the drum. Loose clothing must not be worn, the operator must be able to stand in a comfortable safe position free from obstructions and only experienced crewmembers aware of the possible danger should use a warping head. Ideally, the use of warping heads should be avoided and a dedicated winch installed to do the tasks.

Unguarded moving rope /wires

Many vessels have unguarded warp runs, quite often over the shelterdeck top. The consequences of anyone falling on to the moving warp could result in serious injuries. Whilst it can be argued that the crewmembers are not on the shelterdeck top when the winches are in operation, there are exceptions. Guards or barriers should be installed in all areas where it is conceivable that a person could make contact with the moving warps. Failing this, a system prohibiting persons being in the vicinity i.e. being on the shelterdeck top when the winches are in operation should be instigated.

Unguarded winches and machinery

Winches and similar equipment with exposed moving parts are often sited in locations where persons may have to pass close by. The consequences of anyone falling onto such equipment could be serious injury or possibly death and, if it is possible that contact with moving parts can occur, guards or barriers must be installed.

Worn components

Rollers and sheaves can suffer rapid wear and if badly grooved will damage the warps. The brakes, clutches, bearings, controls and structure of winches must be maintained in good order as failure could result in serious injuries to crewmembers.

Winch operator cannot see the operations on deck

On many vessels, the winch operator does not have a clear view of the operations that the winch is carrying out and crewmembers are at risk if the winch is operated before they are ready. If reasonably possible, changes should be made to give the operator a clear view particularly of the trawl door handling operations, otherwise a clear system of signals needs to be established. Visual signals are preferred as shouts can be misunderstood.

Landing Operations

Unsafe fishroom atmosphere

Fishrooms are enclosed spaces with no ventilation installed and as such should be treated with caution, especially if the hatch has been closed for sometime. A full fishroom will have little air space left and bacterial action on the fish can consume oxygen. Hydrogen sulphide gas can be generated by bacterial action in the bilges. Lack of oxygen or toxic gases could result in deaths and hence precautions should be taken. Open the fishroom hatches to ventilate prior to landing. Make all persons aware of possible dangers. In situations of real concern, take oxygen readings to ensure that it is safe to enter and follow procedures for enclosed spaces.

Working areas on vessel and quayside

Slips, trips and falls are quite likely to occur when vessels are landing. People moving between vessel and quayside, boxes and pallets lying around and ice scattered both on the vessel and quay. Most falls would probably be minor but a fall between vessel and quay, or a fall down on to the deck could result in death. Organise your landing operation to minimise the risks of slips and falls. Keep a clear working space, remove spilt ice and stack boxes out of the way.

Landing gear

Being struck by a swinging, fully loaded fish box, or even just the box hooks, may result in serious injuries. All persons involved must be warned to be aware of the danger and consideration should be given to the wearing of hard hats.

Fish/boxes falling from the hatch

Crewmembers, down the fishroom, are to be instructed to stand clear when boxes are being lifted up through the hatchway as the stack can easily catch on the edge causing it to tip and fish to fall down. If a box should break, releasing the lifting hook, full boxes could fall with very serious consequences.

Use of warping head for landing

The use of warping heads brings with it well known dangers of riding turns causing the operator to be dragged into the rotating head, suffering serious injuries or even death. Landing large numbers of fish boxes can be very repetitive and with lots of activity on the quayside, it can be very easy to be distracted and make a mistake. Many vessels have now fitted dedicated landing winches that are safe and have the advantage that the control can be sited where the operator can see both down the fishroom and on to the quayside. If a warping head is to be used, crewmembers must be warned of the dangers.

Members of the public

Where vessels are operating from seaside resorts the general public will probably be a hazard that you should be concerned about. If you are landing on to a public area, you should ensure that you do not place the public at risk. You may be liable for the consequences of any accident. Erect barriers and notices to protect and warn the public of the hazards of landing.

Maintenance Work

Contractors

Maintenance work may well be carried out by contractors whose workers may not appreciate the dangers of working in the environment of a fishing vessel. Equally, the work which the contractors carry out may pose risks to your crewmembers. It is essential that co-operation exists between all involved to ensure health and safety. You could be held liable for an accident to your employees or to a member of the public, if a contractor that you have employed fails to ensure health and safety. Ensure that any contractors have a health and safety policy and that their workers do take adequate safety precautions. Advise the contractors of hazards which may be present on your vessel.

Working over the side and at heights

When persons are working over the side of the vessel or in exposed positions, safety harnesses should be worn. If safety harness are not worn for a valid reason, suitable lifejackets of at least 100 Newton's buoyancy must be worn.

Provide safety harnesses for situations where your crewmembers are working at heights. Ensure that they use them and ensure that any contractor provides safety harnesses for their staff.

Grinding, chipping and wire brushing

Those operations not only present a risk to the person doing the task, but also to persons close by. Safety goggles are needed to protect eyes, gloves to protect hands and a face mask to protect lungs from dust.

Fumes from paints and other processes

Paints and other items, such as adhesives, give off fumes that can be dangerous. Unless they are being applied in an open and well ventilated area, suitable respirators should be worn by all persons in the vicinity.

Lifting operations

Supply certified slings for use when lifting and assess the weight to be lifted to ensure that it is within the capability of the equipment being used. Lift items by proper lifting points, or properly attach and secure slings. Do not attach lifting equipment to the vessel structure without being sure that it has adequate strength.

Welding and burning work

If your crewmembers are to carry out any welding and burning work, you must ensure that they have received sufficient training and have the experience to be aware of the dangers and the correct precautions. Make sure that anyone in the vicinity is protected from danger e.g. welding flashes, hot metal droplets, etc before work commences. Any combustible materials should be removed and the area cleared in order that all hot droplets can be seen to have extinguished. Fire extinguishers should be close to hand.

Electrical Tools and Equipment

All tools must be in a safe condition, with effective controls, guards and other safety features correctly in place. Extension cables must be in good condition and carefully rigged to avoid damage or persons tripping over them. Safety circuit breakers should be used to give protection.

Chemicals

If chemicals are being used for cleaning or other treatments you should ensure that the safety information supplied with the chemical is studied and all precautions followed.

Refrigerant gases

Refrigerant gases should be treated with caution as a leakage may displace the oxygen from the atmosphere rendering persons unconscious. In liquid form, they will burn the skin. Only trained experienced people should be permitted to maintain refrigeration systems.

Liquid propane gas (LPG)

Leakage of LPG is liable to result in an explosion and fire. Being heavier than air, the gas will collect in the bottom of the vessel and hence may be undetected. Aside from the danger of explosion, the gas may also suffocate. Great care is needed with LPG equipment and portable cylinders should be stored in a well ventilated area. Ensure that all persons are aware of the dangers.

Enclosed spaces may have an unsafe atmosphere

All enclosed spaces must be treated with caution.

Ensure adequate ventilation when operations such as painting are taking place and make sure that all persons involved wear a suitable respirator. Allow sufficient time after painting for thorough ventilation of fumes before allowing free access.

In enclosed spaces, such as tanks that have held fuel or oil, do not enter until checks have been made to ensure that it is free of explosive gases and has a safe atmosphere.
Do not enter any space that has been sealed without first making checks that it is safe.
Ensure that crewmembers are aware of the dangers and the procedures to follow. A permit to work system should be adopted as appropriate

Trawling/Pair Trawling/Seining

Net Drums

Crewmembers handling the net cannot be seen from the control position

A common problem with many installations of net drums is that the control position is forward of the net drum whilst the crewmen handling the sweeps and net are aft and are hidden from the view of the operator. The consequence of a person being dragged into the drum or overboard could be serious injury or death and hence provision needs to be made to safeguard the crewmen. Relocation of the control may be possible or emergency stops could be installed on the aft side of the net drum. Mirrors may be useful in giving an adequate view from the control position as would a close circuit television system. As a minimum, a clear system of communication must be established between the control operator and the crew handling the net.

Control defective or exposed to accidental operation

The consequence of a defective control or the control being accidentally activated could be very serious. Ensure that the control is in good working order and is protected from being snagged by netting or being accidentally knocked.

Powerblocks

Lack of visibility from the control position

On some vessels the powerblock operator cannot see the crewmembers who are working at the stern, handling the net into the powerblock. The consequences of operation or movement of the block before the crewmen are clear could be very serious. Try to make provision for the operator to be able to see the crewmembers or arrange a clear system of communication.

Worn controls

The controls for the powerblock crane need to be in good condition to be able to give the precise control necessary. Worn or damaged controls could result in erratic movement injuring crewmembers.
Controls should be clearly labelled.

Heavy items dropping over the powerblock

Crewmembers handling the net or simply in the area beneath the powerblock are in danger from stones or even fish falling down onto them. Even though objects may be contained in the netting, injuries are possible to the crew. Careful lookout should be kept for possible objects that may place crewmembers at risk.

Trawl Doors

Struck or trapped by swinging door

Handling the door chains requires great care and serious injuries can result when mistakes are made. Often the crewmember has to step up to be able to reach and should he slip, his hand or arm may be trapped between the door and the gantry. A proper non-slip step needs to be installed. Possibly, the door may be lifted up too high and swing inboard, striking the man. A safety rail or barrier should be fitted to prevent this.

Winch man unable to see door handling

The safety of the man handling the door chains depends upon the winch operator who should have a good view of the door handling operation. If this cannot be achieved a clear system of signals must be in place and the man at the door must be positively observed to be clear of danger before operation of the winch.