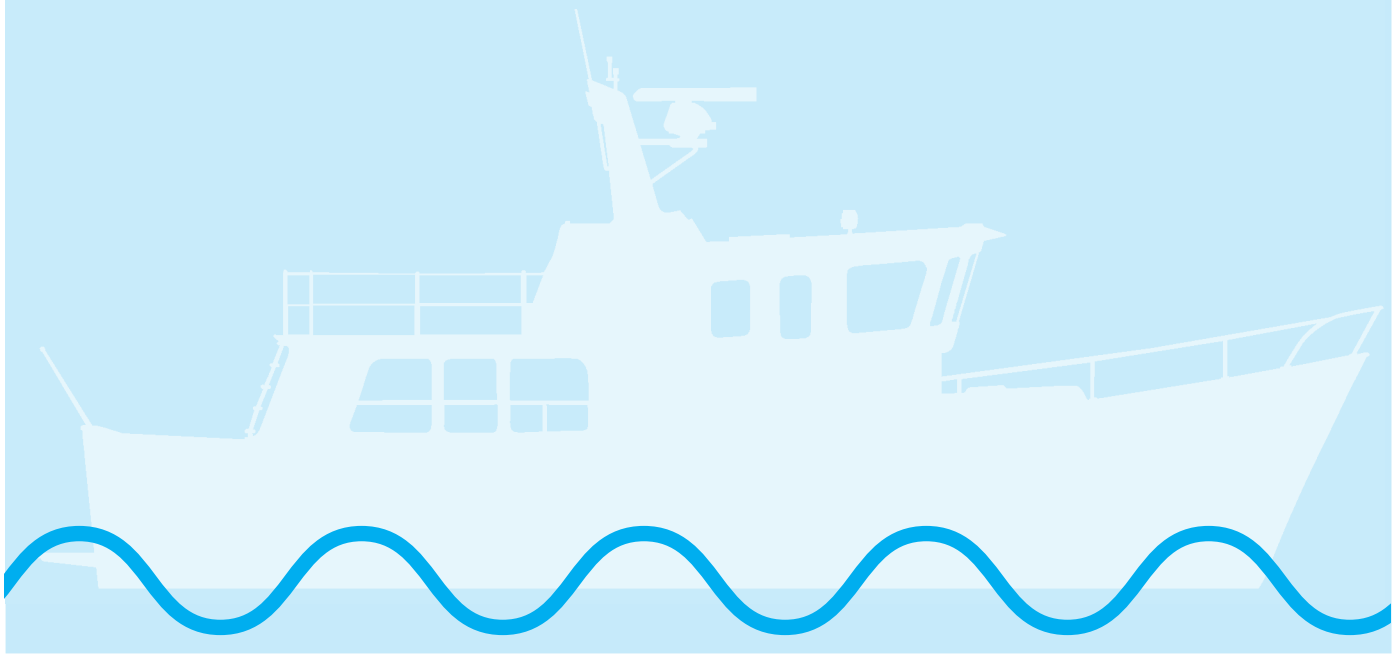
HSA

An tÚdarás Sláinte agus Sábháilteachta
Health and Safety Authority

Managing Health and Safety in Fishing

Our vision:

A country where worker safety, health and welfare and the safe management of chemicals are central to successful enterprise



ACKNOWLEDGMENTS

The contribution of the staff of Board Iascaigh Mhara (BIM) – the Irish Sea Fisheries Board – and all fishermen who participated in the development of this guidance document, is gratefully acknowledged.

ABBREVIATIONS

BIM	Bord Iascaigh Mhara
ComReg	Commission for Communications Regulation
CRS	Coastal Radio Station
DTTAS	Department of Transport, Tourism and Sport
DTTAS COP	Department of Transport, Tourism and Sport's Code of Practice for the Design, Construction, Equipment and Operation of Small Fishing Vessels of Less Than 15m in Length Overall
EPIRB	Emergency Position Indicating Radio Beacon
EU	European Union
HRU	Hydrostatic Release Unit
HSA	Health and Safety Authority
ILO	International Labour Organization
IMA	Irish Maritime Administration
IRCG	Irish Coast Guard
LSA	Life Saving Appliances
MCB	Miniature Circuit Breaker
MOB	Man Overboard
MSO	Marine Survey Office
PFD	Personal Flotation Device
PLB	Personal Locator Beacon
RCD	Residual Current Device
SART	Search And Rescue Transponder
SDS	Safety Data Sheet
SWL	Safe Working Load
VHF	Very High Frequency

CONTENTS

Published in 2014 by the Health and Safety Authority, The Metropolitan Building, James Joyce Street, Dublin 1.

1. About This Guidance Document

Internationally the sea fishing sector is recognised worldwide as the most hazardous industry to work in, accounting for significantly higher rates of fatal and/or serious accidents when compared to other sectors such as agriculture or construction. Sadly, each year within the industry the same accidents tend to reoccur often arising from fatigue, poor decision making, taking chances or not following basic precautions such as heeding weather forecasts, wearing Personal Flotation Devices or guarding and maintaining machinery. It is difficult to measure the degree of suffering and hardship that the victims of accidents and their families endure.

The aim of this guidance document is to help improve standards of safety and health in the commercial sea/marine fishing sector. In an effort to aid prevention of accidents and ill-health among fishermen, this guidance document looks at the role of the Safety Statement in managing health and safety, the most common causes of death, injury and ill-health and gives basic information to help illuminate or control the risks involved in fishing. The guidance is designed to complement the Department of Transport, Tourism and Sport's ***Code of Practice for the Design, Construction, Equipment and Operation of Small Fishing Vessels of Less Than 15m Length Overall*** (referred to hereafter as the DTTAS COP) which is available to download at www.dttas.ie.

Although this guidance document is principally aimed at small fishing boats (i.e. vessels less than 15 metres including single handed operations on small open and decked boats), parts of the guidance will be of interest and relevance to those who work on or operate larger fishing vessels.

The guidance by its nature cannot be definitive for every circumstance which may arise. Persons are advised to seek competent advice where necessary to supplement the information provided. This advice may be sought for example from marine safety specialists, marine surveyors, naval architects, Bord Iascaigh Mhara, Health and Safety Authority Inspectors, medical or other specialists.

2. Who's Who in Fishing Safety

The **Health and Safety Authority (HSA)** is the national body in Ireland with responsibility for securing safety, health and welfare in all places of work, including fishing boats. It is a state-sponsored body, established under the Safety, Health and Welfare at Work Act 1989 (now replaced by the 2005 Act) and reports to the Department of Jobs, Enterprise and Innovation.

The Authority's inspectors carry out the law enforcement function in relation to occupational health and safety, advising people of their responsibilities and inspecting workplaces. Health and Safety Authority inspectors have the power to enter any place of work at any reasonable time for the purpose of inspection, accident or complaint investigation. It is an offence to obstruct an inspector in the course of their duty. For further information see www.hsa.ie.

Bord Iascaigh Mhara (BIM) is the State agency with responsibility for developing the Irish Sea Fishing and Aquaculture industries and provides training in safety at sea and in a range of navigation and safety skills. For information on courses see www.bim.ie.

The Irish Maritime Administration (IMA) is a division of the Department of Transport, Tourism and Sport (DTTAS) and was previously known as the Maritime Safety Directorate. The IMA consists of the Marine Survey Office (MSO), the Irish Coast Guard (IRCG), the Maritime Safety Policy Division, the Maritime Transport Division and the Maritime Services Division.

The IMA is responsible for maritime safety and emergency response and enforces the Maritime Safety Acts and the Merchant Shipping Acts. The IMA also issue Marine Notices (which you can sign up for) many of which are important to fishing safety. A comprehensive list of maritime safety legislation and Marine Notices is available on their website at www.dttas.ie.

Within the IMA, the MSO fulfils the role of the Maritime Transport Safety Regulator for Ireland and monitors and enforces maritime legislation. The remit of the MSO covers the safety, security, pollution prevention and living and working conditions on board all types of vessels including fishing vessels. The MSO is responsible for the implementation of all national and international legislation in relation to the safety of vessels, including the surveys necessary for the certification of those vessels.

The Irish Coast Guard is Ireland's nationwide maritime emergency organisation. Both the Irish Coast Guard and the **Royal National Lifeboat Institution (RNLI)** provide on call, 24-hour search and rescue services, using helicopter and lifeboats respectively. Both organisations also provide safety advice and information. For further information see www.rnli.org.

The **Marine Casualty Investigation Board (MCIB)** is an independent body which carries out investigations into marine casualties that take place in Irish waters or involve Irish registered vessels including fishing vessels. The main purpose of the investigations is to establish the cause(s) of a marine casualty with a view to making recommendations to the Minister for Transport for the avoidance of similar marine casualties. For further information see www.mcib.ie.

Together the Irish Maritime Administration and the Health and Safety Authority enforce the Irish legislation with regard to safety and health on board fishing boats.

3. Occupational Health and Safety Legislation

The objective of health and safety legislation and the work of the Health and Safety Authority is to reduce human suffering and loss due to deaths, accidents and ill-health at work. The benefits from complying with the law far outweigh the effort involved in doing so.

The principal legislation enforced by the HSA and applicable to the fishing sector includes:

- the Safety, Health and Welfare at Work Act 2005;
- the Safety, Health and Welfare at Work (General Application) Regulations 2007 as amended; and
- the Safety, Health and Welfare at Work (Fishing Vessels) Regulations 1999.

Safety, Health and Welfare at Work Act 2005

The Safety, Health and Welfare at Work Act 2005 (the 2005 Act) is the primary national legislation on safety, health and welfare at work. It applies to employers, employees in all employments and the self-employed and to all places of work including fishing boats. It provides the general framework for health and safety management, risk identification and prevention and contains provisions for securing and improving safety, health and welfare for all workers.

Under the 2005 Act, employers and those who control workplaces to any extent, must identify hazards in the workplaces under their control and assess the risks presented by those hazards i.e. they must conduct a Risk Assessment.

In addition, employers must prepare a written programme to safeguard the safety and health of employees and other people who might be at the workplace. This written programme is known as a Safety Statement and must be based on the hazards identified and the Risk Assessment.

Duties of Employers

When a fisherman/skipper employs people, the 2005 Act imposes general duties of care to ensure, so far as is ***reasonably practicable***, the safety, health and welfare of all employees. These duties include providing:

- a safe place of work;
- safe working procedures;
- safe plant, equipment and machinery for use on the fishing boat;
- information, instruction and training for all who work on the fishing boat;
- personal protective equipment;
- plans to deal with emergencies;
- a safe system for storing, handling and using articles and substances; and
- adequate toilet and washing facilities.

Duties of the Self-Employed

Self-employed fishermen are considered to be employers under the 2005 Act and are required to apply the duties of an employer to themselves.

Requirement to Take '*Reasonably Practicable*' Measures

Many of the employer's (or self-employed person's) requirements under the 2005 Act are to do so far as is '*reasonably practicable*'.
For example, to manage work activities, provide a safe place of work and systems of work.
In essence the employer must do what seems reasonable to do to ensure safety. This means balancing the degree of risk against the time, trouble, cost and physical difficulty of taking measures to avoid the risk. So if a risk is high, a lot must be done to eliminate or control it.

Duties of Employees

Workers on a fishing boat also have duties of care. They must:

- take care of themselves and others working with them;
- cooperate with their employer to enable them to comply with the law;
- make proper use of all machinery, tools, substances, etc. and any personal protective equipment provided by their employer; and
- report to their employer any hazards of which they become aware.

All employees have an obligation to work in a safe manner. Workers on fishing boats must not misuse or interfere with anything provided for safety. They must also put to good use any training and instruction which they have been given. Workers have the right to consult with their employer on matters of safety and health on the boat.

Under the 2005 Act, a share fisherman (a fisherman who is remunerated by a share in the catch or the profits or the gross earnings of the working of the vessel) is considered to be an employee of the owner or skipper of the fishing vessel, as the case may be.

Duties to Non-Employees

Fishermen must conduct their operations in such a manner that other people are not put at risk (i.e. visitors and contractors brought onto the fishing boat).

Enforcement

Where a serious breach of the law is observed, an inspector may serve an improvement notice on the employer, giving a specified timescale to put things right. Where the breach is an imminent danger to the safety and health of the fisherman or other people, the inspector may serve a prohibition notice requiring work to stop immediately. However, in the majority of cases, inspectors give verbal or written advice.

Penalties

Non-compliance with the law or with notices may lead to prosecution. The maximum fine in the District Court is €5,000 and/or up to twelve months in jail. In the case of conviction on indictment, a penalty of up to €3 million and/or up to two years in jail may be applied.

Safety, Health and Welfare at Work (General Application Regulations) 2007 as Amended

These regulations address a number of specific hazards found in workplaces such as:

- Manual Handling
- Work at Height
- Electricity
- Noise
- Vibration
- Work Equipment (including Lifting Equipment)

The regulations are all based on a Risk Assessment approach to managing the hazard. The regulations also cover provisions for first aid, pregnant workers, safety signs and personal protective equipment.

Safety, Health and Welfare at Work (Fishing Vessels) Regulations 1999

These regulations are extensive and cover all areas relating to safety on board, such as the duties and responsibility for all on board, vessel construction, accommodation, stability, fire fighting, electrics and so on. The regulations set out the roles of the IMA and the HSA who jointly enforce these regulations.

In addition, other occupational health and safety regulations such as the chemical agent's regulations may apply to your work activities. For further information see www.hsa.ie/eng/legislation. Full legislation can be viewed at www.irishstatutebook.ie.

4. Causes of Injury and Ill-health in Fishing

There is no harsher natural environment than the sea. There are very few workplaces where people are required to work machinery on a platform that is often wet and continually moving. These factors make it one of the most physically demanding and dangerous occupations. Sadly, the accident statistics support this fact.

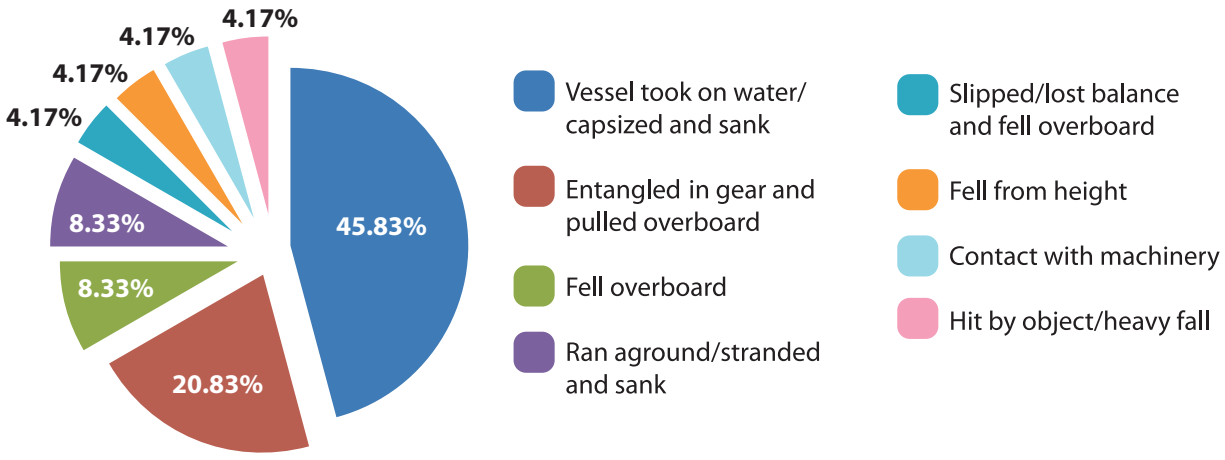
High Accident Rate

The sea fishing sector in Ireland has a workforce of approximately 5,000 people directly employed and has a disproportionately high fatality and accident rate. On average there are about four or five fatal accidents annually in this sector.

Due to the nature of the sector, multiple fatalities can occur when a boat is lost at sea. This gives a very high rate of fatal accidents which compares very poorly with other high risk sectors such as agriculture and construction. Taking a ten year period in Ireland in which the average fatal accident rate for the general working population was 2.2 per 100,000 employed, over the same ten year period the fatal accident rate for fishing was 88 per 100,000 employed, making fishing as an occupation 40 times more hazardous than general working.

Main Causes of Fatalities

An analysis of 24 Irish fatal fishing incidents which occurred over an 11 year period and resulted in 42 fishermen losing their lives, showed that the main cause of the incidents was the vessel taking on water or capsizing and then sinking. The next most common cause of fatalities was entanglement in nets or other gear and being dragged overboard. In many cases these fishermen were wearing no form of Personal Flotation Device (PFD). This made their recovery from the water slow and difficult for those involved with the search and rescue operations and in some cases impossible. In a quarter of the cases, no bodies were ever recovered.



Main Causes of Fatalities

The main causes of death were drowning, hypothermia and injuries from impact or contact with the vessel or machinery. Potting was the most dangerous work activity accounting for just over a third of the fatalities.

Some of the main contributing factors to these fatalities were:

- fatigue;
- modification of the vessel and related stability issues;
- overloading of the vessel affecting stability;
- slips;
- unsafe systems of work; and
- weather and environmental conditions.

Other factors included lack of edge protection, inappropriate footwear, lack of safety training, disconnected bilge alarms and failure to wear PFDs.

Main Causes of Non-Fatal Injuries

International data shows that the main type of non-fatal injuries suffered by fishermen are bruises, cuts, puncture wounds, sprains and strains, fractures and amputations. Many fishermen also suffer health issues such as bad backs from improper manual handling of loads or a slip injury, noise induced hearing loss and infections.

Putting practical measures in place to prevent accidents and ill health is the key to improving the safety and health record in fishing. Research indicates a relationship between the number of fatal and non-fatal injuries. However, reporting of non-fatal injuries is almost non-existent from the Irish fishing sector.

- For information on the reporting of accidents and incidents see section 22.
- For further information and statistics on fishing incidents and ill health, see www.hsa.ie/fishing.

Don't become a statistic

Drowning and hypothermia are the most common causes of work related death to fishermen

Always wear a Personal Flotation Device or lifejacket and be safe

5. Managing Safety, Health and Welfare in Fishing

Safety, health and welfare at work require active management and commitment from owners, employers and all crewmembers. When this is undertaken the risk of death, injury and ill health to persons at work can be greatly reduced. The basis for managing health and safety is the written Safety Statement.

A Safety Statement is a written programme to safeguard the safety and health of people at work and others who may be affected by your work activities.

The Safety Statement

Preparing, implementing and keeping your Safety Statement up to date are important steps in managing health and safety. The Safety Statement is based on the principal that safety can be managed because most accidents and ill health are foreseeable and can usually be prevented. The Safety Statement should be specific to your boat and fishing operations. Use it to plan and control everything that is done in the workplace so that the risk of accidents is greatly reduced.

By law, the Safety Statement must be based on the risk assessment of hazards in the workplace. As part of the written health and safety programme, the control measures and resources necessary to reduce the risks to an acceptable level must be documented. Emergency plans (see sections 8 and 9) and where applicable, employees' duties, the responsibilities of key personnel and how employees are consulted in relation to safety, health and welfare should be recorded.

Risk Assessment

Central to the management of health and safety is the ability to carry out Risk Assessments and by law; the Safety Statement must be based on a Risk Assessment.

A Risk Assessment is a careful examination of what, in the workplace, could cause harm to people so that preventive measures can be taken. The aim is to reduce the risk of injury and illness associated with work.

There are three steps to carrying out a Risk Assessment.

Step 1: Identify the Hazards.

A hazard is anything with the potential to cause harm in terms of human injury or ill health, such as work materials, equipment, work methods/practices, poor work design or exposure to harmful agents such as chemicals, noise or vibration.

When identifying hazards in your workplace, look at the work and consider the hazard types (see sections 6 and 7), the fishing method you are engaged in (see sections 16 – 19), the fishing gear, tools and equipment in use, your work methods and work design and the specifics of your boat.

Take account of any accidents or incidents and think about non-routine work tasks such as maintenance or gear mending as well as routine tasks. Consult with the crew and other fishermen; they may have noticed things that are not obvious to you.

Step 2: Assess the Risk - Decide who Might be Harmed and how.

Think about the hazards you have identified. Consider who could be harmed (this may include vulnerable workers – see section 12, members of the public or contractors) and how this might happen. How severe could the injury or ill health be?

A risk is the likelihood that somebody will be harmed by the hazard and how serious the harm might be. When considering risk, you should also consider the number of people at risk from the hazard.

Step 3: Put Control Measures in Place.

Once you have identified the hazards, you can then decide how you will manage each one to reduce the risk i.e. what control measures are required.

- Identify what action is already being taken to prevent harm i.e. your existing control measures.
- Decide whether this is enough.
- If it is not, decide what more should be done.

Control measures or controls are the precautions taken to ensure a hazard will not injure someone.

If you have identified a hazard and you decide it poses a risk, you need to act to prevent that hazard causing an accident or harm. Draw up an action plan and always start with the hazards that have the greatest risk.

When you are devising additional safety control measures to deal with hazards, consider them in the following order of priority:

(i) Elimination

Elimination means completely removing the hazard.

Example: Where there is a risk of a back injury from hauling pots by hand inboard and over the side rail, eliminate this hazard by installing a roller. The roller has the advantage over the davit block in that the manual effort of lifting the pots/creels inboard has been eliminated and therefore levels of fatigue reduced. The pots/creels pass over the roller directly onto the table and only have to be lifted once for stacking ready for shooting. All such alterations to your boat must be approved by the MSO.

(ii) Reduction

If a hazard cannot be eliminated the next best option is to reduce the risk(s) to the lowest level possible.

Example: Where there are risks of crew tripping, slipping and falling while working on deck because of materials underfoot. Reduce the risks to the lowest level possible by having good housekeeping practices on board, where everything is kept in place, hoses are rolled up and tidy, the deck is washed down and kept free of dirt, oils, slime and other materials.

Remember when eliminating or reducing the hazard or risk you must ensure that the actions you take do not introduce another hazard or risk.

(iii) Provide Information, Instruction, Training and Supervision

Where a hazard cannot be eliminated or easily reduced ensure that every person on your fishing boat has all the information and skills necessary to do their job safely. Ensure that they know and understand the safe systems of work.

A system of work is a set of procedures according to which work must be carried out. Safe systems of work are required where hazards cannot be eliminated and some risk still exists. Safe systems of work can reduce or eliminate exposure to hazards but they must be strictly followed.

For further guidance on information, instruction, training and supervision, see section 10.

(iv) Provide and use Personal Protective Equipment (PPE) or Clothing

PPE should only be used as a last resort after all other ways of eliminating or reducing the hazard have been fully considered. This is because PPE only protects the individual and it is better to put control measures in place that protect everyone. PPE should meet a suitable standard and be maintained and stored correctly. Examples include hard hats, gloves and ear muffs, etc. For further information on PPE, see section 13.

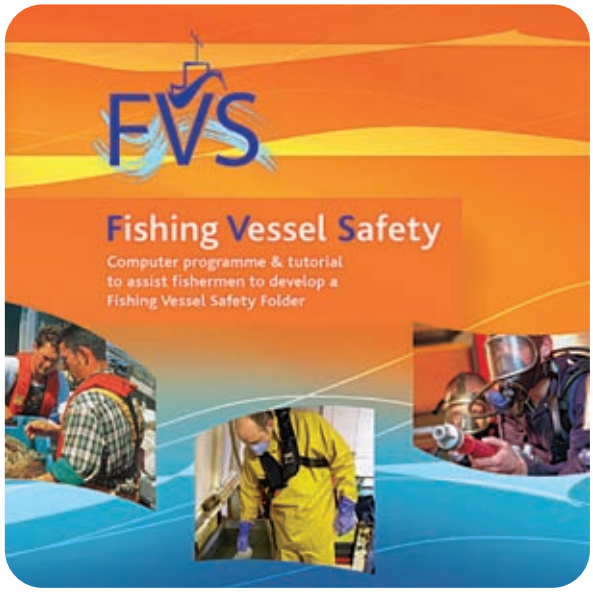
In some cases a combination of control measures may be required to minimise the risk to the lowest level. Ensure that you document your findings – this is your written Risk Assessment. Once your control measures are in place you should check them on a regular basis to ensure that they are still working.

Controlling dangers at work is no different to tackling any other task. You need to recognise the problem (what can cause harm – hazard identification), decide who might be hurt and how seriously (assess the risk), decide what needs to be done to prevent harm and put the solutions in place (implement control measures).

The Safety Statement and relevant Risk Assessments must be brought to the attention of all employees or people who may be affected by your work activities so that they are aware of the risks and any controls in place. You must provide people with this information in a manner and form that they will understand. The Safety Statement must be reviewed regularly and at least, once a year. Risk Assessments should be reviewed and updated if they are no longer valid, if an injury or illness has occurred due to a particular hazard or if conditions change, for example, if new equipment or systems of work are introduced.

An Inspector of the Health and Safety Authority may request to see and examine your Safety Statement and Risk Assessment. The Inspector will also examine how the safety, health and welfare measures are being implemented in your workplace. If the Safety Statement or Risk Assessment is found to be inadequate, the Inspector can direct you to revise it within 30 days in accordance with section 64 of the Safety, Health and Welfare at Work Act 2005.

- To assist you in preparing your Safety Statement see the Fishing Vessel Safety Statement Template available in the publications section of our website at www.hsa.ie.
- For larger vessels, a computer based programme and tutorial is available from BIM to assist you in preparing a Fishing Vessel Safety Folder.



The next sections in this document outline common fishing hazards, hazards associated with specific fishing techniques/methods and work activities and provide practical guidance to help you secure safety, health and welfare in your work activities.

6. Common Hazards

Within fishing, hazards can be broadly classified into four categories.

1. Biological hazards, for example, risk of infection from handling dead fish or slime on live fish or an injury from fish bones, scales or fish hooks becoming infected.
2. Chemical hazards, for example exposure to poorly vented engine exhaust gases.
3. Physical hazards, for example, exposure to unguarded machinery.
4. Health (including psychosocial) hazards, for example, work related stress (see section 7).

This section addresses some of the main hazards which apply to fishing regardless of the type of fishing technique used. It provides good practice on how to manage the dangers and reduce the risks.

Biological Hazards

Fishermen can be particularly prone to infections of the hands and fingers. Injuries caused by fish bones, scales or stingers can often end up infected. Cuts may become contaminated by bacteria from fish slime and guts or from pieces of metal. Exposure to biological agents may also occur if carrying out cleaning activities on sewage holding systems. The wearing of protective gloves, good hand hygiene and proper first aid procedures can all help minimise the risk of infection. Vaccination against tetanus should be considered, especially if there is a risk of exposure to rusty metal.

Chemical Hazards

A variety of chemicals and hazardous substances, in both liquid and powder form may be stored on board and used for cleaning or servicing the boat. In addition, certain chemicals may be generated such as fumes during welding or dust during sanding or grinding which may affect your health.

> Any chemical, in either gas, liquid or solid form, that has the potential to cause harm is referred to as a hazardous or dangerous chemical.

In order for a chemical to be hazardous to a person's health, it must either be in contact with or enter the body (e.g. contact with the skin, eyes or through inhalation or ingestion). Prevent exposure to all hazardous chemicals, as one exposure may sensitise or cause an allergic reaction. Chemicals can also have an adverse effect on the environment if they are used, stored or disposed of incorrectly.

Chemical products in use on fishing boats include:

- petrol;
- diesel;
- liquefied petroleum gas;
- paint and thinners;
- hydraulic, engine and gearbox oils,
- grease and degreasers;
- cleaners;

- chemicals to treat melanosis or blackspot in prawns; and
- others specific to the boat.

It is important to know what chemical to use and what the associated risks are when handling chemicals. All hazardous chemicals available on the market are supplied with a Safety Data Sheet (SDS) which provides all the relevant information about the product, such as the chemical makeup, the correct handling and storage, fire prevention and first aid responses.

General Directions for Use

- Consider do you really need to use a chemical at all. If so use the safest chemical possible.
- Wear the correct PPE as recommended by the SDS or the label. This may include goggles, gloves, respirators, aprons, over suits and boots.
- Read the label carefully, follow the instructions for use and know the classification type from the hazard pictogram.
- Do not mix chemicals as it may cause an unexpected bad reaction.
- Keep the SDS nearby and be familiar with the safety and emergency instructions.
- Ensure cleaning is completed before finishing a job.
- Wash hands before eating or drinking after handling or using a chemical.

Storage

- Limit the quantities of chemicals you store.
- Store chemicals in a suitable container, ideally the original container.
- Never put a chemical into an unmarked container. If you decant a chemical from the original container, clearly label the new container including the product name and any relevant hazard pictogram.
- Store in a dry, secure and well-ventilated area and keep in good order. Ensure that the lids are secure so the contents cannot mix or spill when moved.
- Never store chemicals in used food or drink bottles as accidental ingestion can occur and can cause serious internal injuries.
- Do not store incompatible chemicals together, for example oxidizing chemicals such as bleach should be kept separate from flammable chemicals such as petrol. Check the SDS for storage details.
- Gas bottles must be stored out on deck in a well-ventilated area. If stored in a box or locker, the box or locker must have a drain pipe leading over the boat's side. A gas detector must be installed in the galley and regularly tested.

Chemicals First Aid Response

- Read and be familiar with the first aid instructions about the specific chemical being used, which is available on the SDS.
- Keep the first aid box replenished and the first aid manual in a safe location.
- Know how to make a medical Pan Pan radio call should medical assistance be required.

Batteries and Battery Maintenance

Batteries must be treated with respect. Always use suitable PPE (eye protection, gloves and apron) when working with batteries – they can, and do, EXPLODE and have been the cause of loss of LIFE

- Main engine starting batteries and batteries for emergency backup power are normally lead/acid batteries. That is they are made up of lead plates in a sulphuric acid solution (the electrolyte).
- Many lead/acid batteries are sealed units and require no maintenance. Those batteries that are not sealed need to be carefully maintained.

Maintenance

Well maintained batteries will last much longer and save you money in the long term.

- Do a monthly condition survey of the batteries.
- Check the electrolyte level and if below the top of the plates top up with distilled water.
- Check the voltage.
- Use a hydrometer to check the level of the cells.
- Ensure the terminals are clean and all connections are tight.
- Do not allow naked flames or sparks near batteries when charging as they emit hydrogen gas which is highly explosive.

Further information on chemical safety is available at www.hsa.ie/chemicals.

Physical Hazards

Access and Egress

Boarding a vessel is an important starting point for occupational safety. The 2005 Act, and in particular sections 8 and 15, require the provision and maintenance of safe means of access to and egress from all places of work. Many accidents and on occasions fatalities occur when crewmembers are boarding or leaving the boat. Alcohol may have been a factor in some instances, but the arrangements for the boarding of small boats are often quite dangerous.

Getting on or off a boat can be difficult and awkward at times. The size of the boat and the change in level of the tide can make it difficult to use a boarding ladder or gangway, particularly on small boats. Sometimes the crew have to step onto the boat directly from the pier. Always give consideration to safe access to and from the boat.

- Do not consume alcohol or drugs and attempt to board the boat.
- Always try to board when other crewmembers are around. Always use three points of contact (e.g. 2 hands, 1 foot) when using a ladder.
- Harbour wall ladders are the responsibility of the local Harbour Authority and if the ladders are not in good condition, with hand holds at the top, complaints should be made to the local Harbour Authority. Avoid using ladders in poor condition.
- Harbour lighting may be poor or non-existent. Requests should be made to the Harbour Authority to improve it but, in the meantime, a torch should be used to ensure that trip hazards are seen.
- It is usual for small boats to moor alongside each other and crewmembers, contractors and others will need to be able to cross boats safely. Ensure that your boat is safe to cross, the deck is not slippery, hand rails are in place and secure and there is an obstruction free route.
- When the fishing boat is moored on a swinging mooring, access is normally by a small tender or dinghy. A dinghy can easily be overwhelmed especially if loaded with supplies and equipment for a fishing trip. A suitable Personal Flotation Device must be worn by all persons and the dinghy must not be overloaded.

Oars/paddles must be carried in case the engine fails and a light should be available to avoid being run down by another vessel in the dark.

Accidents such as slips, trips or falls can happen when transferring from the tender to the boat. Provision should be made to tie the tender at a safe access point alongside the boat, where the rail or bulwark height is lower, or an access step or boarding ladder is available. Remember when transferring, keep a firm hold. Any equipment needed to be transferred should be handed over or collected at the pier wall after bringing the boat alongside.

When berthing:

- the skipper should choose a berth where the catch can be safely landed and then if necessary move the boat to another berth where safe access is available;
- adjust the mooring lines so that the boat lies parallel to the berth and is restricted from moving or swinging too much;
- rig and secure a portable ladder or gangway to the boat; and
- assemble handrails and steps to use on the inside of the deck bulwark.

Never take unnecessary risks

For information on escape routes see section 9.

Electrical Equipment and Systems

Accidents with electricity can cause deaths or injuries, from shocks or burns. Many fires are also caused by poor electrical standards.

Most small boats normally operate using direct current (DC) electrical systems while some boats also operate using alternating current (AC) systems produced from either a transmotor or generator. AC systems operate at 220-230 volts and present a risk of electrocution. Ensure the following:

- All electrical panel covers and finger guards are in place and cable glands are sealed.
- The switchboard is clearly marked.
- Wiring is marine type, securely clipped avoiding hot surfaces, and not under strain.
- No bare conductors or damaged insulation.
- Cables are sized correctly and capable of carrying current to prevent overheating.
- Only correct plugs and fitted sockets are used and that the appropriate IP rating, dependent on where used on board, is employed.

- Low voltage 110 volt hand tools and portable lighting is used.
- Correct fuses are fitted to protect against overload. If Miniature Circuit Breaker (MCB) trip type is used, make sure the mechanism does not corrode and become unable to trip. Operate the breaker switch periodically.
- Only qualified people are used to install and maintain electrical systems. Get a competent marine electrician to carry out maintenance work and check over the systems.
- Any earth faults that show up stray current causing corrosion or fire risk are cleared. Most marine electrical systems are insulated earth with earth indication lights or meters.
- All electric motors are marine type.
- Batteries are secure in a vented battery box to prevent an atmosphere of explosive gases accumulating. Avoid danger of acid splash if topping up batteries by wearing goggles and gloves and avoid danger of short circuit if tools cross terminals (see Chemical Hazards).
- Portable electrical tools are inspected before use for signs of damage to the insulation or signs of overheating.
- Electrical equipment is in perfect condition and faults are rectified immediately.
- The power is disconnected before cleaning or servicing an electrical appliance.

Electrical Safety During Maintenance Work

Minor maintenance work is often carried out by crewmembers while in the harbour. When carrying out basic maintenance or repairs on board there is always a need to use portable electrical equipment such as a hand drill, grinder, portable lighting or other power tools. There are increased risks when using any electrical equipment near water or in inclement weather.

Ensure the following:

- Where possible always use 110 volt powered hand tools such as, a hammer drill, angle grinder etc.
- A 110 volt step-down transformer can be used between a 220-230 volt supply and the hand tool.
- Always connect to the power source via a Residual Current Device (RCD) to protect the operator.
- Always test the RCD before use to ensure it trips the power supply by pressing the test button.
- Inspect the tool before use for evidence of damage to the casing, the cable or the plug top. If there is any damage, do not use the tool. Arrange for its repair or replacement by a competent electrician or service agent.
- Ensure all guards are in place and controls and safety devices are working correctly.
- Regularly check, inspect and test portable electrical equipment.

Using Electric Extension Leads

- Do not run leads across the deck or over door jams. If possible, hook them above head height.
- Do not close hatches or doors on leads.
- Run leads around the edge of the deck or compartment.
- Protect leads by running them between two pieces of timber.
- Never pull leads out by the cable.
- If the plug or sockets are damaged, have them repaired or replaced by an electrician.

Falls From Height

Falls from height are a significant cause of death and injury and even falls from a relatively low level can be serious or even fatal. Examples of work where falls may occur include working alongside an open hatch or opening or working in close proximity to, or supported from the boat's side. In order to prevent accident or injury, keep hatchways closed when not in use. When open, stow the cover out of the working area and if necessary, cordon or rope off the opening to prevent someone falling in. Open hatchways on boats that a person could trip and fall down must be guarded. Similarly, temporary openings, such as when maintenance work is being carried out, must be guarded. When working aloft appropriate safety equipment should be used such as a safety line or harness, but remember you must be trained to use these (see section 13).

Falls Overboard

Most falls overboard occur due to falling over the side whilst reaching for a net or line or filling buckets, getting entangled in/falling on fishing gear and being drawn overboard or when laying out the gear. In heavy seas, there is a danger of being swept overboard.

Accident prevention is the primary aim of safety at work and so every effort must be made to prevent crewmembers from going over the side or going out with the fishing gear. The following advice should be carefully considered.

- Fishermen should always be on guard against falling overboard, as it is a major cause of fatalities among fishermen. The pitch and roll, especially of small boats, the sudden accelerations, the conducting of complex fishing operations on open decks, the frequent hauling in and letting out of gear over the side or stern, the working on wet slippery decks which are sometimes covered with fish slime, and the inevitable fatigue which results from long working hours, are conditions contributing to accidental falls overboard.
- In bad weather, fishing boats are most vulnerable to shipping water when they are getting under way after lying broadside on to the waves, especially if the new course is into the wind. Crewmembers working on deck are conditioned to the broadside roll and the sudden change in motion can catch them unawares, as the boat is at this point most liable to ship seawater, the crew is vulnerable. In these conditions it is advisable to warn the crew of a change of course or an increase in speed.

- There should be an efficient warning and communication system between the skipper and the crew.
- As a safety precaution, lifelines should be set up as appropriate to the size of the boat.
- When crewmembers are required to work in an exposed place or to reach over the side in heavy weather, in addition to wearing a lifejacket (see section 13) they should be secured by a lifeline or safety belt.
- During bad weather, or when the boat rolls heavily, the speed of the boat should be reduced for working on deck.
- In heavy weather, fishermen should not work alone on deck without a watch in the wheelhouse being aware of their location.

For further information, see slips, trips and falls in this section and also section 8 on emergency plans.

Immersion in cold water rapidly incapacitates and can kill

Flooding

Flooding can occur due to a collision, structural failure, damaged fittings or being swamped.

On decked boats, flooding can occur at any time while at sea or in the harbour. Flooding is preventable, but if not prevented, in most cases it can be controlled. If discovered early, leaking pipes can be isolated and the flooding controlled by pumping out the affected space. Flooding can also be rapid and late discovery leaves no time to treat the cause. An efficient bilge alarm can be critical in providing early warning of flooding. To reduce the risk of flooding or the damage from flooding, always maintain watertight compartments and check that all spaces below deck are serviced and maintained in good working order. Checks should include:

- Ensuring all watertight hatches, doors and ventilation shutters or flaps have an effective means of closure.
- Keeping all working parts, such as hatch dogs, levers, latches and keepers well-greased and in good working order at all times.
- Checking the bilge levels regularly, ensuring the strainers are free of obstruction and pumping the bilges at least weekly.
- Periodically checking the bilge pipe work, pumps and skin valves for damage or leaks.
- Periodically (at least weekly) testing the bilge level alarm to ensure it is working correctly and can be heard out on deck.
- Regularly (at least daily) checking compartments not fitted with bilge alarms.
- Always investigating the cause of high water level bilge alarms immediately.
- Keeping watertight doors and hatches closed when not in use.
- Keeping sea water valves closed when not in use.
- Checking sea valves and overboard non-return valves whenever the boat is slipped.

- Checking watertight bulkheads to ensure they are sound.
- When installing pipes or cables through the bulkhead, always ensuring that the correct type of through-bulkhead watertight gland or fitting is used.

Hot or Falling Objects

The galley area is a very busy place and presents hazards such as fire, burns, scalds or physical injuries from hot or falling objects.

- Stow any items that could shift and cause harm.
- Protect any hot surfaces from accidental contact.
- Use oven gloves to remove hot pans from the oven.
- Keep the protective rails in place around stoves and use fiddles or guards on top of it to prevent pots sliding off.
- Stow foodstuff in suitable containers, lockers or on shelves so as to prevent movement.

Knives and Sharp Objects

Cuts can result from handling catch or fishing gear or using knives. In the event of a cut ensure good hygiene to guard against infection.

- Keep all knives sharp and clean. Check their handles are secure and free from grease. Store in a rack or a specific drawer. Never leave knives on benches or submerged in sinks where their unseen blades may be grasped.
- Only use a proper tin opener to open tinned food, never use a knife.

Some general Safety Tips when using Knives

Knives can be very dangerous, particularly when used on an unstable platform such as a fishing boat.

- Select the correct knife for the work you are undertaking.
- Use knives carefully and always concentrate on what you are doing.
- Keep the knife sharp.
- Knife handles should be secure and fixed rigidly to the blade. If the handle is loose tighten it, or replace the knife.
- The handle should be dry and clear of grease or oil. Wipe handles regularly with a rag.
- Work in front of your body so there is no need to twist.
- The knife action should always be away from your body or other hand.
- Don't attempt to catch a falling knife.
- Don't leave knives around the working area or stuck in a worktop. Always sheath or rack them.

- Always stow your knife if you need your hands for some other task (even when it's only one hand).
- Wash and clean knives separately from other items.
- Take care when passing knives to another crewmember.
- Hold the knife by the handle and point it towards the deck when you walk or move.
- Do not stab a knife into a chopping board as your hand may slip down onto the blade.

Machinery

Every boat will be fitted out with various items of deck machinery or equipment which is required for the specific fishing operation. The layout of the working deck should ensure the safe movement of the crew.

Accidents involving machinery range from amputation of a finger, hand, foot or entanglement of a person which may result in a fatality. All machinery must be suitable for the loads expected, securely mounted and suitably guarded. Machinery guards are essential to protect the dangerous rotating or moving parts of a machine from accidental contact by a crewmember.

A guard is a protective device which is secured in place and requires the application of a tool such as a spanner or screwdriver to open it.

In rough seas, the risk of falling onto a machine is higher due to the sudden and unpredictable motion of the boat. As fishing boats vary in size, so does the size and complexity of machinery on board, machinery such as:

- propulsion engines;
- generator sets;
- stern gear;
- winches;
- cranes;
- conveyors; and
- flake ice making units.

The risk from contact or entanglement with moving parts include:

- gear drives;
- chain and sprocket drives;
- winch guiding-on gear;
- belt and pulley drives; and
- couplings and auxiliary drives.

There is always potential for injury when working with or close to machinery with moving parts. Procedures must be in place to safeguard against accidental contact with rotating, traversing or reciprocating parts of a machine.

The risk of injury can be reduced by:

- Ensuring the initial installation and commissioning of all machinery is to a high standard.

- Receiving adequate instruction and training to ensure you are competent to use the machinery safely.
- Reading and becoming familiar with the manufacturer's instructions on the proper use and maintenance of the machinery, particularly sections relating to health and safety.
- Providing, instruction and training to others on how to operate a machine or piece of equipment competently and safely.
- Providing adequate supervision when instructing or training new crewmembers and young workers.
- Servicing and maintaining machinery and equipment according to manufacturer's instructions.
- Ensuring guarding is in place to restrict accidental contact with moving parts, paying attention to the guard mesh size to prevent fingers from making contact.
- Instructing crewmembers to report any defects to the skipper immediately.
- Isolating the machine before carrying out maintenance or repair work and ensuring those carrying out work are competent.

Never operate a machine when a guard or cover is removed

Guards must never be removed while a machine is in operation, for example to clear a blockage.

Never operate a machine with the cover or guard off. If you must remove a guard for cleaning or maintenance make sure the machine is turned off, tagged and isolated.

Remember safety is everybody's responsibility

No one intentionally puts their hand into a chain or pulley drive, or moving blade. Guards are there to protect from accidental contact should your concentration or attention "slip" or the boat rolls awkwardly.

Slips, Trips and Falls

Fishermen constantly face the danger of slips, trips and falls and most of the time do not even notice them or think of the possible consequences. Incorrect footwear, rushing, slippery or wet decks and uneven surfaces are some of the main causes of slips, trips and falls. It is the responsibility of everyone on board to look out for their shipmates and themselves. Report any potential hazards, accidents or incidents to the skipper so that changes can be made and the risk of injury removed or reduced.

On small fishing boats it is essential to maintain good day-to-day housekeeping as free space on board is always at a premium. Keep the boat tidy and clean up rubbish, clutter and spills as they all present hazards. Take a critical look at the deck layout and consider what improvements could be made which would improve working conditions and reduce the risk of injury. Obstructions such as netting, rope, wires, fish boxes, trawl doors, rubbish etc. both on the quay side and on boats can result in trips and falls.

It should be easy to move around the working areas of the boat without the risk of slipping, tripping, or falling. To prevent slips, trips and falls which could result in serious injury or a fall overboard:

- Keep the deck working area tidy and clear of obstructions where possible.
- Mop or clean up any spills which make the deck slippery. Use the deck wash to flush fish slime or flake ice overboard via the scuppers.
- Mop up spills of liquids or grease as soon as they happen. Mop up hydraulic or diesel oil spills and dispose of using shore waste oil facilities.
- Secure all loose items of equipment on deck, such as a boarding ladder, additional fishing gear, spare equipment, pots, spare netting etc. Keep clear access to vital safety equipment and controls.
- Ensure the scuppers are not blocked by equipment stored on deck.
- Stow all heavy items of equipment as low as possible so as not to adversely affect stability.
- Avoid standing on netting and watch out for ropes and wires. Remove any unnecessary obstructions from your boat and co-operate with the Harbour Authority in keeping the areas adjacent to ladders clear.

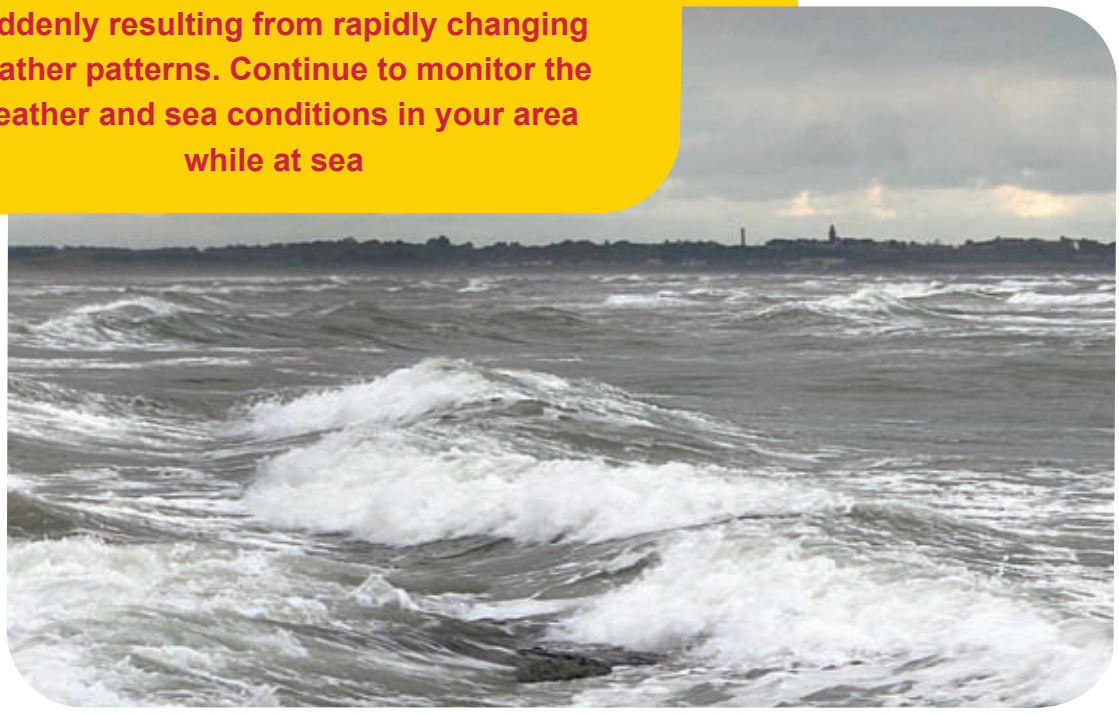
- Wear suitable slip-resistant shoes or boots even when you are in the galley.
- Use a non-slip mat only on the galley floor.

Weather

In a large proportion of accidents, the weather is a contributing factor. Bad weather makes the working environment on board, especially on small fishing boats, very hazardous. It also places additional strain on the boat's structure and equipment. It is important to respect the weather at sea. The skipper must always know and understand what weather is expected for the duration of the fishing trip.

Before you go to sea, make certain you know the predicted weather and sea conditions for your local area. Make a good assessment of the weather conditions before you leave port and know the forecast applicable to your area for at least the next 24 hours. For further information on Weather Information Systems, see www.met.ie/marine/Marine_Services_Leaflet_2013.pdf.

Remember - conditions at sea can deteriorate suddenly resulting from rapidly changing weather patterns. Continue to monitor the weather and sea conditions in your area while at sea



7. Health of Fishermen

Fishing is tough and demanding work and requires a good level of fitness and health. Over the years, this type of work will take its toll on you. Fishermen need to appreciate the demands of the work and take care of their own health. In addition, psychosocial hazards can have a negative effect on health. Psychosocial hazards are workplace factors (such as how work is organised, managed or shared out or work that involves high output demands, long hours or workload peaks) that can affect people's psychological health and well-being resulting in stress for example.

YOU CANNOT AFFORD TO NEGLECT YOUR OWN HEALTH

- Follow a healthy diet.
  Eat sensibly and ensure that you have plenty of fruit and vegetables in your daily diet.
- Watch your weight.
  Regularly check your weight and reduce the amount you eat if necessary. Don't allow an overweight problem to develop.
- Quit smoking - you'll live longer, feel fitter and will save money.
- Have a regular health check with your doctor, to detect problems such as high blood pressure and to ensure that anything that arises is diagnosed and treated early.
- Drink alcohol in moderation. Few fishermen would think of drinking alcohol at sea but there may be a need to be modest in the quantity drunk ashore.
- Do not use unprescribed drugs.
- Take time to relax.

The Elements

Fishing is often carried out in cold, wet, and windy conditions or even in sunshine. These environmental conditions increase the risk of ill health or injury. Exposure to wind can lead to eye and ear infections which can in turn impair hearing and vision. Whilst low temperatures can result in decreased blood circulation to hands and feet and decrease their ability to function, as well as increase fatigue. All result in increased risk of accidents. Wear close fitting water-resistant working clothes in bad weather and sun screen with a high protection factor in summer weather. Sunglasses with side protection can prevent eye damage caused by the sun's glare.

Sun Protection

Working on deck for many hours can expose crewmembers to high levels of ultraviolet (UV) radiation from the sun. The risk of skin and eye

damage due to sun exposure is greater at sea than on land because of the unhindered reflection of the sunlight. This can result in skin damage, blistering, skin aging and in the long term, skin cancer.

Persons most at risk are of Caucasian origin and those with fair skin which does not tan, or burns before it tans, persons with red or fair hair, light coloured eyes and persons with a large number of moles on their skin. Such persons need to take precautions by covering up, wearing a hat that shades the face and neck. Sun creams will only work if applied very liberally as per the manufacturer's instructions.

Periodically check your skin for changes, small scabby spots, new moles appearing or existing moles that grow or change appearance.

Check with a doctor if you do notice changes

Fatigue and Working Time

Fatigue increases the risk of personal injury and is a significant cause of accidents and navigational errors resulting in the possible loss of a boat and its entire crew. Fatigue has long been identified as a major contributor to accidents at sea. So much so that the International Labour Organization (ILO) and European Union (EU) have both issued strict guidelines on working hours in an attempt to ensure that both skippers and crew get adequate rest while at sea. This is reflected in the European Communities (Workers on Board Sea-Going Fishing Vessels) (Organisation of Working Time) Regulations, S.I. No 709 of 2003. These regulations specify the maximum permissible hours of work allowed and the minimum total hours of rest in:

a) any 24 hour period; and

b) any 7 day period.

- The maximum number of working hours in any 24 hour period = 14 hours.
- The maximum number of working hours in any 7 day period = 72 hours.
- The minimum hours of rest in any 24 hour period = 10 hours and may be split into 2 periods one of which must be at least 6 hours.
- It is the owner's responsibility to ensure that there are enough crew on board to work the vessel in such a manner that everyone gets sufficient rest. For further details see S.I. No. 709 of 2003 at www.irishstatutebook.ie.
- Where the safety of your boat is at risk or when giving assistance to another vessel that is in distress these working hour regulations may be exceeded.
- Be aware of the effects of fatigue on you and your crew, and ensure that adequate rest is taken.

What is fatigue?

1. **Physical or mental weariness resulting from exertion.**
2. **Something such as tiring effort or activity, that causes weariness.**

Why Should it Matter if I'm Fatigued?

Fatigue is a result of a cumulative set of factors. For example, if a crewmember is deprived of sleep and this is left unresolved without suitable rest, then it can combine with other factors such as long working hours, and perhaps also adverse weather conditions, to cause a state of fatigue.

Reduced safety due to fatigue will increase the risk of accidents that may lead to loss of life, environmental damage and huge economic cost.

In fishing, many jobs are safety-critical and there is likely to be a risk of errors occurring caused by fatigue and resulting in reduced safety. Not only may this expose a crewmember to an increased risk of personal injury, but it may also put others at risk of injury from your lack of concentration or actions. In terms of the overall effect on the boat's operation, fatigue may result in a greater risk of collision or environmental damage due to poorer performance by the skipper or watch keeper.

What Causes Fatigue?

- *Shortage of Sleep/Poor Quality Sleep*

  Restlessness, disturbed sleep, inability to relax fully, obesity, night work, rough weather restricting sleep.

- *Negative Environmental Factors*

  Noise and vibration on board.

- *High Job Demands/High Stress*

  Taking on additional work or other jobs outside normal duties.

- *Adverse Weather Conditions*

  Fighting against the elements both the cold and wet or intense heat.

- *Consistently Working More Than 12 Hours a Day*

  There is a demonstrable link between both the number of hours we work and sleep deprivation.

- *Hard Physical Work*

  Long periods of hard physical work without adequate breaks.

How can I Tell if I'm Suffering with Fatigue?

Here are a few questions to ask yourself:

Alertness/Sleepiness

- Do I feel tired and/or yawn all the time?
- Do I fall asleep for small amounts of time?
- Do I work on automatic and without thinking?
- Am I having difficulty concentrating?
- Am I forgetting to do things more and more?
- Am I finding it increasingly difficult to perform more than one task at once?

Mood

- Do I feel stressed?
- Am I more irritable than usual?
- Am I easily frustrated by tasks?
- Do I feel that I just can't be bothered
- Do I feel that I just don't want to co-operate with others?

Remember though that people are poor judges of their own level of fatigue.

Practical Steps to Resolve a Temporary Problem

- Take a break.
- Have a nap (40 minutes, if work will resume shortly after waking).
- A longer nap (about 2 hours) is better. This should also allow for a 30 minute "wake up" phase.

- Have a drink – keep hydrated, water is best, avoid caffeine if within 4 hours of a sleep period.
- Have something to eat (not too heavy).

For a Longer Term Problem

- Discuss your work schedule with your employer or skipper.
- Try to ensure you are well rested before starting work.
- Try to identify with your skipper or employer any other reasons for your fatigue such as environmental factors and agree what actions you can both take to alleviate your fatigue.

Stress

Fishermen like many others have to deal with stress in their working lives. Stress is mainly an emotional reaction to a sense of experiencing too much pressure. It produces a physical reaction – quickening heart beat, higher pulse rate, sweatiness, racing thoughts and digestive changes – as well as an emotional one – tearfulness, anger, increased wakefulness, hyper alertness, irritableness, sadness. Stress can trigger depression and other symptoms such as headache, back ache and digestive problems. A build-up of stress and pressure can be very damaging to your health.

Stress is not an enjoyable state and so we tend to either deny it, or cover it up – by excessive drinking, gambling, eating or acting out in any of a variety of ultimately unhelpful ways. The physical manifestations of stress tell us that our sense of security is under threat. If we ignore these physical symptoms, they are unlikely to go away. Not only do we need to treat them – by eating, sleeping and exercising sensibly, and avoiding "runaway activities" as outlined above - we also need to treat their cause – the source of the stress.

Sources of stress can be a pressure from within the workplace or outside it, from family relationships, money problems, increasing work demands, isolation, bereavement, separation and change. Whilst there are many things that will stress each of us, and they differ as we age, the main method of treating stress is to acknowledge it, find out its cause, reduce our exposure to that cause, increase our restful periods, think through the issues at times when you are not exposed to it, try to problem solve rather than merely dwelling on issues, and seek outside support and strength from others. Stress can be minimised by taking some time out for yourself and learning to relax. It is important to get adequate sleep and talk to others about your problems.

Manual Handling of Loads

Manual handling is a physical activity that commonly takes place on all fishing boats. Manual handling can involve lifting, putting down, pushing, pulling, carrying or moving loads. Incorrect manual handling may result in back injury or other musculoskeletal problems for fishermen.

Manual handling can involve the movement of heavy or awkward loads by hand or bodily force and should be avoided where possible. If this is not possible, reduce the risk of injury as far as possible by actions that include:

- Using mechanical lifting equipment such as a crane or lifting derrick.
- Improving the workplace layout and design to reduce the amount of lifting so that less repetitive movement is needed.
- Splitting the load to make it lighter or easier to hold.
- Training crewmembers in good practice and the use of good handling techniques. All fishermen who carry out manual handling should receive training on the handling, lifting and moving of loads and information on general back care.

For further guidance on good practice in manual handling see www.hsa.ie

Noise

The most well-known effect of noise is loss of hearing. However noise will also interfere with communications and so increase the risks of accidents or stress. Noise-induced hearing loss is the most common occupational disease in Europe, accounting for about one third of all work-related diseases, ahead of skin and respiratory problems. Even short periods of excess noise can cause hearing damage. Engine room or machinery spaces are noisy; make sure ear protectors (ear muffs) are available and worn.

Put up a sign in noisy areas indicating that ear muffs must be worn when machinery is running.

Exposure to high levels of noise, either continuously or as a sudden loud "bang" can cause incurable deafness, often accompanied by a ringing in the ears (tinnitus).

Examples of noise levels which are measured in decibels (dBA):

Activity or location	Noise Level	Noise levels in dBA
Alarm clock	Loud	70
Vacuum cleaner	Very loud	80
Car horn	Extremely loud	110
Typical engine room	Extremely loud	110 +
Gun shot	Painful	140

Consequences of Exposure to Noise Levels Above 80dBA

- Irreversible loss of hearing or noise induced hearing loss (pain or ringing in the ears).
- Crewmembers with hearing difficulties may not fully understand verbal instructions.
- General adverse health effects impacting on:
    - blood pressure;
    - increase in breathing rate;
    - poor digestion; and
    - increase in fatigue and irritability.

Excessive noise must be reduced in any accommodation areas by the installation of sound deadening insulation.

Wear your ear muffs in noisy areas

Remember hearing aids will not rectify noise induced hearing loss

Vibration

Vibration from engines can cause negative effects such as fatigue or stress. Servicing and maintaining engines and machinery parts, for example checking engine mounts can help reduce these effects.

Skin Conditions/Infections

Adverse skin reactions can occur due to contact with sea flora and fauna e.g. jellyfish. Jellyfish can sting and dried jellyfish particulates can be an irritant.

Where high levels of jellyfish are encountered, particles of tentacles can attach to nets. Once dried, the nets can cause skin rash. Athlete's foot and eczema can occur as a result of wearing rubber boots for prolonged periods of time. Good hygiene, use of personal protective equipment and regular changes of clothing can reduce the risk.

Welfare Facilities

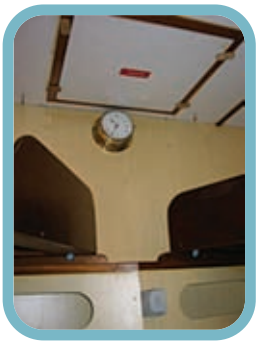
Welfare facilities on small fishing boats are necessary to ensure the crewmembers have access to basic requirements and must reflect the size and type of fishing boat. It is essential to ensure that the accommodation, galley and all facilities are adequate for the expected duration of the fishing trip.

The provision of toilet and washing facilities on fishing boats will be determined by the size of the boat and the nature and duration of fishing trips. Larger fishing boats that go to sea for several days should have appropriate facilities.

Smaller fishing boats that return to port each day will generally not require such facilities. Welfare facilities, cooking, washing and toilet facilities, where provided, should be suitable for the duration of the fishing trips, should be maintained in good working order and be in a clean, hygienic condition.

Where accommodation is provided on a boat it must be maintained to a safe standard and kept in a clean and tidy condition providing a reasonable level of welfare including, sleeping, cooking, hand washing and toilet facilities. The accommodation should have a comfortable ambient temperature and adequate ventilation to ensure that it is not damp and unhealthy.

Cabin space is often located below deck and without access to outside windows or portholes. The area should have adequate ventilation supplied directly from outside the hull and be free of engine exhaust smoke in all wind conditions. Toilets where fitted, must have separate air in/out venting.



8. Emergency Plans and First Aid

Emergencies can occur at any time, without warning. But within the fishing sector, they may happen in darkness, in rough seas or in an unstable vessel. In an emergency situation, people can react differently to normal, yet rapid decisions will have to be made in a short period of time. The stress of the situation can lead to poor judgement, panic, confusion and the inability to think clearly and logically. Normal channels of authority and communication may also break down.

So pre-planning is essential in order to enable people to act to prevent further harm or even disaster. Pre-planning will highlight any deficiencies or lack of resources, which can then be addressed before an actual emergency occurs. The plan should be familiar to all (you may be relying on them to rescue you), outline clear roles and responsibilities and be regularly reviewed and rehearsed.

The emergency plans within your Safety Statement should include a general plan for dealing with serious accidents and dangerous occurrences. For example, there should be emergency plans in the event of:

- death or serious injury of an individual as a result of work activities;
- a gas leak;
- a chemical spill;
- engine failure;
- flooding;
- man overboard;
- helicopter rescue;
- extreme sea conditions;
- abandon ship; and
- fire (see section 9).

In preparing for emergencies at sea, whether you fish alone or are part of a crew, training and practising emergency drills are perhaps the most important ways to be prepared. The BIM Basic Safety Training course (see section 10) includes a one day Personal Survival Techniques module which addresses key safety issues. Following this training and on returning to the fishing boat, crewmembers will look more critically at how they can avoid emergencies and also be prepared should they occur.

Don't just assume that you will know what to do when an emergency occurs

PLAN FOR IT

Man overboard situations are a frequent occurrence and in many cases lead to the loss of life. It is vital to be ready for such a situation by knowing what to do, having a means of recovering a person from the water and knowing how to work together as a crew to recover a person from the water. Drills and discussions on how to deal with these emergencies are the best ways to prepare.

Getting Back on Board

Consider how you would get a casualty (who may be exhausted and perhaps unconscious) back on board the boat. Keep a lifting strop in an accessible location, or an overboard ladder.

On single handed boats, a simple step or rope ladder should be permanently fixed to the transom or a lanyard which is accessible at water level and when pulled would drop a rope ladder.

Consider the following procedures and how they may apply or be customised to suit your boat while always complying with the MSO requirements.

Life Saving Appliances (LSAs)

Owners must ensure that the boat is fully fitted with the LSAs as required by the DTTAS COP. By law, the LSAs must be of an approved standard, appropriate to the size of the boat in operation, be on board, in service and maintained in a suitable, safe and secure location.

Communications on Board

As part of a safe system of work on small fishing boats where there are 2 or more crewmembers working, each crewmember particularly during fishing operations should know, understand and use recognised hand signals when communication is difficult due to background noise or poor weather conditions. Hand signals must be precise, simple, easy to make and to understand, and clearly distinct from other such signals. Examples are set out in the Safety, Health and Welfare at Work, (General Application) Regulations 2007, Part 7, Chapter 1, Safety Signs at Places of Work. When the first language of a crewmember is other than English, it is critically important that clear communications are agreed and understood. In the event of an emergency everyone on board must know exactly what instructions are being given and what to do.

Alerting the Emergency Response Authorities

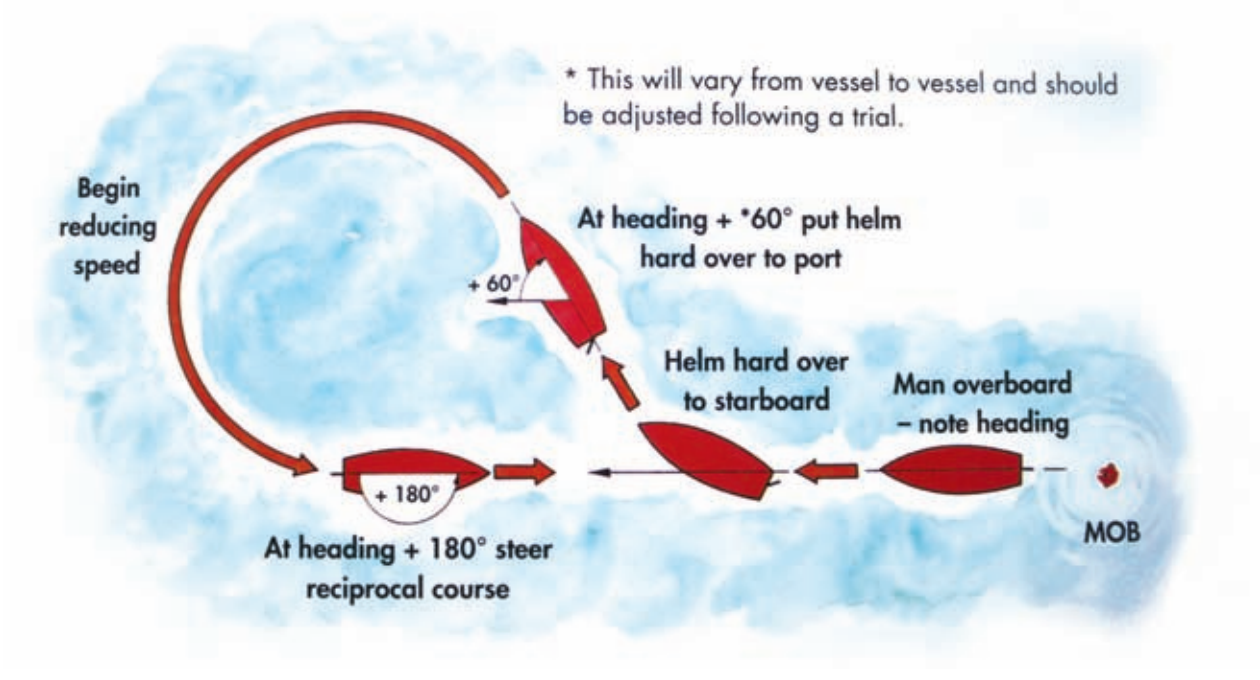
If a problem is or may be developing which could involve the need for assistance, the Irish Coast Guard should be notified without delay. This allows the IRCG to carry out preliminary and contingency planning that could make the critical difference if the situation worsens. Alerting the IRCG should be done via one of its three Coordination Centres at Dublin, Malin Head or Valentia Island on marine VHF Channel 16 or working channels or Medium Frequency (MF).

Image courtesy of the Irish Coast Guard

Alternatively if no other option is available, dial 112 and ask for the Coast Guard. The IRCG should be notified in the first instance before contacting any local emergency response organisations.

Man Overboard

1. Raise the alarm, shout **"Man Overboard"**
2. Release Man Overboard smoke float and ring
3. Note Position, Time and Speed
4. **DO NOT** lose sight of the casualty
5. Commence turn (helm hard over towards casualty)
6. **MAYDAY** (Send a MAYDAY; you can always cancel it when the casualty is safely back on board)
7. Prepare to recover the casualty
8. Bring casualty on board at the lowest point of the boat
9. First Aid (treat for cold shock, hypothermia)



Abandon Ship

Signal: On the instructions of the Skipper

1. Send a MAYDAY
2. Muster everyone wearing warm clothes
3. Ensure everyone is wearing a lifejacket and it is donned correctly
4. Launch liferaft (attach painter to a strongpoint)
5. Bring EPIRB, SART, handheld VHF if time allows
6. Bring flares from wheelhouse
7. Board the liferaft dry if at all possible
8. Cut painter, move away from the vessel
9. Activate the EPIRB (this is often forgotten)

Launching Life Raft

1. Undo strap securing life raft – undo painter.
2. Lift life raft from cradle – bring to boat's side.
3. Attach painter to a strongpoint.
4. Ensure launching area is clear.
5. Throw life raft overboard.
6. Pull out painter to end and give it a sharp tug.
7. Bring life raft alongside boat to disembark.

Helicopter Operations

Great care must be taken when working with helicopters. All persons on deck should wear lifejackets and high visibility clothing where possible.

- **Instructions**

  Listen to and follow all instructions given by the pilot.
- **Flares**

  Use hand flares to indicate your position and wind direction. Never use a parachute flare in the vicinity of a helicopter.
- **Winching**

  Normally takes place from aft end of boat, so make sure this is clear.
- **Radar**

  Switch off radar when helicopter is overhead.
- **Wire (Hi-line) From Helicopter**

  Wire must earth in the sea before touching it and never secure the wire to the boat.
- **Lights**

  In darkness, illuminate the deck area, but do not shine a search light towards the helicopter, as this may temporarily blind the pilot.

Image courtesy of the Irish Coast Guard

MAYDAY Procedure

Used when boat is in **"Grave and Imminent Danger".**

Activate "Distress Button" on DSC; or

1. Check that your radio is switched on and high power setting is selected.

2. Select appropriate channel (MF DSC, VHF DSC, VHF Channel 16 or INMARSAT).

3. Press the transmit button, and say slowly and clearly:

Mayday (repeat 3 times)

This is (repeat the name of your vessel 3 times)

My Callsign / MMSI is....

Mayday (Vessel Name and Identification)

My positions is (give latitude and longitude, or a true bearing distance from a known point)

I require (describe type of assistance, e.g. 'medical assistance')

I have (state number) persons on board

Over (this means please reply)

4. Release the transmit button and wait for a reply.

5. If you hear nothing then REPEAT the CALL.

Radio and Emergency Communications

An effective means of radio communications is legally required and essential to communicate with shore based facilities, emergencies services and others. All boats are required to have suitable radio equipment on board, as set out in the DTTAS COP.

At least one crewmember must be trained and certified in the operation of the radio equipment on board. However, it is good practice for all crewmembers to know the location and operation of the radio equipment and how to transmit a call in an emergency. It is important to check the radio before setting out on any fishing trip. Additionally, an Emergency Position-Indicating Radio Beacon (EPIRB) is required to be fitted and crewmembers must know its location and how to manually activate the unit.

All crewmembers should know how to operate the equipment and transmit a MAYDAY or Pan-Pan call in the event of an emergency on board.

Wheelhouse and Watch Keeping Duties

Every skipper has a responsibility to ensure safe navigation and therefore it is essential that a safe watch be maintained at all times while at sea. There is currently no legal requirement for certificated deck officers for fishing boats of less than 17 metres in length. However, it is highly recommended that the skipper and at least one member of the crew have navigation and watch keeping skills, as one day the skipper may be injured or ill and unable to navigate the boat to a safe haven. When planning a fishing trip, consider the expected time at sea and ensure that there are adequate rest periods for the person on watch. Accident investigations into collisions and groundings have shown that poor watch keeping is a major cause of such accidents. A competent and alert watch keeper, keeping a proper all round lookout at all times, is absolutely essential for the safety and wellbeing of the crew, the boat and others at sea.

- Ensure that anyone in charge of the watch has the necessary knowledge and experience to be able to competently deal with all possible situations.
- In a single handed operation, the skipper while working on the deck must be able to see what is around the boat and have the ability to control it.
- Crewmembers who go on-watch must have had adequate rest. A watch alarm system where fitted, is a good safety measure to guard against the watch keeper falling asleep.
- Distractions such as televisions and video screens should not be visible from the boat control position. A non-alcoholic drink should be prepared prior to taking watch. The watch-keeper should never leave the wheelhouse unattended.

First Aid

Being at sea means that in many cases the consequence of an accident is more severe than if it occurred on shore. All fishing boats must carry an adequate supply of first aid and a first aid manual. First aid supplies will depend on the area of operation, size of boat and distance from the nearest port with adequate medical equipment. Fishing boats less than 15 metres must carry a category C medical kit. If not the skipper, then at least one member of the crew must have first aid training. In addition to the specific medical kit, it is recommended that an additional first aid kit is also carried on board to respond to the day to day cuts and scrapes. For further information see the DTTAS COP and the BIM "Guide to Basic First Aid".

Keep your first aid kit well maintained and stored in a dry place

Remember - All fishermen must attend Basic Safety Training, which includes an elementary one-day first aid course

9. Fire and Fire Prevention

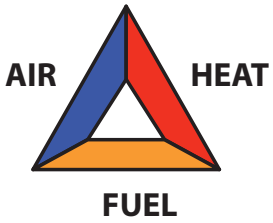
Fire on a fishing boat at sea is extremely serious. The fire can spread rapidly and smoke becomes intense very quickly. This makes fighting the fire even harder. Common causes of fire are poor equipment maintenance, carelessness, poor housekeeping, electrical faults, fuel leaks or engine parts overheating. A fire can start anywhere on the boat but most frequently they start in the galley or engine room.

- Training and knowledge are the best means of preventing or fighting a fire on board a fishing boat.
- Smoke has always been a killer in fires, not just flames.
- Smoke is generally highly toxic, due to combustion of man-made materials used in boat accommodation fit out.

The earlier you get warning of a fire on board the better

Remember - All fishermen must attend Basic Safety Training, which includes a module on fire awareness and prevention

Fire Triangle: For a fire to start there must be three elements: Fuel, Heat and Air.



Requirements for a fire to start

Fuel
Solid, liquid or a gas

Heat
Must be sufficient to raise the temperature to ignition point.

Air
Supports combustion.

Use one of the following to eliminate a fire:

Starving
Remove the source of fuel.

Cooling
Remove the heat by reducing the temperature below the ignition point.

Smothering
Exclude the air.

Remove any one side of the fire triangle and the fire will be extinguished.

Below is a sample list of some fire detection and fire-fighting equipment suitable for a small fishing boat. It is essential that the minimum fire-fighting equipment required for your boat is on board and maintained as required by the DTTAS COP.

- Heat/smoke detection
- Extinguishers
- Water pump (mechanical)
- Water pump (manual)
- Hose
- Hose nozzles
- Fire buckets and sand
- Fire blanket
- Fire axes
- Emergency torches
- Fireman's outfits
- Boat's fire plan
- Fire drill records

Fire Detectors

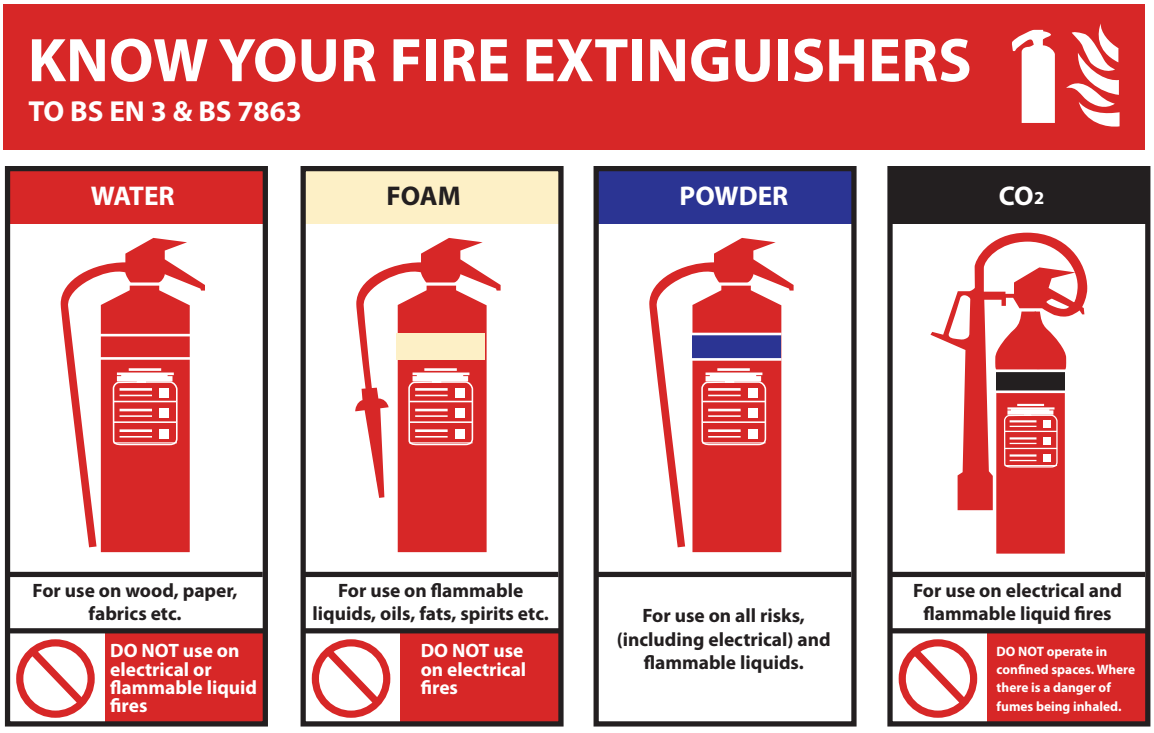
Small boats with few crew on board may be less likely to notice smoke, particularly when they are working on deck and attending to their fishing operations. Where having an installed hard wired system is not possible on small boats, it is recommended that battery operated smoke detectors should be fitted. Fire detectors operate by detecting excessive heat or smoke. Smoke detectors are normally more sensitive than heat detectors but are of little use if there are lots of false triggers due to fumes leaking from exhausts or engine oil burn off. On decked boats with accommodation, smoke detectors must be fitted below deck and the alarm must be audible in the wheelhouse or on deck.

If alarms keep going off - find out why and fix it

Portable Fire Extinguishers

Portable fire extinguishers are essential for the safety of your boat and may prevent major incidents or even total loss of your boat due to fire.

- They can be carried to the fire for fast attack.
- Used correctly they are very effective.
- Never use water or foam extinguishers on live electrical equipment.
- If the tamper proof tag is missing from an extinguisher, assume it has been used.
- Never put back in service a partly used extinguisher until it has been recharged.
- Maintain and service fire extinguishers at least annually and keep records.
- On decked boats with accommodation suitable fire extinguishers must be readily available.



Type	Colour Code	A Solids	B Liquids	C Gas	D Metals	Electrical
Water	Red	√	x	x	x	x
Foam	Cream	√	√	x	x	x
CO_2	Black	√	√	x	√	√
Dry Powder	Blue	√	√	√	√	√

Fire Drills

Fire drills should be held at regular intervals and when there is a change in crew. This is to ensure that all crew on any trip will know and understand actions to be taken. Ensure the following:

- All crew are familiar with their duties.
- Crew know the location and correct use of on board fire-fighting equipment.
- Equipment is in good working order.

Fire Prevention

Good housekeeping and common sense are the best ways to prevent a fire starting.

- Switch off electrical equipment when not in use.
- Never dry cloths or clothes over a cooking stove.
- Keep the engine room tidy and clean up oil spills.
- Keep oil away from hot surfaces.
- Remove oily rags, debris and other flammable material regularly.
- Take great care when using oxy-acetylene equipment.
- Clean extraction vents regularly.

Smoking

The risk of a fire starting accidentally from the careless disposal of a cigarette is too high to allow smoking below deck.

Smoking must not be permitted in this area specifically for fire safety reasons, but also to protect the health and general comfort of non-smoking crewmembers. Careless smoking and the disposal of matches and cigarette butts have resulted in many serious fires on fishing boats. If crewmembers smoke, allocate a safe area outside on deck, which also offers protection from falling overboard. Cigarette butts need to be put out safely and disposed of properly as they are toxic to fish.

Cookers and Gas Stoves

The most common means of cooking on board small fishing boats is on gas stoves, where a naked flame poses a serious fire hazard. Even when electric rings are used care must always be exercised.

- Never hang cleaning cloths or clothing to dry over or near a naked flame or cooker.
- Never leave a lit cooking stove unattended.
- Gas is heavier than air and will collect on the deck area of the galley or lower down in the boat. A gas alarm must be installed on the boat, with a detector in the area of the cooker and another in the lowest space leading off from the cooker area.

- Periodically test the alarms to ensure they are working.
- Ensure cooker controls are turned off when the gas cooker is not in use.
- Keep all galley extraction systems clean and free from grease.
- Never use a chip pan on board a fishing boat.

- Know the location of and how to use a fire blanket and fire extinguisher.
- Use the correct type of extinguisher when dealing with galley fires (foam or CO_2).
- A fire blanket should be securely fitted in the galley and located within easy reach of the cooker or stove.

Escape Routes

- Where accommodation is provided on a boat, ensure that there is an escape route out of the accommodation and ensure that it is not blocked and that all crewmembers are capable of using it.
- Assess the area and consider what risks are involved if a crewmember had to escape in the event of an emergency such as a fire or sinking. Ensure the escape routes are free from obstructions and that any escape hatch is free to open from both sides. Lighting levels must be adequate to illuminate the escape routes and working areas to prevent tripping or falling over fixtures. Fix photoluminescent signs on bulkheads and passageways to indicate the escape routes. Escape routes are likely to be narrow with hatchways of minimum size and will generally involve accessing a ladder or stairs to the main deck. Keep all internal escape routes, from below deck or from accommodation, including ladders, free of obstruction.
- Ensure temporary storage of equipment on deck (such as spare nets, pots or fishing gear) does not obstruct the free and clear opening of an escape hatch.
- Regularly operate escape route hatches and doors to ensure all dogs and levers are working freely from both sides.

Consider the following:

- Is there more than one escape route?
- Are the passageways clear and free from obstructions?
- Is the exit on to the deck blocked with fishing gear or other material?
- If the escape route includes steps or a ladder, are they secure and fitted with a grab rail?
- Are the escape hatches and doors capable of being opened from both sides?
- Are escape hatches that are seldom used periodically checked and operated to ensure they function properly?
- Ensure that escape hatches are not locked with padlocks when the boat is occupied.
- Is there adequate lighting installed to allow crewmembers to move and work safely on the boat?
- Is there back up lighting in the event of a power failure?
- Fitting a rechargeable torch on a bulkhead in case of power failure or for use in emergencies.
- Have you a water type fire extinguisher located at the nearest exit?

Joining a fishing boat for the first time, you need to find out:

1. The location of your Muster station.
2. The location of all fire fighting and lifesaving equipment.

3. The escape routes from the accommodation and below deck areas.
4. What your duties are in an emergency.

Training, drills and exercises will increase your knowledge and ensure your crew can cope with a fire on board

Remember - You are on your own at sea when a fire starts

Fire-Fighting

A fire discovered early and attacked quickly can be brought under control and extinguished using a portable fire extinguisher.

Actions on Discovering a Fire

- Raise the alarm (shout fire, continuous ringing of bells or continuous sounding of boat whistle).
- Isolate fire – close doors, hatches, vents, funnel flaps and portholes.
- Muster all crewmembers.
- Locate nearest fire extinguisher.
- Tackle fire if possible, ensure quick and safe retreat.
- Fight fire as appropriate.
- Commence boundary cooling (for larger boats only).
- Broadcast a **"MAYDAY"**.
- If fire cannot be extinguished, evacuate the space immediately. In the event of a larger fire, bring hoses to bear on the fire.

Fire in the Engine Room

1. Raise the alarm by shouting "Fire! Fire! Fire!"
2. Muster everyone.
3. Send a MAYDAY.
4. Shut emergency fuel stops.
5. Stop engine room vent fans and shut dampers.
6. Start the emergency fire pump – run out hoses.
7. Operate CO_2/sprinkler system if fitted.
8. Commence boundary cooling.
9. Leave engine room sealed off for as long as possible.

Fire in Accommodation

1. Raise the alarm "Fire! Fire! Fire!"
2. Isolate fire – close doors and vents.
3. Locate nearest fire extinguisher.
4. Tackle fire if possible.
5. Muster or assemble the crew.
6. Fight fire as appropriate with suitable extinguisher.

10. Information, Instruction, Training and Supervision

The Safety, Health and Welfare at Work Act 2005, strongly emphasises the need to provide employees with the instruction, information and training necessary to do their job safely and ensure their health and safety. This reflects the fact that the working procedures adopted by people at work in fishing are crucial for securing safety and health.

Information and Instruction

Information and instruction can be provided verbally or in writing. Ensure that your employees read and understand the contents and outcome of your Risk Assessment. If English is not the first language of some of the crew, you may have to provide information in other languages.

Employees must be provided with information on:

- the hazards and risks within the workplace;
- the hazards and risks affecting specific tasks or operations carried out by the person;
- the control measures in place to minimise exposure to these risks;
- information and instructions on the job to be carried out and how to work safely; and
- measures to be taken in an emergency.

Training

Training means showing a person the correct method of doing a task and making sure that he or she can carry out the task correctly and safely. It is the learning process of acquiring the capacity to carry out tasks to an acceptable standard. Training can be formal for example, by completing an appropriate safety and health course such as the BIM 3-Day Basic Safety Training course or equivalent. It can also be informal on the job training such as showing a person the correct method of doing a job, pointing out dangers and ensuring that the person understands and can do the job safely. In the area of safety and health, training must always aim to motivate a trainee to recognise hazards and to adopt safe work practices.

All crew must be trained in safe systems of work. This may include training in the safe use of equipment, safe work practices for the fishing method being used and any unique or unusual characteristics of the boat.

Competence

Reference is made throughout the Safety, Health and Welfare at Work Act 2005, to work being performed by a 'competent person'. Section 2(2) of the 2005 Act defines a competent person as follows:

"A person is deemed to be a competent person where, having regard to the task he or she is required to perform and taking account of the size or hazards (or both of them) of the undertaking or establishment in which he or she undertakes work, the person possesses sufficient training, experience and knowledge appropriate to the nature of the work to be undertaken."

The requirement for competence applies to self-employed people as well as employees. This is relevant to the fishing sector as many are self-employed fishermen or family members. When assigning specific work tasks to a person, account must be taken of the person's capabilities in relation to safety, health and welfare. Employees must not be put at risk by being given work that they do not have the competence to undertake.

Training Courses

The Fishing Vessel (Basic Safety Training) Regulations 2001 (S.I. No.587 of 2001) require all fishing boat crewmembers to undergo Basic Safety Training. The training consists of three units:

1. Personal survival techniques, including man overboard techniques.
2. Elementary first aid.
3. Fire prevention and safety awareness.

By law, this training must be received before going to sea for the first time on a fishing boat

Crewmembers should be encouraged to use the knowledge gained to play their part in working to maintain a safe place of work.

Training courses are provided and validated within the framework of qualifications. The awards made are recognised nationally and internationally. Courses can be provided and assessed by training providers approved by Quality and Qualifications Ireland (QQI) or at university level.

BIM provides a 3-Day Safety at Sea Training course. Training courses provided by BIM are accredited by Quality and Qualifications Ireland (QQI). Details of the programme of courses, which include courses on navigation and stability and passenger boat proficiency, can be found at www.bim.ie

Supervision

Make sure that everyone who works with you is properly supervised, understands and accepts the safety, health and welfare standards when at work either on shore or on board and play their part in their implementation. Work practices and the effectiveness of any training provided should be monitored. Where unsafe work practices are detected and safety, health and welfare measures are not being followed by any member of the crew, the work or activity should be stopped until corrective action has been taken and the safety controls are fully complied with. Remember that new or young crewmembers may require extra supervision.

For further information on young workers see section 12.

11. Maintenance

Safety begins with a safe workplace, which in fishing is the boat. It is essential that the boat is of sound construction and fit for the fishing operations that it is intended for and the expected sea conditions. It needs sufficient carrying capacity for the fishing gear and catch, without compromising its stability. It must provide a safe platform for the crew to work on and be suitable in terms of crew comfort and welfare for the duration of the time at sea.

The DTTAS COP must be complied with at all times. Under the DTTAS COP fishing boats of 15 metres and under are subject to a compliance survey every 4 years. The boat must be kept in full compliance at all times with the Declaration of Compliance issued by the authorised person following survey. The owner is responsible for an intermediate declaration.

While fishing boats of 15 metres and under are surveyed every 4 years, the owner has a responsibility to ensure that the boat is maintained and operated safely on a continuous basis.

(Note: Any alterations to the fishing boat must have prior written approval from the MSO and be appended to the declaration of compliance for the boat, see the DTTAS COP).

To ensure the safety of the boat and its crew the following must be continually maintained.

All watertight doors, hatches and ventilation openings must be maintained in sound working condition. Particular attention should focus on areas which are not used or operated on a daily basis.

Engine Room

Effective and preventive maintenance is essential to ensure reliability. In poor conditions the engine and associated machinery needs to be totally reliable. The engine room needs to be a safe area to move around as you may have to work on the engine at sea.

- Implement preventive maintenance, including regular oil and filter changes and check all belt drives.
- Ensure that handrails (where needed) and all floor plates are in place to enable safe movement when working around the engine.
- Headroom is usually low, so to avoid a head injury, highlight and fix padding to anything which might cause a head injury to the crew as they pass.
- If working in the engine space alone, inform someone how long you expect to be there.
- Ensure all belt drives are properly guarded, even those beneath the floor plates, as having lifted the floor plate up to gain access, protection will be needed from the belt drive.
- Fit a guard on any hot surfaces that you are likely to accidentally touch.
- Provide good ventilation to remove heat and fumes.
- Maintain the engine and associated equipment in a clean condition to enable you to see leaks of water, fuel and oil before they become a bigger problem.

- Check the fire-fighting system and ensure it is fully serviceable. If a fixed system is installed, are all persons aware of the dangers of inert gas?
- Ensure that batteries are ventilated to the outside and a means of preventing a shorting across the poles is in place using a suitable cover or guard.
- Check on the condition of sea water systems, install an effective bilge level alarm and regularly check that it is working. Make sure sea inlet valves can be easily closed, even if below water level following flooding.

Engine and Propulsion

In order to prevent mechanical breakdown at sea, it is important to ensure that the main propulsion is maintained to a high standard and serviced as required. The propulsion system includes all mechanical drives, couplings and bearings from the engine to the propeller. A basic tool kit suitable for working on the propulsion system should be kept on board plus critical spare parts. On smaller boats powered with an outboard engine, the owner should provide a backup means of propulsion such as a standby outboard engine or a set of oars as an additional means to getting the boat to a safe haven should the main outboard fail. Always operate the engine fitted with a kill cord. Secure the engine to the transom with a suitable painter and carry a reserve tank of fuel suitable for the outboard engines. If using a two-stroke engine, ensure that the recommended fuel/oil mixture is used.

Regular maintenance of mechanical equipment is important, but it is essential when it comes to the reliability of the engine and the propulsion gear. Always make certain that attention is given to inspecting and servicing the machinery and follow preventive maintenance as specified by the manufacturer.

Preventive maintenance should include fuel and oil filter changes and checking the condition of:

- pulley belts and drives;
- cooling pumps;
- starting batteries;
- exhaust piping; and
- sea water intake and outlet valves (including their security).

Prior to going to sea the following engine checks should be undertaken:

Inboard engines

- Check, fuel, oil and coolant levels.
- Inspect the bilges.
- Ensure sufficient fuel is on board.
- Warm up the engine and check for leaks and ensure overboard discharge cooling is adequate.
- Inspect the gearbox and drive coupling.
- Inspect the stern gear for signs of overheating.
- Check the stuffing gland box adjustment and water leakage rate, to ensure it is adequate.
- Lubricate the bearings as required.

Outboard engines

- Have the engine serviced annually by an agent.
- Check the engine's external surfaces and propeller for signs of damage.
- Ensure there is sufficient fuel and reserve fuel for the fishing trip.
- Always use the correct fuel/oil ratio.
- Check the engine is securely mounted and the safety painter is attached.
- Warm up the engine and check for leaks.

Spare parts and tool kit might include:

Spares

- Pulley belts.
- Filters for both fuel lines and engine oil.
- Water pump impellers.
- Gasket material and compound.
- Additional engine oil.
- Additional hydraulic oil for steering system.
- Hoses and jubilee clips suitable to what is on the engine.
- Fuses.
- Fuel injector.
- Spark plugs for outboard engine.

Tools

- Toolbox bag.
- Spanner set and adjustable spanner.
- Socket set.
- Screwdriver set.
- Pliers.
- Hacksaw and blades.
- Releasing fluid such as WD 40.
- Grease gun and grease.
- Adjustable spanners.
- Sparkplug spanner.
- Torch and batteries.

Steering Gear

Regularly check the steering system and ensure there are no leaks. Where there is a two station steering position such as there is on modern potting boats, check that the changeover valves operate correctly. Regularly grease all bearings in the steering post and levers. Ensure access to the under deck linkages is provided and that any items stored under the deck are prevented from fouling or obstructing the free movement of the steering linkages. Know the location of the emergency steering bypass valves and ensure they are accessible and that they are checked for operation periodically.

Lifting Equipment Service and Inspection

On small fishing boats, lifting equipment includes cranes, derricks, beams and fish lifting gear. It also includes both fixed and portable components such as shackles, blocks and eyes. It does not include "wet gear" which is used in the fishing operation.

The lifting equipment must be suitable for the purpose and conditions of use. The safe use of lifting equipment is dependent on the installation, including any standing equipment such as davits, foundations for cranes, winches and landing derricks and the lifting hook. By law, it must be commissioned and then tested and inspected by a competent person after installation and before going into service for the first time. Thereafter it must be thoroughly examined by a competent person at least every 12 months ***(where it is used only for the purpose of lifting equipment and not people)*** and following:

- modification work;
- an accident; or
- a prolonged period of inactivity.

There must be a unique identification mark. The Safe Working Load (SWL) must be displayed and an in date certificate of examination and testing must be available.

Regular Maintenance

Preventive maintenance and inspection is essential. Frequently inspect the lifting equipment. Items of equipment which show signs of wear should be replaced without delay. When replacing items of lifting equipment such as pins, cables, wire ropes, pulley blocks and shackles etc. ensure replacements are tested and certified.

Remember:

- Keep an equipment register to record inspections and maintenance.
- All lifting points must be tested and certified.
- Inspect for corrosion and wear.
- The weakest link will determine the SWL.
- Shackle pins must not unscrew.
- Use safety clips to prevent slings coming off lifting hooks.
- Stow slings when not in use and protect from sharp edges when in use.

- Take defective equipment out of use immediately. Destroy damaged parts.
- Do not use untested equipment, if in doubt do not use.

Maintain equipment regularly by:

- Lubricating all moving parts with marine grade grease.
- Keeping the parts protected from exposure to the elements by painting.
- Lubricating all cables.
- Keeping a record of all maintenance completed on lifting gear.

Check that:

- Pulley blocks have safety chains attached.
- The pulley block sheaves are not too worn.
- The pins and bushes in the blocks are running smoothly and there is little movement between them.
- The thimble on the eyes has not elongated.
- The wire is not showing signs of wear, such as fraying, crimped or rusting.

Pumping and Bilge Systems

Many boats have been lost because of flooding when pipes have fractured, seals have failed or pipe work has corroded from inside and fractured. Proper maintenance is essential to ensure that such failures do not occur. Where boats are required to have bilge systems (boats of 7m and over) these must be checked and operated on a regular basis to ensure they function correctly. Often leaks occur or strum boxes (strainers) become blocked, preventing the suction and pumping of bilge water. Where compartments are separated by watertight bulkheads, check to ensure there is no leakage between the spaces. Periodically inspect the pipe work, mechanical pumps and overboard skin valves to ensure they are sound and working correctly. A bilge level alarm fitted in each compartment and regularly checked will provide an early warning of rising bilge water levels, providing valuable time for a well-trained/competent crewmember to react quickly and seal off a compartment and pump out the water.

Smaller boats under 7 metres and undecked boats must have a hand operated bilge pump which should be operated regularly to ensure the diaphragm works efficiently. Always carry a spare diaphragm.

Regular use by the crew of hand operated bilge pumps will ensure they are always serviceable to manage bilge levels on an ongoing basis and that they are ready for use in emergency situations.

All decked boats must have freeing ports (scuppers) to quickly remove excess water off the working deck. Ensure these openings are free from obstruction. The temporary blocking of freeing ports may be caused by storing boxes, bins of netting or other items of equipment in the wrong location at the bulwark. Ensure that items are safely stowed and will not shift in bad weather and block the freeing ports. Blocked or obstructed freeing ports may cause a build-up of water on deck, which as the boat rolls creates a free surface effect which adversely affects the stability of the boat.

General Maintenance and Repair Work

Fishermen often carry out their own repairs and maintenance such as repairs to a torn net, a damaged warp or reversing of the towing warp. Planned maintenance and service work may include service of the main engine, deck machinery and fishing equipment to ensure reliability. Other repairs may include, chipping, wire brushing and painting and other minor repairs to the boat. It is essential that the work is planned and safely carried out. At all times restrict access to the work area from the general public. If necessary erect a barrier and display a notice informing them of the dangers. Provide personal protective equipment (PPE) to protect the crewmembers from exposure to hazards such as sparks from grinding, weld flash from welding equipment, or dust from sanding or grinding. PPE if provided must be suitable for the purpose and must effectively limit exposure to the hazard.

PPE for maintenance work may include:

- goggles for eye protection when grinding;
- ear muffs when grinding or hammering;
- gloves suitable for handling steel with sharp edges, hot materials or chemicals;
- welding goggles for protection when welding;

- suitable footwear with sole and toe protection;
- hard hats where there is a risk of items falling from above; and
- fall arrest where working at height.

Put in place fire safety precautions when welding, burning, brazing or other hot work is taking place. Precautions might include a suitable fire extinguisher, fire blanket, bucket of sand, and quick access to water.

Isolation Procedures

When working on machinery which may start automatically or which can be started remotely such as the main engine, a hydraulic system or an electrically operated system, always isolate before commencing the work to ensure it cannot be started until the work is finished and returned to service.

Isolating the system makes it safer to work on and reduces the likelihood of:

- a person being injured, trapped in a machine, electrocuted or killed;
- oil or fuel spills into the sea causing environmental damage;
- a fire starting; or
- machinery or equipment damage.

It is the skipper's responsibility to make sure that systems are isolated before maintenance or repair. Turn the supply off to the equipment that is going to be serviced and where practicable have an isolation system such as a lock out and tag out system. The person carrying out the maintenance or repair work should isolate the equipment by using a personal lock and that person should be responsible for removing their lock when the work is completed.

Before removing any isolation lock to start equipment, check that the work has been completed and that it is safe to operate. Always check that the system looks safe to operate after it has been worked on. If a contractor is coming on board to do maintenance work when the crew are not there, ensure they use an isolation system.

12. Vulnerable Workers

Certain groups of workers may be more vulnerable and you may need to put additional controls in place. Vulnerable groups may include young workers, older workers, workers with language disabilities or for whom English is not a first language.

Young Workers

Young workers may be more at risk of accident or injury due to their inexperience or lack of training. New crewmembers or young people who join the boat for the first time need to be fully supervised and trained in the general working and operation of the boat until they have gained the experience to work safely and competently on board. Before going to sea for the first time they must complete the BIM Basic Safety Training course (see section 10).

Assess the risks associated with young workers below the age of 18 who have little or no experience of working at sea. Consider the work they are expected to do and ensure that the training they are given, their experience, physical and mental development is sufficient to enable them to carry out the work safely.

All Risk Assessments need to take account of certain characteristics that particularly apply to young people:

- Keen to impress and rushing to complete tasks with little regard for their own safety.
- Exhibit over confidence and a certain bravado with high risk activities.
- Underestimate the complexity of the task assigned to them.
- Absentmindedness, an example would be listening to music on their personal head phones and unable to hear instructions.

On the Job Training and Supervision

Young people need training most when they first start on the job. They need it to increase their capabilities and competencies to a level where they can do the work without putting themselves and others at risk. It is not enough to make training available. Make sure that it is undertaken and also check that key messages have been understood. Young people will also need training and instruction on the hazards and risks present on board and on the preventive control measures put in place to protect their health and safety.

As well as training, bear in mind that young people are also very likely to need more supervision than adults. Effective supervision will also help to monitor the effectiveness of the training young people have received. There will be clear benefits in assessing whether a young person has the necessary capacity and competence to do the job.

Older Workers

Older workers are generally less likely to have accidents than their younger counterparts. However when an accident occurs it tends to result in more serious injuries (i.e. permanent disability, dismemberment or death). As some functional capacities, mainly physical (e.g. decreased ability to judge the speed of moving objects) and sensory (e.g. vision or hearing), decline as a result of the natural ageing process, account needs to be taken of this with older workers.

Non-National Workers

On board communication between all crewmembers is most important. The skipper must ensure that each crewmember fully understands what is expected of them. In particular during the fishing operation, the crew must understand the specific instructions (calls) and hand signals. Emergency procedures should be practised on a regular basis and the skipper should satisfy himself that everyone clearly understands their role in each situation.

13. Personal Protective Equipment, Working Gear, Lifejackets and Personal Flotation Devices

Personal Protective Equipment (PPE) and Working Gear

The objective of completing a Risk Assessment is firstly the identification and elimination of hazards where practical and then the reduction or control of risks from any remaining hazards, as far as is reasonably practicable, to ensure the protection of crewmembers. In some situations where the risk from a hazard cannot be fully avoided, personal protective equipment is provided to give individual protection. A good example of this is where persons are required to work close to the engine. While efforts may be made to reduce or control engine noise, noise levels will generally require that persons working close by need to wear hearing protection. Note that communication is actually improved by the wearing of ear muffs in noisy environments.

There are also situations where there is no alternative but to wear personal protective equipment. A good example of this is the wearing of a PFD for working on deck due to the risk of falling overboard. While sometimes the risk of falling overboard might be somewhat reduced, for example where the working deck area has been modified to raise the bulwark or side railing height to prevent crewmembers from falling overboard in normal situations, (Note: all alterations to the boat must be approved by the MSO), however it is stressed that the mandatory wearing of a PFD remains. There are also situations where sections of the railing might be lower to allow the shooting and hauling of the fishing gear or situations where the boat unexpectedly heaves while a crewman is reaching out over the rail to make an adjustment. For this and other reasons it is **mandatory** for everyone on the exposed deck to wear a PFD, to provide protection in the event that a MOB situation occurs.

Lifejackets and Personal Flotation Devices (PFDs)

Every lifejacket is a Personal Flotation Device

But NOT every Personal Flotation Device is a lifejacket

A Personal Flotation Device (PFD) is a generic term used to describe both lifejackets and inflatable buoyancy aids. The primary difference between a lifejacket and buoyancy aid is that a lifejacket is designed to turn an unconscious person face up on entering the water whereas the buoyancy aid is just an aid to staying afloat and will not turn the wearer the right way up or keep the head clear of the water.

Abandon Ship Lifejackets

A lifejacket must be capable of keeping a person afloat, turning the face up and head clear of water. Fishing boats must carry an approved abandon ship lifejacket for each person on board. It must be SOLAS approved and have a signalling whistle, light, towing strap and retro-reflective tape. Donning notices should be displayed, where practicable in the wheelhouse and other prominent positions. Store the lifejacket in a cool well-ventilated and easily accessible area. Should the inside of the lifejacket become waterlogged, the jacket is no longer usable, get a replacement immediately.

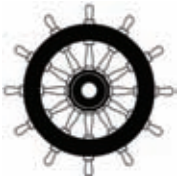
Do not abuse your lifejacket by using it as a seat cushion, boat fender or kneeling pad.

Practice donning your lifejacket before an emergency occurs. Follow the donning instruction on the jacket.

- Never wear clothing over the jacket.
- Wear your lifejacket when abandoning the boat.
- Before entering the water, make sure the jacket is secured and hold the front down with both hands.
- Enter the water feet first.

Personal Flotation Devices Worn While Working

There are strict legal requirements in relation to the wearing of PFDs while on board fishing boats as required by S.I. No. 586 of 2001 Fishing Vessel (Personal Flotation Devices) Regulations, 2001. The IMA also periodically issue Marine Notices in relation to the wearing and maintaining of life jackets e.g. Marine Notice No. 39 of 2013. It is a legal requirement that a PFD must be provided for everyone on board and all crewmembers must wear a PFD when on the working deck of a fishing boat, when using a tender or when working on board in the harbour.

Type and Markings	Suggested Uses	Lifejacket
 IMO SOLAS/EU Marine Equipment Directive	Use for abandoning ship. Not intended for everyday use as they are generally bulky and they need to be kept in good condition for use in abandon ship situations.	

There are 4 principal Personal Flotation Devices, which are manufactured to the international standard ISO 12402 and carry the CE mark, and one of the pictorial symbols shown below. PFDs are also available in versions where they are incorporated into clothing such as oilskins and work suits.

Buoyancy is the amount of flotation provided by a lifejacket and is measured in Newton (N).

10 N OF BUOYANCY = 1KG OF FLOTATION

CE

Selecting the correct PFD is dependent on many factors such as, area of operation for the boat, seasonal variations, night and day work, type of work being carried out, ease of use, etc. The boat skipper should assess the risks related to their area of operation and seek expert advice when selecting a PFD for you.

PFDs which are intended to be worn while working are continually being improved in terms of suitability for the task and user comfort. There are many products available on the market to choose from and advice on a suitable lifejacket can be provided by a good chandler. See also Marine Notice No. 39 of 2013.

Personal Flotation Devices Suitable for Inshore Use

A 150 Newton single chamber inflatable lifejacket should be adequate for inshore fisherman. It has enough buoyancy while still being relatively light to wear and easy to work in. Boats working with only two persons on board, or the single handed fisherman should consider having the SOLAS class double chamber lifejacket for extra safety taking into consideration the difficulties posed by getting someone back on board from the water.

Guidance for Correct Use of Personal Flotation Devices

1. Inflatable PFDs must be worn over all clothing and not underneath unless it is designed otherwise.
2. PFDs should be worn correctly to prevent them from riding up above the wearer's shoulders. Use the thigh or crotch strap where provided.
3. Wearers should be fully familiar with the operation of their inflatable PFDs both manually and automatically.
4. Inflatable PFDs should be checked regularly and maintained in accordance with the manufacturer's instructions.
5. Automatically inflatable PFDs, which operate by means of a soluble bobbin, may activate in error if left in a damp condition.

Further information is also available from the IMA web site www.dttas.ie/maritime.

What the Owner Should do to Assess the Need for Protective Gear

When deciding on what personal protective equipment (PPE) is required for crew working on the boat, there are 4 basic issues to consider:

1. As part of the Risk Assessment process when all practical controls have been put in place, consider if the wearing of working gear and protective gear would be of benefit and would protect the crewmember from the remaining risks.
2. When deciding on exactly what type of gear is required and its specification, particularly for example on mandatory equipment, ensure the equipment is suitable for the work involved. Note that PFDs must be manufactured to ISO 12402 standard and have a CE mark in compliance with S.I. No. 586 of 2001.
3. Discuss the selection of personal protective equipment and working gear with each crewmember to ensure the equipment selected is suitable for the task. Where choice of style is available encourage individual selection.
4. Ensure PPE selected is compatible with other PPE used.

Advise all crewmembers of the PPE available, based on the Risk Assessment in 1 above.

Categories of Protective Equipment and Working Clothing

What fishermen wear for their own protection can be split into three groups:

1. Working gear
2. Protective gear
3. Specialist protective gear

1. Working Gear

This includes those items of personal clothing that, by reason of practicality, share fishermen usually supply for

their own use. All crewmembers should wear suitable working clothing for the type of fishing operation and expected weather conditions.

This may include:

- oilskins;
- overalls;
- hats; and
- working boots/footwear.

Always ensure that working clothing has high visibility features and/or retro reflective tapes to contrast with the working environment.

2. Protective Gear

This includes additional items that the owner of the boat supplies such as:

- Personal Flotation Devices (PFDs);
- face, eye, ear and hand protection, for example, when welding, cutting and grinding equipment is used; and
- head protection where there is a risk from overhead or swinging loads and the Risk Assessment has identified the need for such protection.

3. Specialist Protective Gear

This equipment requires formal training and greater familiarity before it can be used safely. This may include such items as:

- oxygen meters and breathing apparatus used when working in enclosed spaces, such as when painting inside areas below deck or inside tanks; and

- fall-arrest equipment for use when working at height.

Without such equipment and proper training these risks are to be avoided. Delay any tasks requiring specialist equipment until they can be carried out safely, when in port, by either a specialist contractor or trained and competent crewmembers.

14. Fishing Operations

The following sections (sections 15 - 21) cover specific fishing operations. You should read this section and then select and read the section(s) appropriate to your fishing operations.

Before completing a Risk Assessment for the fishing operations on your boat, you should look closely at and review the method used. Discuss with the crewmembers and identify any improvements or changes, which might make the operations safer.

Safety Measures Common to all Fishing Operations

- New or young crewmembers must be supervised at all times while the fishing operation is in progress.
- Always wear suitable working and protective gear such as a PFD, safety wellingtons with steel toe caps and sole protection/safety boots, suitable wet gear (oilskins) and gloves.

- Avoid wearing jewellery and watches.
- Crewmembers should always carry a knife on their person so that they can quickly cut themselves free from an entanglement with ropes, lines, nets or bridles.

A spare knife should be kept close at hand on the deck also.

- All crewmembers must hold a Basic Safety Training Card from BIM or equivalent.
- A Personal Locator Beacon (PLB) must be carried on deck at all times. As a PLB is personal to an individual, ensure you register your PLB with ComReg (see opposite) and always wear it while on board. Know how to operate and test your PLB.
- Log a Traffic Report with the Coast Guard (see overleaf) or file a sail plan with the Coast Guard from your smartphone using the SAFETRX application. For further information see www.safetrxapp.com.

Registered Your PLB with ComReg

Registration of your PLB is a two-step process:

1. First you must register for an account by completing the online registration form. This form requires the following information: your name, address, email address, phone number and the name and phone number of three emergency contacts (other than yourself).
2. On receipt of the registration form, ComReg will enable your account and send an email to the email address you provided in (1) above. This email contains your username and password. **You must then use this information to log in online and register your PLB.**

Sequence:

a) Go to the ComReg website; www.comreg.ie.

b) The registration area is located under the *"Licensing & Services"* tab on the Home Page.

c) From there, select *"Personal Locator Beacons"* from the menu on left of the screen.

d) Select *"PLB Login"*

e) To register a new account (as at (1) above), click the embedded link *"Please complete the registration form"* and complete the requested details; or

f) To register the PLB (as at (2) above), login using your Username and Password and complete the forms presented.

Note: Only Irish PLBs can be registered. Where a beacon is purchased in another country it will need to be assigned an Irish registration number (First 4 digits; 1F4E) before it can be registered with ComReg. Contact any Irish PLB supplier to assign the new Irish number.

In the event of problems with the registration process, email licensing@comreg.ie or telephone 01-8049600.

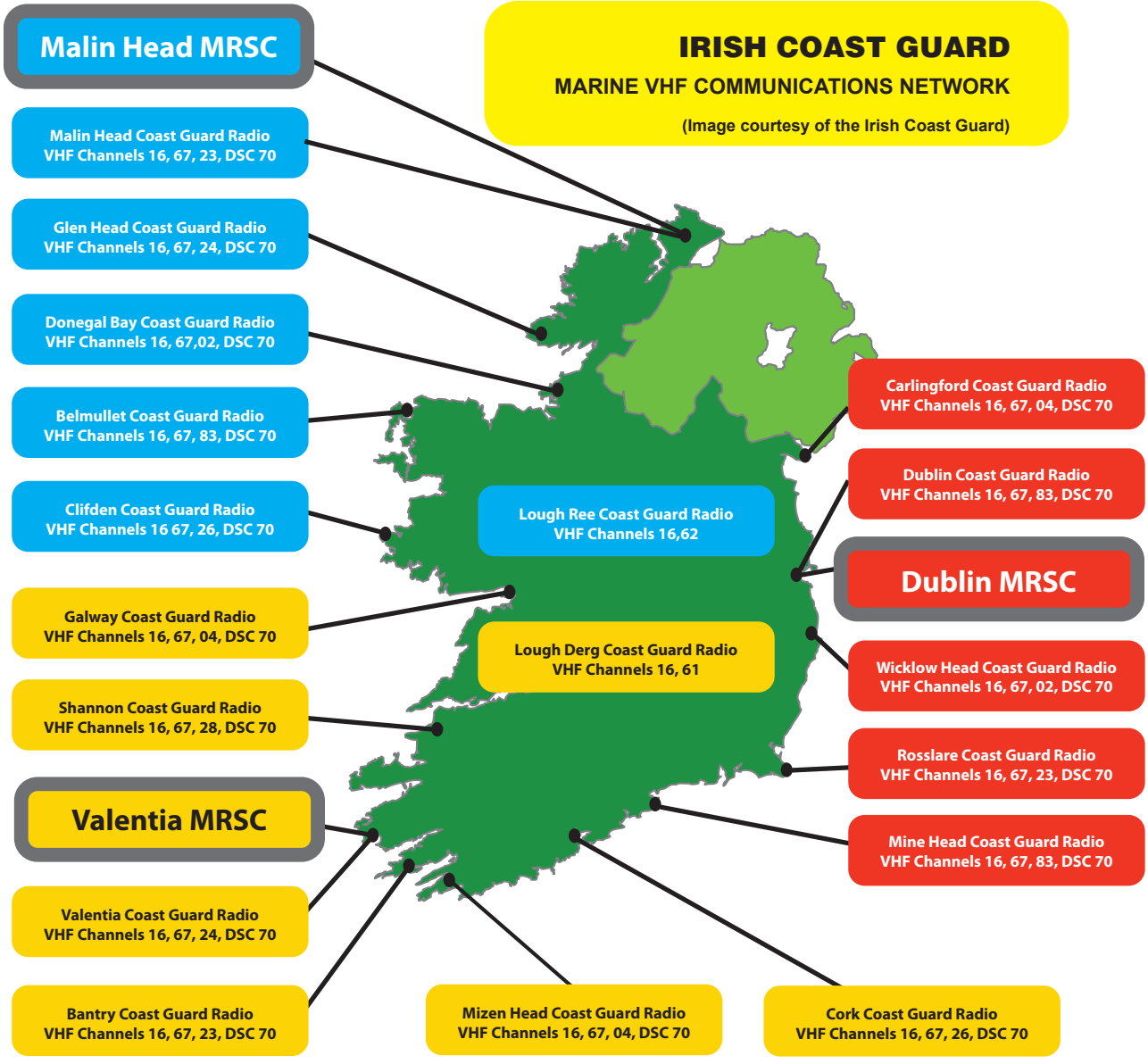
Logging a Traffic Report (TR)

When planning to go fishing, it is good practice to log a TR with your nearest Coast Guard Radio Station.

When fishing vessels are leaving port they should contact the nearest Coast Guard Radio station and provide the following information:

- name and call sign of the vessel;
- number of persons on board;
- fishing grounds the vessel is bound for;
- when they expect to return to port; and
- on your safe return, notify the Coast Guard.

There is no charge for this service. Note however, that overdue reporting remains the responsibility of the vessel's shore contact. The Irish Coast Guard will not initiate overdue procedures on the basis of TR messages. However by logging a Traffic Report it will increase your chance of survival as it facilitates search and rescue operations. For your nearest Coastal Radio Station see overleaf.


IRISH COAST GUARD
MARINE VHF COMMUNICATIONS NETWORK
(Image courtesy of the Irish Coast Guard)
Malin Head MRSC
Malin Head Coast Guard Radio
VHF Channels 16, 67, 23, DSC 70
Glen Head Coast Guard Radio
VHF Channels 16, 67, 24, DSC 70
Donegal Bay Coast Guard Radio
VHF Channels 16, 67,02, DSC 70
Belmullet Coast Guard Radio
VHF Channels 16, 67, 83, DSC 70
Clifden Coast Guard Radio
VHF Channels 16 67, 26, DSC 70
Galway Coast Guard Radio
VHF Channels 16, 67, 04, DSC 70
Shannon Coast Guard Radio
VHF Channels 16, 67, 28, DSC 70
Valentia MRSC
Valentia Coast Guard Radio
VHF Channels 16, 67, 24, DSC 70
Bantry Coast Guard Radio
VHF Channels 16, 67, 23, DSC 70
Lough Ree Coast Guard Radio
VHF Channels 16,62
Lough Derg Coast Guard Radio
VHF Channels 16, 61
Mizen Head Coast Guard Radio
VHF Channels 16, 67, 04, DSC 70
Cork Coast Guard Radio
VHF Channels 16, 67, 26, DSC 70
Carlingford Coast Guard Radio
VHF Channels 16, 67, 04, DSC 70
Dublin Coast Guard Radio
VHF Channels 16, 67, 83, DSC 70
Dublin MRSC
Wicklow Head Coast Guard Radio
VHF Channels 16, 67, 02, DSC 70
Rosslare Coast Guard Radio
VHF Channels 16, 67, 23, DSC 70
Mine Head Coast Guard Radio
VHF Channels 16, 67, 83, DSC 70

15. Working Alone (Single Handed Operations)

One-man operations or working alone is quite common among inshore fishermen, when potting, netting, trolling, longlining or jigging. If you work alone you must be prepared for unexpected emergencies and practice your emergency plans to ensure they will work in a real situation. It is most important for Single Handed Operations that you consider what might happen if you:

- fall overboard;
- have a serious injury such as entanglement in gear or machinery or are struck by a swinging load;

- snag the fishing gear on the seabed;
- foul the propeller or propeller shaft;
- have engine or machinery failure; or
- have a fire on board.

The MSO set the plying limits for your boat and it is essential to ensure that you restrict your area of operation strictly to those limits

Basic Safety Precautions

- Always wear a Personal Flotation Device (PFD). It is a legal requirement and you may have little or no time to react when something goes wrong. See additional information on the selection and use of PFDs in section 13.
- Consider rigging and using a lifeline so you can hook on when working over the rail or in periods of poor weather.
- Use a kill cord or other means of stopping the outboard engine or knocking the main engine gearbox into neutral in an emergency.
- Wear appropriate clothing, with regard to the season and the ambient temperature conditions, in an open boat or on an open deck. Consider wearing thermal underclothing and wet or dry suits. The cold water temperatures experienced during winter will greatly hasten the onset of hypothermia should an incident occur resulting in you falling into the water.
- Get the weather forecast in advance and regularly listen for weather updates in your area during the trip.
- Ensure the engine is in good working order (pay particularly attention to petrol outboards).
- Always carry a sufficient amount of fuel and a reserve tank for outboard engines.
- Always carry safety equipment as required by the IMA, applicable for your boat.

Communications

Particularly when working alone, it is essential that you keep in touch with other local fishing boats and let someone on land know what your plans are for the day. Ensure your radio equipment is

working and don't depend on a mobile phone in the event of an emergency arising.

- Check your VHF radio and make a call to the local Coastal Radio Station (CRS) before leaving for the fishing grounds and inform them of your intended plans. Keep in touch with the CRS during your trip and contact them again on your return to harbour.

- Make radio contact with other local fishing boats and agree arrangements to keep in contact.
- Before leaving the pier inform a responsible person (friend, family member or someone in the harbour) of where you intend to fish and your expected time and place of return. Inform them of what action to take once the estimated time of arrival back passes. The responsible person (i.e. your emergency contact) should contact the Coast Guard immediately once they become concerned. The earlier the Coast Guard is contacted the greater the chance of survival.

Safe System of Working with Fishing Gear

For every fishing technique you engage in, such as potting, netting, jigging or longlining, put in place a safe system for shooting and hauling the fishing gear. For more safety advice, refer to the specific fishing methods within this guide (sections 16 – 19).

The Boat

Ensure the boat complies at all times with the requirements of the DTTAS COP.

Stability

Never overload your boat as this will affect the stability of the boat and could lead to sinking. Consider what would be more expensive, an extra trip to the fishing grounds or a major tragedy?

To ensure the certification and ultimately the stability of your boat, always clear all alterations to your boat with the MSO. The loading of the boat may also affect its stability. For example, when travelling to or from the fishing grounds you may wish to carry as many pots as possible. This may seriously overload the boat resulting in instability leading to a possible capsize.

- Never lift pots, nets or codends from unnecessarily high points, as any suspended load acts from the point of suspension.
- Stow gear as low as possible and secure it well on the boat. Be aware of how the weight of the gear and the stacking height might affect the stability of your boat.
- Never attempt to carry more pots than the boat is capable of carrying safely.
- Check and ensure the boat is reasonably level, before leaving for or from the fishing grounds.
- When carrying nets, ensure the bin used has drainage holes.

- Keep the scuppers clear at all times.
- If your boat is decked, ensure there is a working bilge level alarm fitted. Always ensure your bilge pumps are freely pumping in order to remove excess water taken on board by the gear.
- Do not make any modifications to the structure of your boat without first seeking expert advice with regard to the impact on stability, structure or general safety.

Emergencies

Consider what might happen on board should something go wrong, such as:

- entanglement with a running line or an unguarded machine;
- fire on board in the wheelhouse, galley, engine space or on deck;
- fouling of the propeller or propeller shaft;
- a rope jamming in the pot hauler; or
- fishing gear fast on the seabed.

If you fall overboard- will the boat steam on? Can you get back on board?

Consider what you might do and put in place a planned response to deal with each potential situation i.e. your emergency plan(s) (see sections 8 and 9). Test your plan by carrying out a drill or exercise on board your boat.

In addition to the DTTAS COP requirement to keep on board an Emergency Position Indicating Radio Beacon (EPIRB) which is registered to the boat, you must also carry a Personal Locator Beacon (PLB).

Remember: If you work alone, you must make plans to ensure your own safety, be prepared and always wear a PFD

16. Potting

There are a number of particular hazards associated with pot fishing and they vary depending on the boat size, the shooting method used and the number of crew on deck. Look closely at the fishing operation and consider the following:

- Can the layout of the equipment be made safer?
- Can the crew move around the deck safely?
- Put in place a safe procedure to be followed when shooting the gear and ensure it is adhered to.
- Maintain the hauler in good condition and ensure the ejector knife is correctly positioned so that the rope coils off the hauler safely.
- Ensure the sheaves are maintained in good condition and the angle of the rope is sufficient to ensure the rope will not pull out when the boat is rolling heavily.
- Is the davit post located in the best position so that the pots can be hauled on board with the minimum of manual effort and as safely as possible?
- On small boats, fit a pressure relief valve in the hydraulic system and ensure that it is set at the correct pressure to blow off and prevent the boat capsizing should the pot or line snag on the bottom.
- When operating a hauler, keep close to the controls, so that you can stop the hauler quickly. Make sure you can easily access the controls at all times.
- Would an additional emergency stop, accessible by other crewmembers make the operation safer?
- Can a rope or line under load, tangle with and/or accidentally operate a control lever? Fit a simple rope guard or barrier over the control lever to prevent this.
- Remove or cover any potential snagging points around the deck area.
- Keep a knife or cutting tool in easy reach at all times when on the deck.
- Keep the stern shooting hatch closed when the shooting operation is finished and when making passage.

Safety is improved when a safe system of shooting and hauling is in place on board the boat.

Safe System in Place

When shooting pots there is a risk of a crewmember becoming entangled in the coils (bights) of ropes and being injured or more likely being dragged overboard. All crewmembers working on deck should be made aware of the dangers.

Shooting

- Ensure constant and clear communications between the wheelhouse and the hauler operator.
- Have an agreed system in place to safely handle and shoot the anchor, weight or dhan buoy.
- Ensure the ropes are free to go overboard without getting caught or snagged.
- Pots should be securely stacked in sequence ready for shooting.
- Consider creating a barrier between the pots and shooting rope to prevent accidentally stepping into a bight of a rope.
- If two crew are shooting the pots, the crewmember throwing the loose bights of rope must be aware of the other crewmember's position at all times.
- Put an action plan in place to respond in the event of someone being dragged overboard. Agree this plan with the crew and provide quick access to cutting equipment such as a knife or axe.
- Ensure the number of pots on a string is limited to the number which can easily and safely be worked on the available deck space.
- Mark, remove and store securely all damaged or out of sequence pots so they are not confused with pots that are in service.
- Pots removed for repair or spare pots must be separated from the fishing pots.
- Do not attempt to free bights of rope as they are about to go overboard. Haul back and untangle or leave for another day.

Hauling

When retrieving pots using a davit and block, always arrest the strain on the line before transferring the line from the hauler.

- Keep hands and fingers away from the hauler and wear gloves.
- Ensure the ejector knife is positioned correctly in the hauler so as not to jam the free running of the hauling line.
- As each pot is retrieved, the ropes must be safely stowed to minimise the risk of entanglement.
- Never leave the hauler unmanned when hauling a line.
- Ensure that the davit block is strong enough for the task and effective in retaining the rope and preventing it from sweeping aft and injuring a crewmember.

- Remove the catch and bait the pots on a platform set at a comfortable working height.
- Ensure the deck area is kept as clear as possible to avoid tripping or slipping when handling the pots.
- Ensure the boat's speed allows adequate time for the crew to handle the pots at a safe working pace.
- Wear gauntlets or comfortable fitting gloves when handling the catch, bait or pots to protect against:
  - crab bites when handling the catch;
  - cuts or abrasions when handling the pots; or
  - infection from a fish bone jab when handling the bait.
- Immediately clean any cuts or abrasions with clean fresh or salt water and apply antiseptic cream from the first aid kit.

Stability

Never overload your boat

What is more expensive - an extra trip to the fishing grounds or a tragedy?

Photo courtesy of MAIB Digest.

When transferring pots to or from the fishing grounds it is tempting to try to carry as many pots as possible. This may seriously overload the boat resulting in boat instability and a possible capsize.

- Never lift pots, nets, codends, etc. from unnecessarily high points, as any suspended load acts from the point of suspension.
- Stow pots as low as possible and secure them on the deck of the boat. Be aware of how the weight of the pots and the stacking height might affect the stability of your boat.
- Never attempt to carry more pots than the boat is capable of carrying safely. Check and ensure the boat is reasonably level, before leaving for or returning from the fishing grounds.
- Avoid operating a boat with a list.

- On decked boats, make sure that there is a working bilge level alarm fitted. Always ensure your bilge pumps are freely pumping in order to remove excess water taken on board by the pots and ropes.
- Do not block access to the freeing ports or safety equipment.
- If the catch is stored on deck, ensure it will not shift in poor weather or fill with water and overload the boat.

Lifting and Carrying

Many injuries to fishermen are due to manual handling when lifting, carrying or handling loads. While most manual handling injuries affect the back and spine, a person's limbs may also be at risk of injury.

Pot fishing involves a considerable amount of lifting and carrying of loads and twisting of the body (torso) by crewmembers. A critical look at how the pots are handled may prevent injuries and reduce crew fatigue in the future.

- Is the crewmember at the rail able to bring the pots inboard without excessive effort in reaching or stretching? Would alterations to the davit block, the position of the controls or the adoption of a rail mounted roller make the job easier?
- Crewmembers should always stretch their muscles before starting to work, be conscious of correct lifting methods and use their legs and not their back when lifting, keeping the load close to their body.
- Consider fitting a horizontal roller on the gunwale rail to assist in the retrieval of the pot from the hauler.

- An experienced crewmember will learn to use his wrist action and the motion of the boat to assist him in landing pots inboard, and so reduce the risk of back injury.
- When lifting fish boxes containing either the catch or bait, consider the load and if necessary plan or arrange a two-man lift.
- Provide a worktop with a suitable working height and organise the work area to avoid repeated stooping, bending, twisting and lifting when handling the pots, catch, bait or fish boxes.
- When landing the catch on the pier use a mechanical lifting device such as a landing derrick or make use of the harbour derrick at the landing berth if available.

- When unloading boxes of fish, ensure the following:
    - The deck area is clear of any crew before lifting or swinging a load overhead.
    - Wear hard hats.
    - The lifting hooks are securely fixed at each end of the fish box before lifting.
    - Be ready to receive the loose swinging hooks being returned.
- Where manual handling cannot be avoided the crew should attend a manual handling course. They should then organise their work area so as to reduce the frequency of lifting, twisting, bending and stooping.

For further information on manual handling see section 7.

Emergencies

Consider what might happen on board should something go wrong, such as:

- crewmember or the skipper falling overboard;
- crewmember dragged overboard when shooting the pots;
- entanglement with a running line;
- a rope jamming in the pot hauler; or
- fishing gear is fast on the seabed.

Consider what you might do and put in place a response plan to deal with each potential emergency situation.

17. Netting/Jigging/Trolling/Longlining

Netting, jigging, trolling and longlining are fishing methods, which are quickly interchangeable, on all small boats. The common hazard is entanglement or snagging with the net, ropes, lines or fishing hooks. Maintain clean lines around the deck and remove snagging points which will foul the gear when shooting and hauling. Look closely at the fishing techniques and consider the following:

Netting

To prevent the risk of being dragged overboard when operating the gear, the following good practice should be applied:

- Stand forward of the gear when shooting, whenever possible.
- Wear suitable clothing that will not snag in the netting such as a smock, oil skins and wellingtons.
- Do not let the line or net run through your hands.
- Stand well clear of the rope or bights.
- Do not attempt to untangle fouls when the boat is underway and the net is being shot.
- Always shoot the net at a safe speed.

- Put a simple shooting frame in place to guide the net from the bins over the rail and prevent the net snagging.
- The skipper and crewmembers must watch out for each other and work together during the operation. Removing fish from the net is a skill involving the fingers and hands and is performed constantly at speed when hauling. Tools should be used whenever possible to remove the catch from the net.
- Gloves should be worn when hauling the net to avoid cuts and sores from the netting.
- Care should be taken to avoid being bitten or being stabbed by spines when handling certain species.
- Prevent the net from accidentally snagging any of the control levers on the deck. Either fit a rope guard or locate the control away from the working deck area.
- Fishing gear stowed on deck may block freeing ports (scuppers) and prevent the boat from spilling water from the deck and affect the boat's stability.
- Bins, fish boxes or other containers can trap water and affect the stability of the boat.
- Store loose netting in bins or fish boxes on the deck to prevent entanglement when shooting the gear.

    - Secure the bins or boxes on the deck to prevent them sliding to one side in heavy weather and affecting the boat's stability.
    - Ensure there are drain holes to allow water to run off quickly to prevent the accumulation of trapped water in the bins.

Jigging and Trolling

- Gurdies and jigging reels must be securely mounted to the side rail (gunnel) with a safety line attached.
- Set up the gurdie or jigging reel to a height which is comfortable to work and avoid back pain.
- When operating automatic jigging systems, ensure crewmembers are trained to operate the system.
- When lines are traversing the deck, set them at a height which allows free movement by crewmembers.
- Handle hooks with extreme care.
- Fix hooks in sequence into a suitable material when hauling lines.

Longlining

Care is required when baiting the hooks, shooting and hauling the lines and removing the fish.

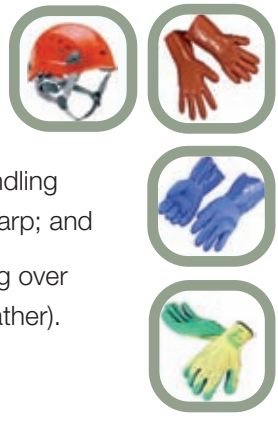
- Skipper and crewmembers must watch out for each other and maintain a safe speed for shooting.
- Stand clear when tangles occur, do not interfere.
- When hauling, work at a safe speed, adopt a comfortable stance and avoid back strain.

18. Trawling

There are a number of particular hazards associated with trawling and they vary depending on the size of boat, the shooting method used, and the number of crew on deck. Safety is improved when a safe system of shooting, towing and hauling is in place on board the boat. Look closely at the fishing operation and consider the following:

- Can the layout of the equipment be made safer?
- Can the crew move around the deck safely without slipping or tripping over obstacles?
- Is the winch adequately guarded? Could someone accidentally fall into the winch? Would a simple guard or barrier help prevent this?
- Is the winch in good condition? Are the controls, brakes, dogs, and drives in good working order?
- Can crewmembers operating machinery such as the winch, net drum, crane, powerblock or landing derrick clearly see the crewmembers on deck? Would a raised platform, a step or a well-positioned mirror help improve visibility?
- Are the hydraulic pipes, hoses, fittings and equipment in good condition and serviced? Are the pressure relief valves set correctly so as not to overload the equipment? Seek technical advice regarding the hydraulic pressure settings and the lifting or hauling capacity of equipment.
- Would the addition of an emergency stop located near the machinery improve safety?
- Is access safe when hooking the trawl doors to the gallows? Would an extra rail improve safety or would the addition of a raised step make reaching the doors easier?
- When hooking on the Gilsen hook, does the crewman have to reach outboard? Could you make changes to make it safer?
- When working with loads overhead or swinging loads, consider the use of suitable hard hats for head protection.
- When the codend comes inboard, consider the use of a codend catcher or rigging to prevent the bag swinging?
- When working at night is the deck lighting adequate?
- Does lighting create blind spots from shadows or cause dazzle by direct light and if so could the light be repositioned to prevent this?

In addition to the protective and working gear outlined in section 14, the following should be included:



- hard hat;
- gloves, suitable for handling lifting gear and trawl warp; and
- a lifeline (when reaching over the side or in poor weather).

Safe System in Place

While the skipper is always in charge and controls the boat's movements throughout the fishing operation, only an experienced crewmember should operate the main winch controls. The winch operator must have a clear view of the

operations on the deck at all times. He is key to ensuring safe procedures and is the main decision maker when handling the trawling gear. When releasing the nets, bridles, and doors over the side there is always a danger that a crewman may get caught in the gear and get dragged overboard. It is important that all crewmembers engaged in the fishing operation look out for each other. There are all too many dangers with running gear under load, which may, pull a man overboard, or crush him or a limb such as a hand or arm.

Shooting and Hauling

An adequate number of deckhands must be on deck and ready when the skipper decides to shoot or haul the gear.

- Ensure constant and clear communications between the skipper, winch operator and deck crew.
- Have an agreed system in place to safely shoot, tow and haul the net.
- Only crew involved in the shooting or hauling of the gear should be on the exposed deck.
- Crewmembers operating deck machinery such as the winch, net drum, powerblock, haulers, deck crane, or landing derrick must at all times have a clear view of the machinery they are controlling and the working deck area.
- Keep clear of running gear (nets, bridles, warps, chains, etc.) during the fishing operation.
- Crew must never stand in the line of working warp while the fishing gear is deployed as it may snap at any time without warning.
- Avoid stepping over warps; consider reviewing access around the working deck during fishing operations so as to avoid stepping over warps.
- Put an action plan in place to respond in the event of someone being dragged overboard. Agree this plan with the crew and have available suitable cutting equipment such as a knife, wire cutters or an axe.
- The crew must be alert and watching for possible dangers such as:
    - a jam in the rigging;
    - net or lines fouling the propeller or stern gear; or
    - entanglement in the rigging of other deck equipment or blocks.
- When hauling and particularly in rough weather, keep well clear of trawl doors until they are hard against the gallows and the winch brake is applied.
- Ensure the winch operator can see the deckhand hooking and unhooking the doors to avoid the danger of the deckhand being struck by the door or a hand being crushed.
- Never attempt to lift too much in the codend. Chokers should be fitted to ensure only a certain amount of fish can be lifted.
- Know the Safe Working Load (SWL) of the deck lifting gear and work within the lifting

capacity of the boat and conditions (see section 11, lifting equipment service and inspection).

- When the codend is being lifted inboard, exercise care, as the dead weight of the bag of fish may swing violently and knock a crewmember overboard or injure them.
- If it is necessary to work over the side rail of the boat due to an emergency, ensure a safety lifeline is attached and secured. A second crewmember must be standing by to assist.

Stability

Always consider the stability of the boat during any lifting operation. Never overload your boat. A codend full of fish lifted over the stern or side of the boat could seriously affect stability in certain circumstances.

- Always check and ensure the boat is reasonably level, before leaving port or departing from the fishing grounds.
- Assess the situation and ensure you can safely lift the weight of fish given the sea and weather conditions at the time.
- Consider the weight on deck at any time and put any previous catch below deck and close the fish-hold hatch before putting the next lift of the codend on the deck.
- Know the capacities of the boat and exactly how much catch can be landed on deck.
- Ensure bilge level alarms and pumps are working properly.

- Never store or carry loose fish in the hold without providing pound boards (see photo).
- Always stack fish boxes in the hold evenly across the beam so as to avoid causing the boat to list.
- When stacking fish boxes in the hold try to avoid covering the bilge well or sump.
- Never stack large weights on the main deck.

Emergencies

Consider what might happen on board should something go wrong, such as:

- crewmember falling overboard;
- entanglement with a net or running bridles and warp;
- falling into a winch or net drum; or
- the gear coming fast on the seabed.

Consider carefully and put in place a planned emergency response to deal with each potential situation.

Jettison the Gear

Have you a plan in place to quickly free the boat from the fishing gear? A plan might include, either running the warps off the winch drums or by having cutting equipment on deck which the crew can quickly access.

19. Dredging

There are a number of particular hazards associated with dredging on small fishing boats.

It is most important to keep the main towing point as low as possible and on the centre line of the boat. Safety is improved when a safe system of shooting, towing and hauling is in place on board the boat. In addition to the protective and working gear outlined in section 14, always wear a hard hat and use:

- Gloves, suitable for handling lifting gear and shell fish; and
- A lifeline (for use when reaching over the side or in poor weather).

Safe System in Place

While the skipper is always in charge and controls the boat's movements throughout the fishing operation, only an experienced crewmember should operate the main winch controls. He must have a clear view of the operations on the deck at all times during the fishing operation. He is key to ensuring safe procedures are followed and is the main decision maker when handling the gear.

When releasing the dredges over the side there is always a danger that a crewmember may get caught in the gear and get dragged overboard. It is important that all crewmembers engaged in the fishing operation look out for each other. There are all too many dangers with running gear under load, which may pull a man overboard, or crush him or crush a body limb such as a hand or finger.

Shooting and Hauling

An adequate number of deckhands must be on deck and ready when the skipper decides to shoot or haul the gear.

- Ensure consistent and clear communications between the skipper and the winch operator.
- Have an agreed system in place to safely shoot, tow and haul the dredges.
- Only crew involved in the shooting or hauling of the gear should be on the exposed deck.
- The crew must be alert and watching for possible dangers such as:
    - running gear jamming in blocks;
    - dredges fouling the propeller or stern gear;
    - entanglement of the rigging in other deck equipment;
    - swinging loads; or
    - swinging rigging such as the dredge tipping hooks and restraining chains.
- Crewmembers operating deck machinery such as the winch, haulers, or landing derrick must at all times have a clear view of the machinery they are controlling and the working deck area.
- Crewmembers working the dredges should watch out for the dredge tipping hook when it is swinging free.

- Keep the scuppers clear and continually wash debris, mud and sand off the deck.
- Look at a safe method for a crewmember to reach out and hook the tipping hook and wire to the bag.
- Keep clear of running gear (warp, chains, etc.) during the fishing operation.
- Crew must never stand in the line of working warp while the fishing gear is deployed as it may snap at any time without warning.
- When sorting the catch, use a rake or similar tool to avoid causing back strain. Remember to keep your back straight and always bend the knees when lifting a load.
- Avoid stepping over warps; consider reviewing access around the working deck during fishing operations.
- Put an action plan in place to respond in the event of someone being dragged overboard. Agree this plan with the crew and have available suitable cutting equipment such as a knife, axe or wire cutters.
- When hauling and particularly in rough weather, keep well clear of beams and dredges until they are hard against the bulwark or railings and the winch brake is applied.
- Ensure the winch operator can see the deck hand when he is hooking and unhooking the dredges to avoid the danger of the deckhand being struck or a hand being crushed.
- Never attempt to lift too much in the dredges. Know the Safe Working Load of the deck lifting gear and work within the lifting capacity of the boat and the conditions.
- When the dredge is being lifted inboard, exercise care as the dead weight of the dredge may swing violently and knock crewmembers overboard or injure them.
- The crew must know how to operate the quick release devices to transfer the warp from the derrick ends to the side of the boat. Quick release devices must be maintained to ensure they operate when needed.
- If it is necessary to work over the side rail of the boat due to an emergency, ensure a safety lifeline is attached and secured. A second crewmember must be standing by locally to assist.

Stability

Always consider the stability of the boat during any lifting operation. Never overload your boat. A dredge full of shellfish and rocks lifted over the stern or sides of the boat will seriously affect stability. Uneven loading on the derricks, particularly in the "light ship" condition may cause a boat to capsize.

- Always check and ensure the boat is reasonably level, before leaving from or going to the fishing grounds.
- Assess the situation and ensure you can lift the weight of the dredges given the sea and weather conditions at the time.
- Consider the weight on deck at any time and put any previous catch below deck and close the fish-hold hatch before putting the next catch on the deck.

- After each catch, wash the deck clear of debris, rubbish etc. to prevent a build-up of unnecessary weight on the deck and to avoid slip and trip hazards.

Suction Dredging

As with other fishing methods the standard hazards exist: falling overboard, getting caught up in fishing gear and/or machinery etc. The standard safeguards must be enforced – wearing of life jackets, other PPE and safety training. There is the added danger from handling the dredge itself which is a very heavy item. Fatal accidents have occurred in dredging, where a dredge fell on a deckhand causing fatal internal injuries.

It is most important then that a safe system for handling the dredge is in place. A safe system of work when handling the gear will ensure, in the event of a failure of the running gear during hauling and shooting, the dredge will fall outboard. An arrangement of the stern gantry which pivots in and outboard during the various stages of hauling and shooting the gear will ensure that there is no room for a person to position themselves under the dredge at any time during normal operations.

Handling of the dredge has the potential to become dangerous when major repairs are necessary requiring the dredge to be removed from the gantry/cradle and put on the deck or on the pier. When shifting the dredge from its normal position in the gantry to the deck, caution must be exercised and a safe plan put in place. This operation must only be done in harbour or in flat, calm water conditions.

Emergencies

Consider what might happen on board should something go wrong, such as:

- crewmember falling overboard;
- entanglement with a dredge bag or running wire;
- falling into a winch or capstan drum;
- the gear coming fast on the seabed;
- overhead rigging failing under load; or
- dredges loaded with rocks and stones.

Put in place an emergency response plan to deal with each potential situation.

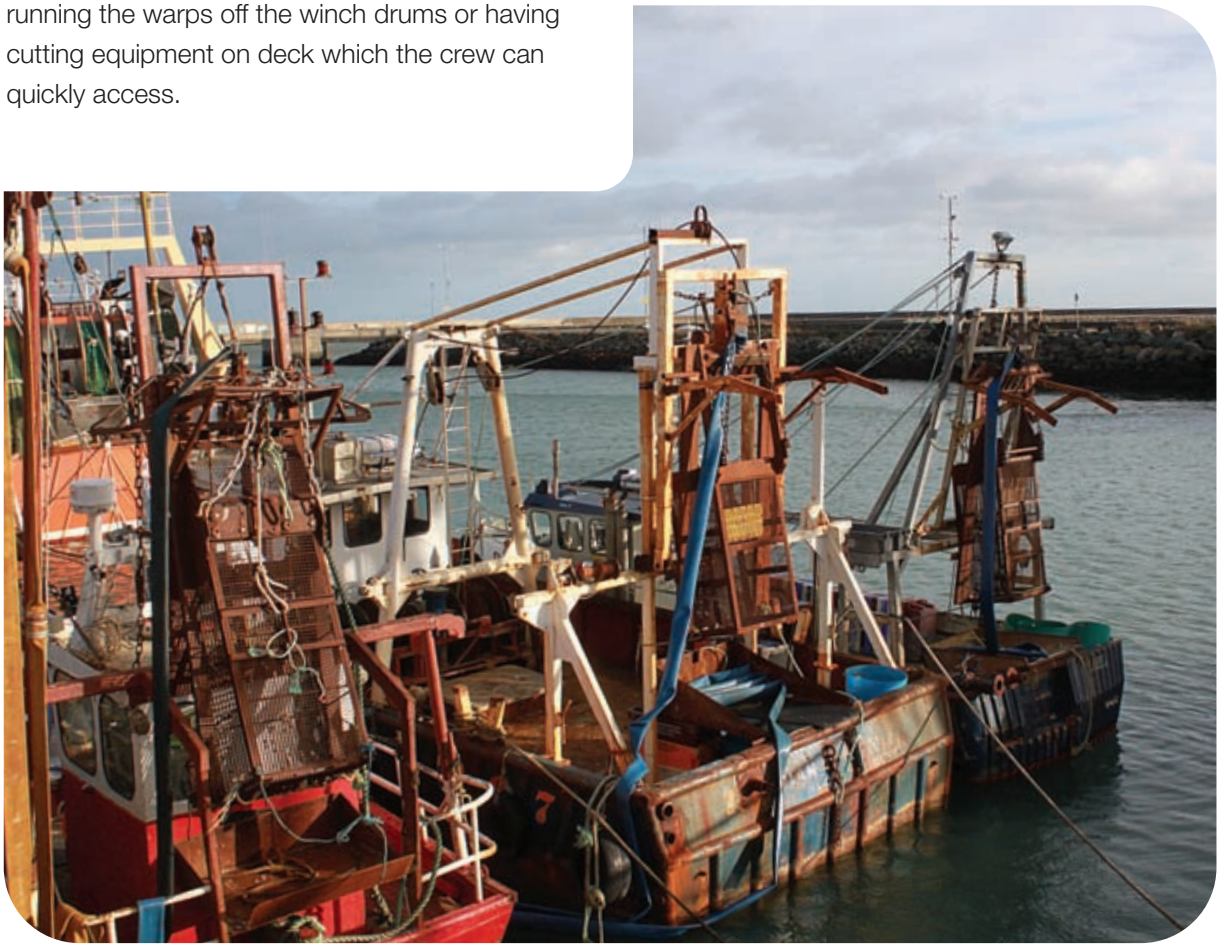
The following immediate actions should be put in place if the fishing gear comes fast on the seabed or other obstruction.

- Engine power is immediately reduced.
- The quick releases are operated bringing the warp to a gallows block at the rail.

- Trawl wires are run out from the winch or the fastened gear is cut-away, buoyed off and released over the side in extreme circumstances.
- Mark the position on a chart and arrange to return with suitable equipment, to recover the gear in suitable tide and weather conditions.

Jettison the Gear

Have you a plan in place to quickly free the boat from the towing gear? A plan might include, either running the warps off the winch drums or having cutting equipment on deck which the crew can quickly access.



20. Handling the Catch

If fish are landed and stored on deck, make sure the load is distributed sensibly, secured and does not cause a stability issue for the boat.

Fish Hold

- Can crewmembers work in the fish hold safely, without the risk of tripping, slipping or hitting their heads on obstructions?
- Ensure the floor gratings are in place to avoid tripping. Provide adequate lighting and ventilation in the fish hold area.
- Safe access and exit from the fish hold must be provided using a safe and secure ladder.
- The fish hold hatch must be closed while at sea and alternative ventilation should be provided.
- When dipping prawns using sodium metabisulphide or other chemical products, only do so out on deck or in a well-ventilated area.
- When using flake ice in the fish hold, use pounding to prevent the free surface effect of the melting ice as the boat rolls.

Lifting and Carrying

Many injuries to fishermen are due to manual handling when lifting and twisting, bending, carrying or handling loads. While most manual handling injuries occur to the back and spine, crewmember's limbs may also be at risk of injury.

Fishing involves a considerable amount of lifting and carrying of loads and twisting of the body (torso) by the crewmembers. A critical look at how heavy items are moved around the boat and how the catch is handled will avoid or prevent injuries in the future.

- Crewmembers should always stretch their muscles before starting to work, be conscious of lifting techniques and use their legs and not their back when lifting, keeping the load close to the body.
- Use lifting gear such as the landing derrick or a drum-end and gilsen derrick to move loads around the deck.
- When lifting fish boxes containing either the catch or ice, consider the load and if necessary plan or arrange a two-man lift.
- Use a lifting derrick when lowering or raising fish boxes from the fish hold or divide fish into smaller amounts so as to reduce the weight when lifting.
- When ice is required, make arrangements on board to deliver fresh ice directly into the fish hold, reducing the need to shovel the ice.
- Consider how to avoid bending and stooping, when icing the catch.
- Provide a worktop on deck with a suitable working height, to avoid repeated stooping, bending, twisting and lifting, when handling the catch.
- Where manual handling cannot be avoided, crewmembers should attend manual handling training (see section 7 for further information on manual handling).

Fish Processing and Storage

- When gutting, washing, icing and stowing the catch, crewmembers should be familiar with the correct handling of different species of fish, to avoid hand injuries from teeth or sharp spines of certain species.
- Wear gauntlets or comfortable fitting gloves when handling the catch to protect against cut and abrasions. The gloves should be adequate to provide protection against spikes and scratches.
- Cuts and scratches from fish can become poisonous very quickly. Treat any wound IMMEDIATELY. Clean the wound with clean fresh or salt water and use an antiseptic cream from the on board first aid kit. Keep covered and dry. Always keep a close eye on these injuries and if swelling and pain persist seek medical assistance without delay.
- Keep the fish in the hold at a temperature of 0°C to +2°C, to ensure the fish is kept chilled, but not frozen. Ice is most effective at cooling when it is melting.
- Keep holds clean of decomposing fish. Wet fish kept in storage consume oxygen and can produce poisonous gases as they spoil.
- Do not lift boxes of fish while holding a knife.
- When stacking fish boxes in the hold make sure:
    - the load is distributed evenly;
    - on larger boats, where it is practical, keep a clear access to the bilge wells; and
    - on smaller boats, attempt to stack the boxes away from the bilge well so that if there is a problem you only have to remove a couple of boxes to get at the pump.
- To prevent slips and falls, regularly hose down decks and other areas to remove fish slime and oils.
- Develop safe work procedures for gutting fish. Good posture and efficient organisation of work areas can help prevent back, neck, arm strains and other injuries caused by incorrect handling and lifting of fish boxes.

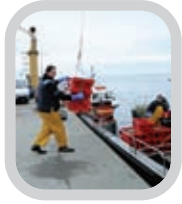
Processing/Gutting/Filleting

- Set up the work on a stable platform away from the fishing operation.
- Keep the fish to be gutted in front of the body in easy reach so there is no need to twist.
- Always use protective gloves and treat any cuts or scratches immediately before they become infected.
- Make sure work tables are at a suitable height to avoid bending.
- Keep the box for fish and guts within easy reach.
- Try to keep your wrists straight while working.
- Change the knife frequently so that your grip changes (for further information on knife safety see section 6 physical hazards).
- Wash down the deck regularly to remove waste and fish oil overboard.

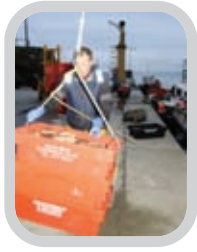
21. Landing and Port Operations

On returning from the fishing trip, the crew must land the catch and take on supplies of fuel, food, water, ice etc. Other operations might include, changing fishing gear such as the nets and perhaps carrying out maintenance or repairs, such as net mending and gear repairs (see section 11). Everything must be transferred safely from the boat to the pier and from the pier to the boat. You must always keep the immediate pier area tidy and safe for the general public who often stop to watch fishermen at work.

Lifting and Slinging of Loads



When landing the catch, or transferring equipment and stores to and from the boat:



- Use a mechanical lifting device such as a landing derrick where available or make use of the harbour landing crane.
- Never exceed the Safe Working Load (SWL) of the lifting boom and rigging. Excessive strain can cause equipment failure, which can lead to an accident or serious injury.
- Wear a helmet when working with loads.
- Ensure the crew know the correct hand signals when using a landing derrick or crane (see section 8, Communications On Board).
- Check that the load is secure and the lifting equipment has the capacity to do the lift.

- Know the Safe Working Load (SWL) of the lifting gear and don't exceed it.
- Make slow and gradual movements.
- Ensure that:
    - the rigging gear and working parts are in good working order. inspect and replace worn parts in good time;
    - the controls are well maintained and respond quickly to movement;
    - the controls on machinery such as the crane are correctly labelled to indicate the direction of movement; and
    - all crew stand clear during lifting and slewing operations.
- All lifting operations should be supervised by a crewmember who is positioned so as to have a clear view of the crew in the fish hold, the lifting stage, the slewing and landing movement of the load.
- A lifting load may swing; always use a steady rope – not your hands.

Pier Area

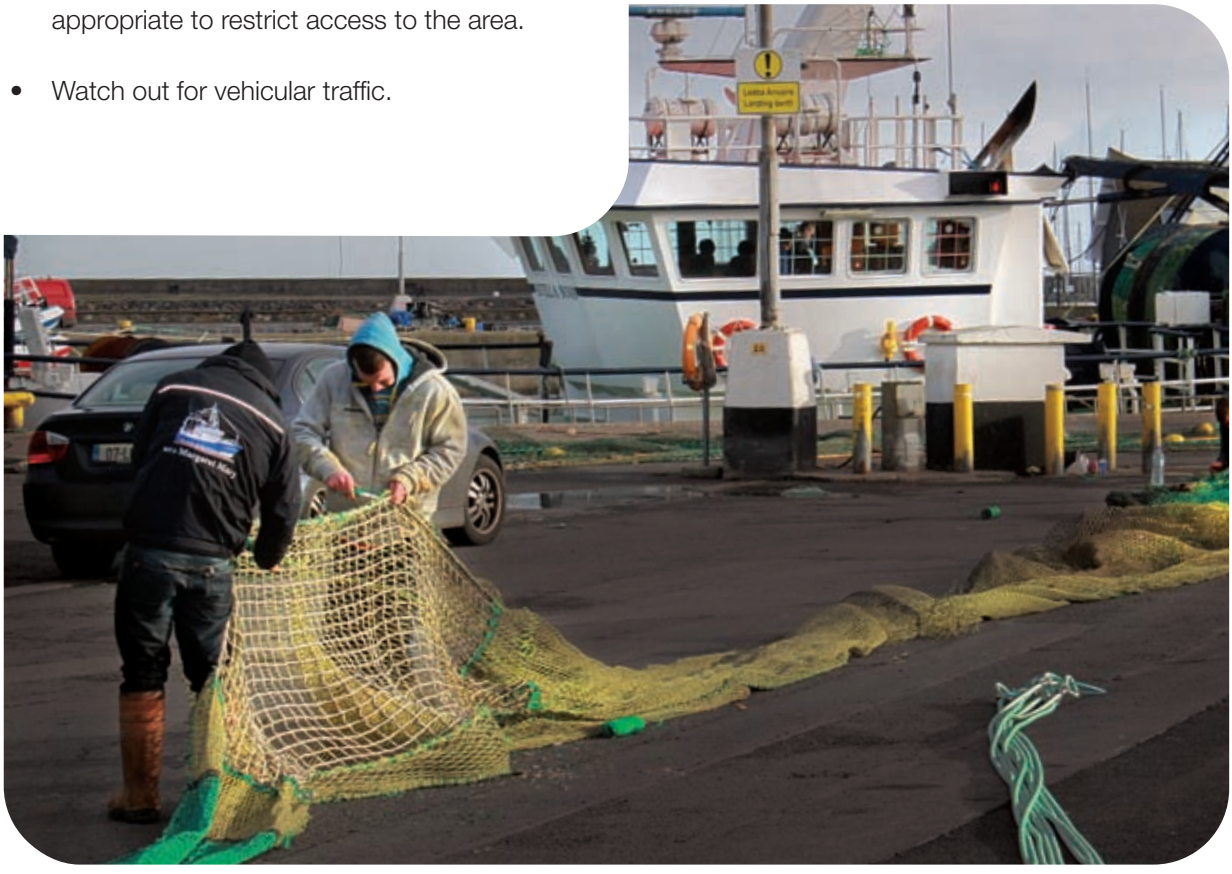
- Keep the pier area tidy.
- Clear a landing area on the pier and restrict access by members of the public to this area.

- Always use the allocated landing berth where provided.

- Stack temporarily stored equipment such as nets, pots, rigging, etc. in tidy bundles until they are removed from the pier.
- Immediately clean up any spills of fish, fish oil, rubbish etc. so as not to cause a trip or slip hazard for others.
- If there is a risk of danger to members of the public, erect a barrier and notices, where appropriate to restrict access to the area.
- Watch out for vehicular traffic.

Returning to Sea after Landing the Catch

Particularly after a good trip and when the weather is favourable there is a strong tendency to get back to sea as quickly as possible. Care should be taken that all crew have had sufficient time for rest before going back out to sea. There have been many accidents of boats going up on rocks or headlands due to the watch keeper falling asleep (see section 7, fatigue and working time). Short turnaround times can increase accident risks, so times when the risk is too great to go out fishing should be identified.



22. Investigation and Reporting of Accidents

Investigate Accidents

Accidents (events which cause injury or ill-health) and incidents (unplanned events which have potential to cause injury or ill-health) don't just happen; there is always a reason for them. In the event of an accident or incident it is important that you identify what went wrong with your existing control measures and take action to correct it, in order to prevent or reduce the chance of the same thing happening again. Investigating the event will also help you and your crew handle and deal with any associated trauma from the event. Always investigate accidents or incidents as soon as possible, whilst the event is still fresh in people's memories.

Accidents at Work

Part X of the Safety, Health and Welfare at Work (General Application) Regulations, 1993 sets out the legal obligations to report accidents at work to the Health and Safety Authority.

Accidents and general injuries involving employees, share fishermen and the self-employed, where a person is injured at a place of work and cannot perform their normal work for more than 3 consecutive days, not including the day of the accident, are reportable to the Health and Safety Authority. Fatal injuries to crewmembers must also be notified to the Authority.

Responsibility for Reporting Accidents

- Employers are responsible for reporting the death or injury of an employee at work.
- In any other case (if the injured person is self-employed, a share fisherman or a member of the public), the person responsible for reporting the accident is the person having control of the place of work at which the accident occurred.

Accidents can be reported to the Health and Safety Authority in either of two ways:

1. Hard Copy

In hard copy format by completing the Incident Report Form (IR1) and posting it to:

Workplace Contact Unit,
Health and Safety Authority,
The Metropolitan Building,
James Joyce Street,
Dublin 1.

Forms can be obtaining by calling the Workplace Contact Unit at **1890 289 389**.

Note: Fatal or potentially fatal accidents must be reported immediately by telephone in the first instance

2. Online

You can report accidents online by clicking on the "report an injury online" tab that appears on the HSA homepage www.hsa.ie.

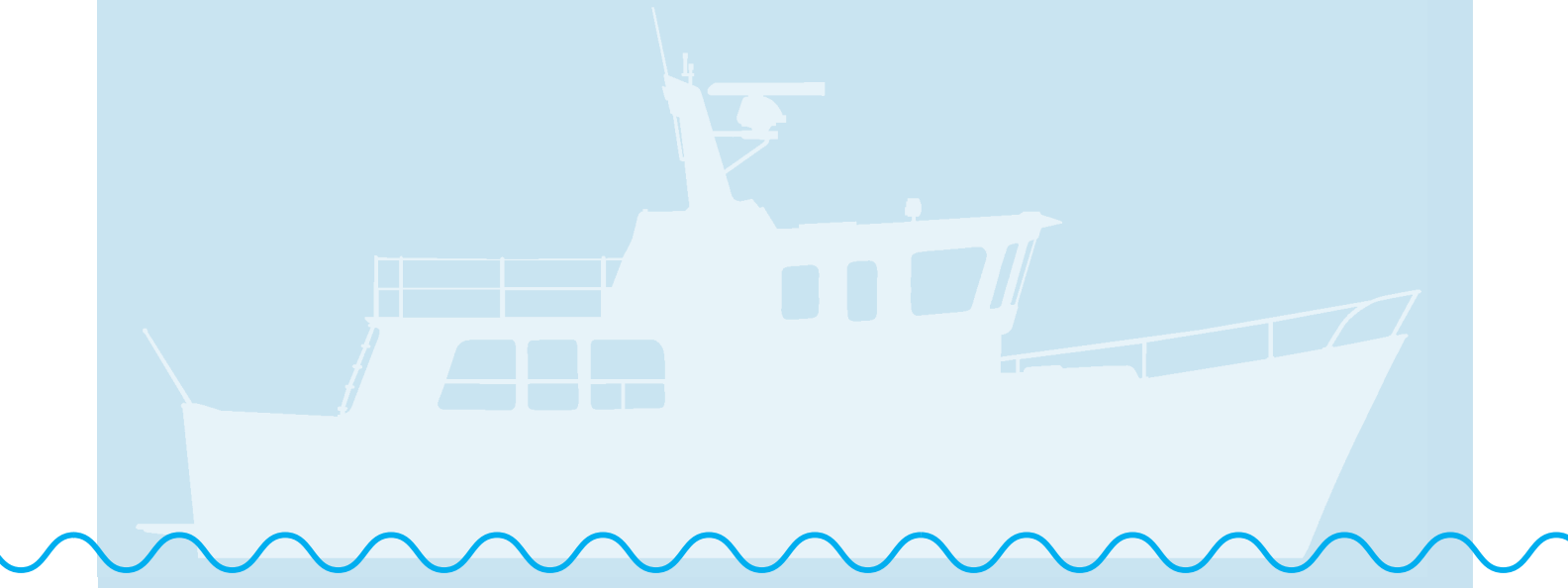
Accidents at Sea

An accident at sea is an event that happens to the vessel at sea and encompasses all crew accidents linked to the operation of the vessel. The owner of a fishing boat, large or small, must notify the Marine Survey Office should the boat suffer a:

- collision;
- grounding;
- fire, or
- other event that causes major damage.

Contact the Irish Maritime Administration for further information on any additional reporting requirements for accidents at sea.

In certain cases both the HSA and the MSO may need to be notified. The purpose of reporting such events is to identify the main types of incidents and injuries at sea. This enables the probable causes to be identified, so that appropriate preventive measures can be developed and implemented to prevent the same thing happening to someone else. Unfortunately in Ireland, fatal accidents get reported but other serious injuries such as head, limb and body injuries go unreported.



A country where worker safety, health and welfare and the safe management of chemicals are central to successful enterprise

HEALTH AND SAFETY AUTHORITY

Tel: 0818 289 389

International Callers

00353 1 6147000

Fax. (01) 6147020

www.hsa.ie

HSA

An tÚdarás Sláinte agus Sábháilteachta
Health and Safety Authority

ISBN NO. 978-1-84496-206-8

HSA0428