

Safety of Fishermen





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FOOD AND AGRICULTURE ORGANIZATION
OF
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2007

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Preface

“Safety First” is the slogan that the crew-members of any fishing vessel should keep in mind. “Safety” must be given top priority. Appropriate safety measures will save lives, protect vessels from damage, prevent serious injuries, protect the environment, and help maintain the fishing industry in a profitable manner.

The owners, operators and skippers of all fishing vessels have a responsibility to train their crew-members on “safety”. This manual provides a list of possible accidents that may occur onboard fishing vessels and useful tips and courses of action that may be taken in order to keep those accidents from happening.

This manual has been compiled primarily for vessels of less than 24 metres in length where the skipper does not hold a certificate of competency or has limited vocational training.

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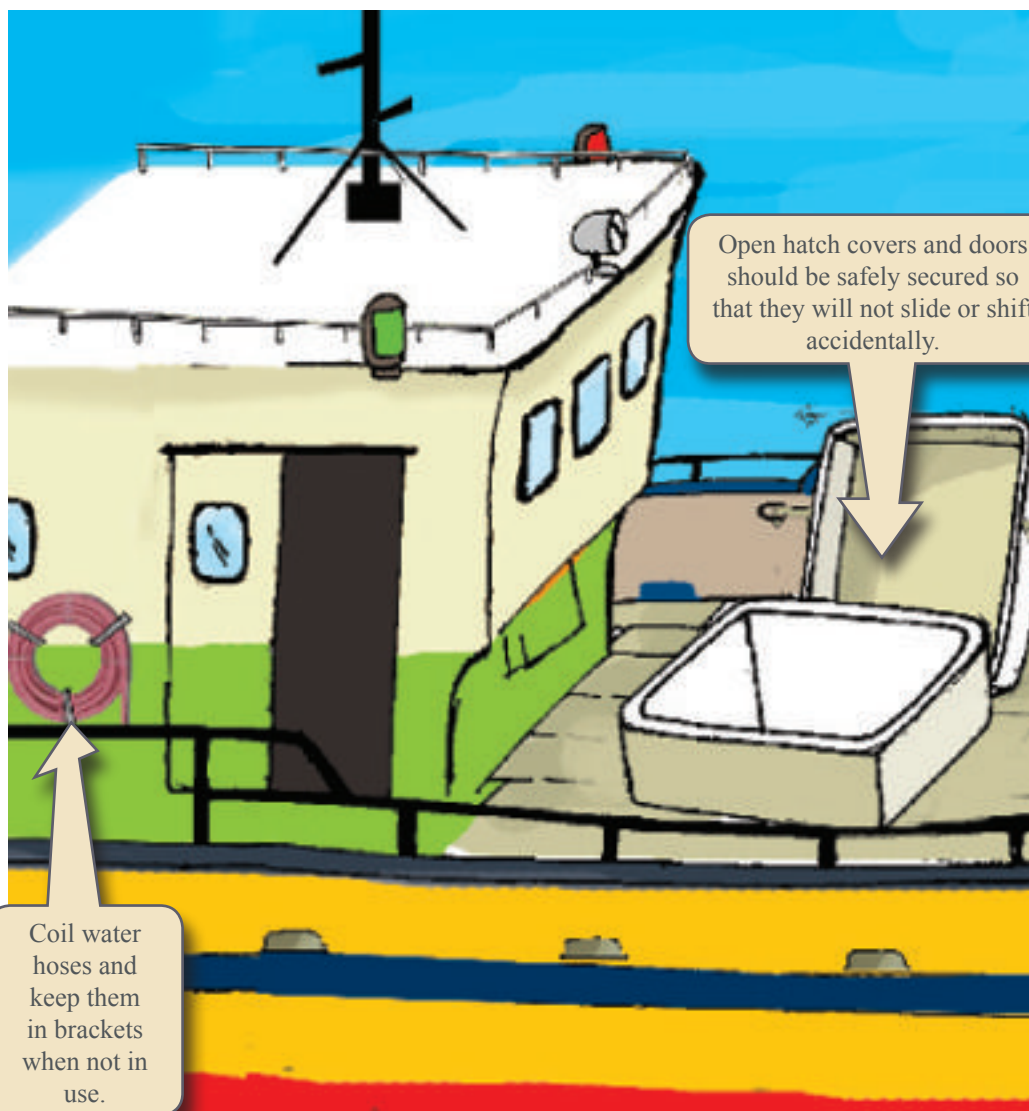
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Chapter 1

General Safety

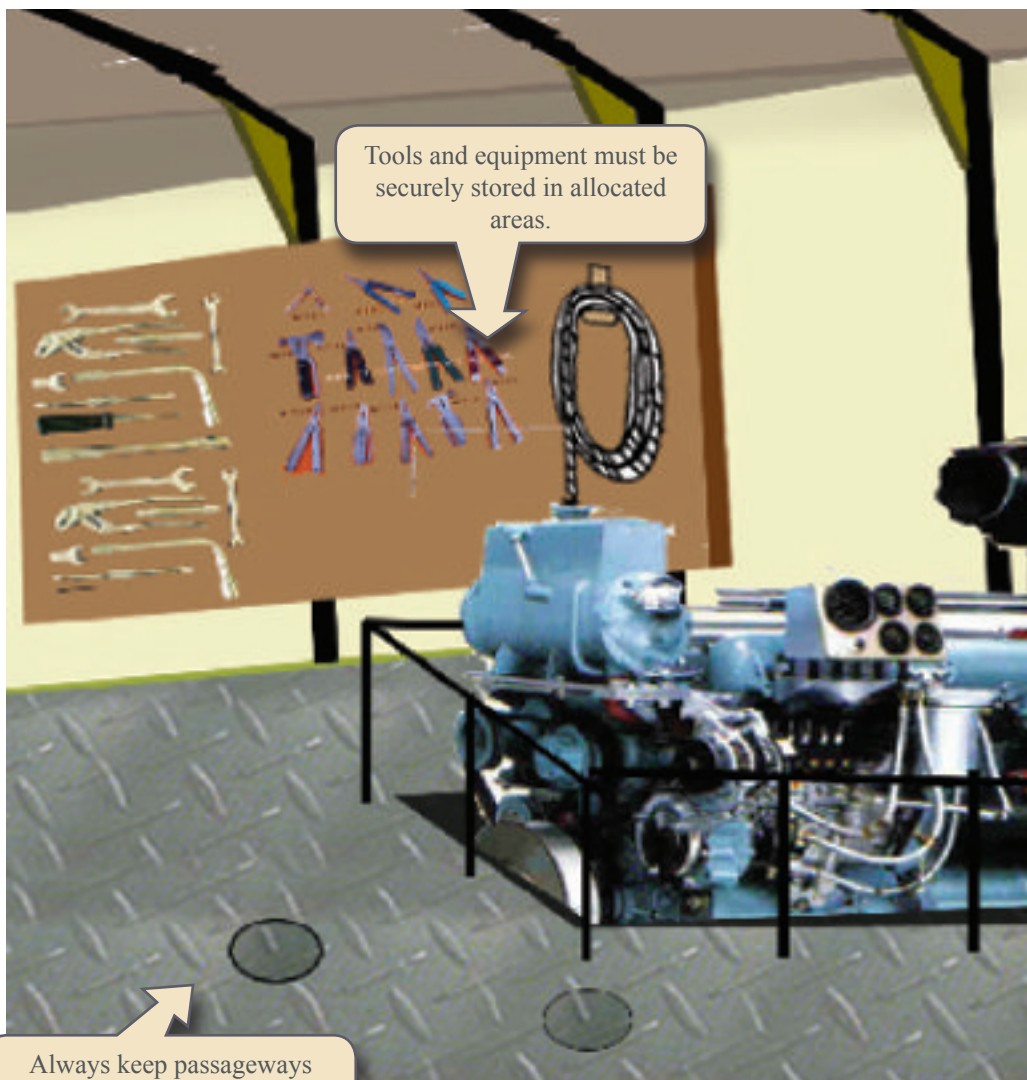
The space available onboard a fishing vessel is far more limited than that of a cargo vessel. The inside of fishing vessels are much more congested as various types of tools, equipment, and machinery that are used in fishing operations are stored onboard. Supplies such as ice, baits, fresh water, fuel and the provisions needed for the crew-members to successfully complete long voyages out at sea, must be stored onboard a fishing vessel. Adequate space for the accommodation of the crew, sufficient space for cooking and living also need to be allocated. All activities therefore, must be considered carefully when space is being allocated, needless to say the allocation of space must be done effectively and efficiently. The allocation of space has a significant impact on the safety of the crew as well as the safety of the vessel. Proper ship husbandry is an important factor of safety that all the fishermen must improve on, this in turn will assure a higher degree of safety. It is important that a log be maintained in order to record the results of the checking that is carried out on the systems, operation of machinery and other equipment of a vessel, prior to sailing.

Deck Safety



Coil water hoses and keep them in brackets when not in use.

Open hatch covers and doors should be safely secured so that they will not slide or shift accidentally.



Tools and equipment must be securely stored in allocated areas.

Always keep passageways clear of goods and/or gear.



Always keep a wire cutter and a knife handy to cut lines or gear that is tangled or needs to be cut away. This will help you to cut the gear and separate a person if they are entangled in nets or ropes or stung by fish hooks.

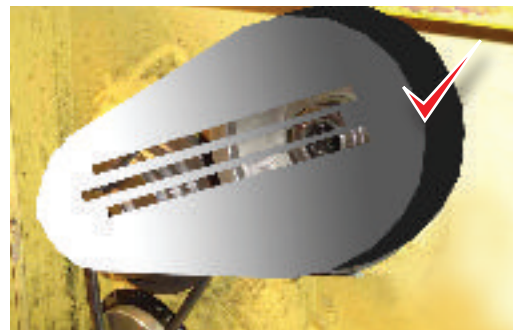


Avoid using gasoline or other liquids that can catch fire as a cleaning agent.

Work areas, decks, the engine room, the wheel house and the anchor area must be kept free of elements that can cause a person to slip and/or trip.



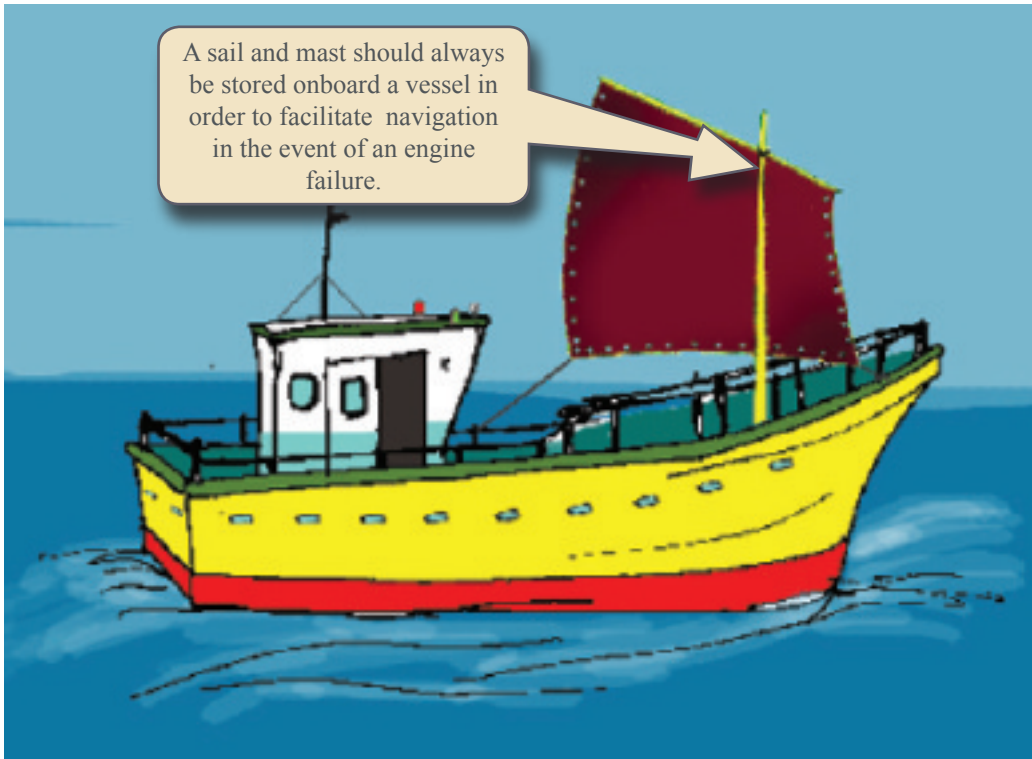
Decks must have non-skid surfaces except where a smooth surface is needed for handling fish.



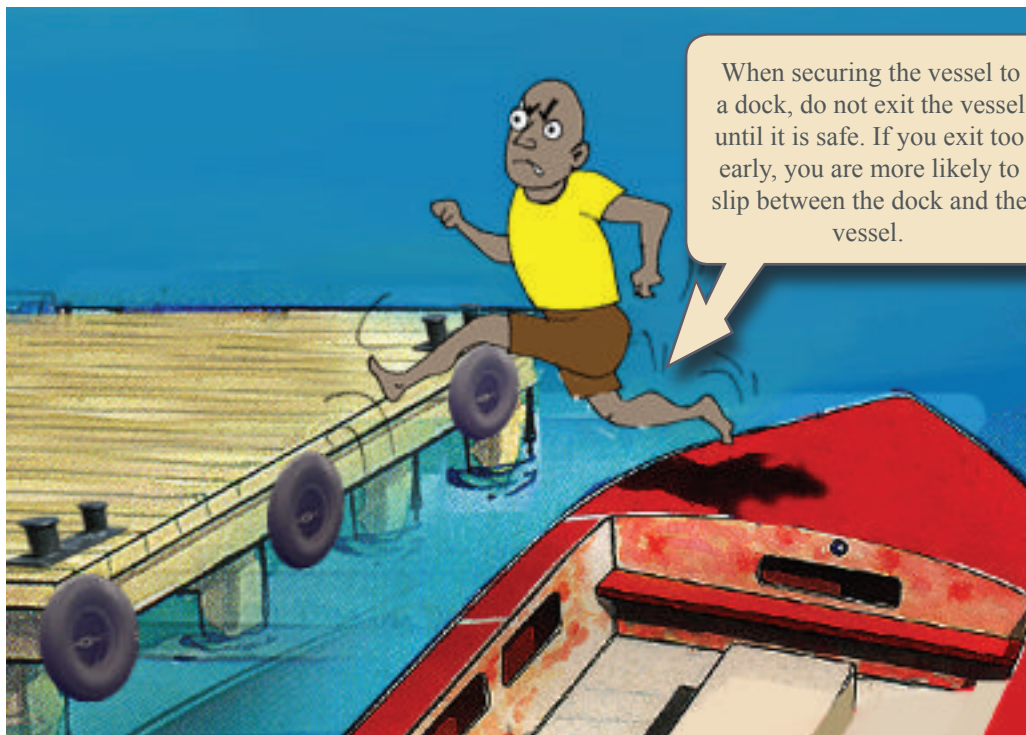
All belts and other moving parts of equipment should be fitted with proper guards.



Do not keep any sharp edges exposed in working areas, accommodation areas and other places where the crew is active.



A sail and mast should always be stored onboard a vessel in order to facilitate navigation in the event of an engine failure.



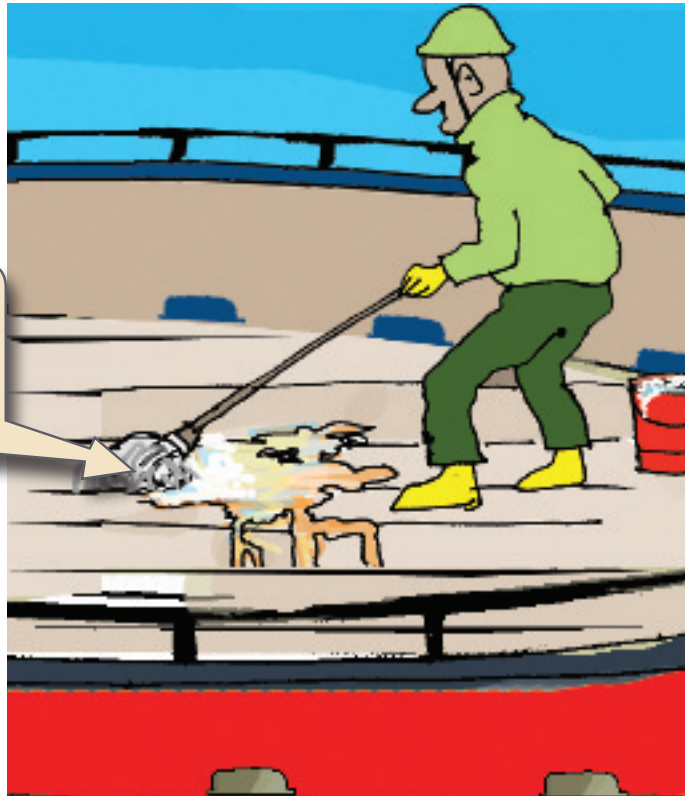
When securing the vessel to a dock, do not exit the vessel until it is safe. If you exit too early, you are more likely to slip between the dock and the vessel.



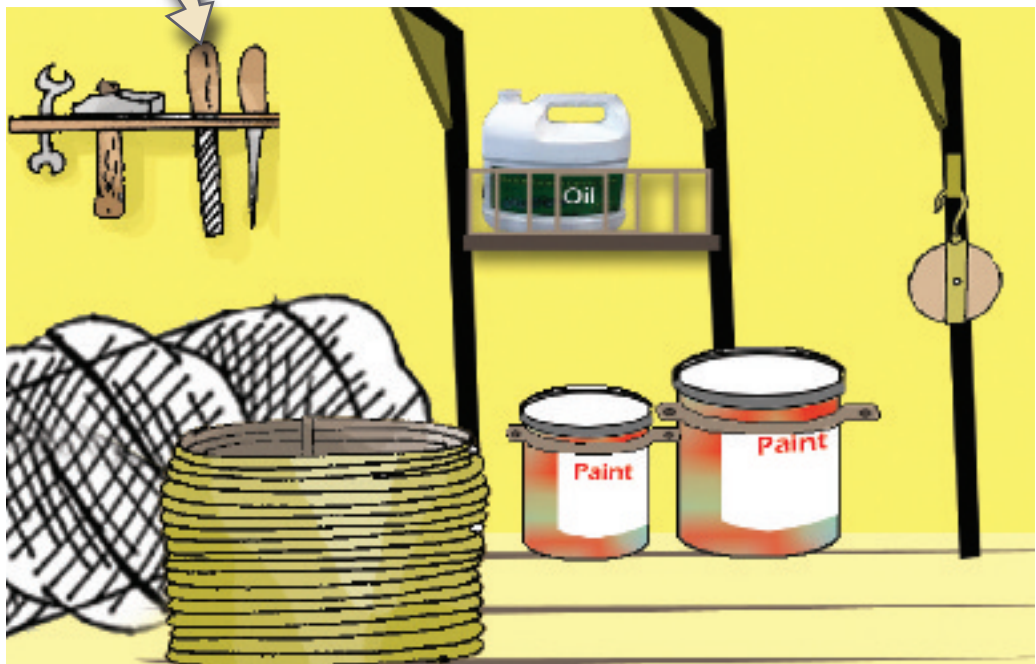
Is anybody there?

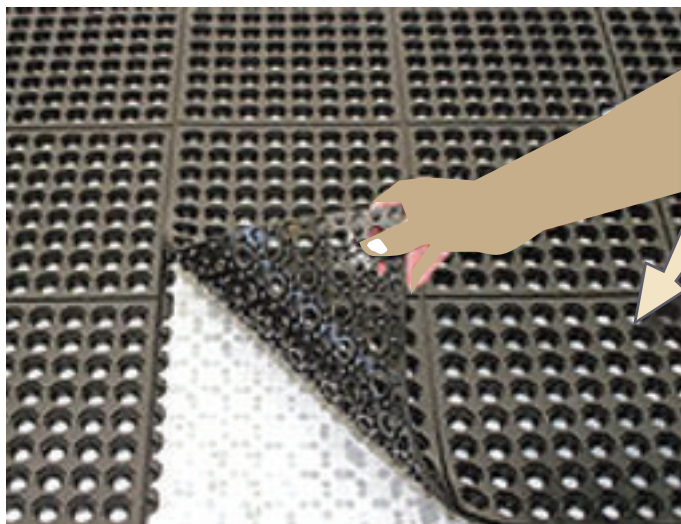
Always make sure that nobody is trapped or forgotten inside hatches, compartments or tanks before they are closed.

Wash down decks and other areas regularly in order to remove fish slime. This will help reduce slips, trips and falls.



Organize and store all gear safely.





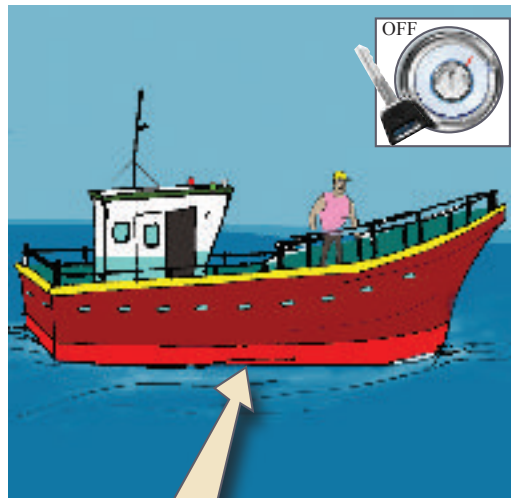
Mats may be used on the deck as and where practicable in order to provide a good foot hold.



A draw-bucket should not be used when a vessel is under way as there is a danger that a crew-member may fall overboard.

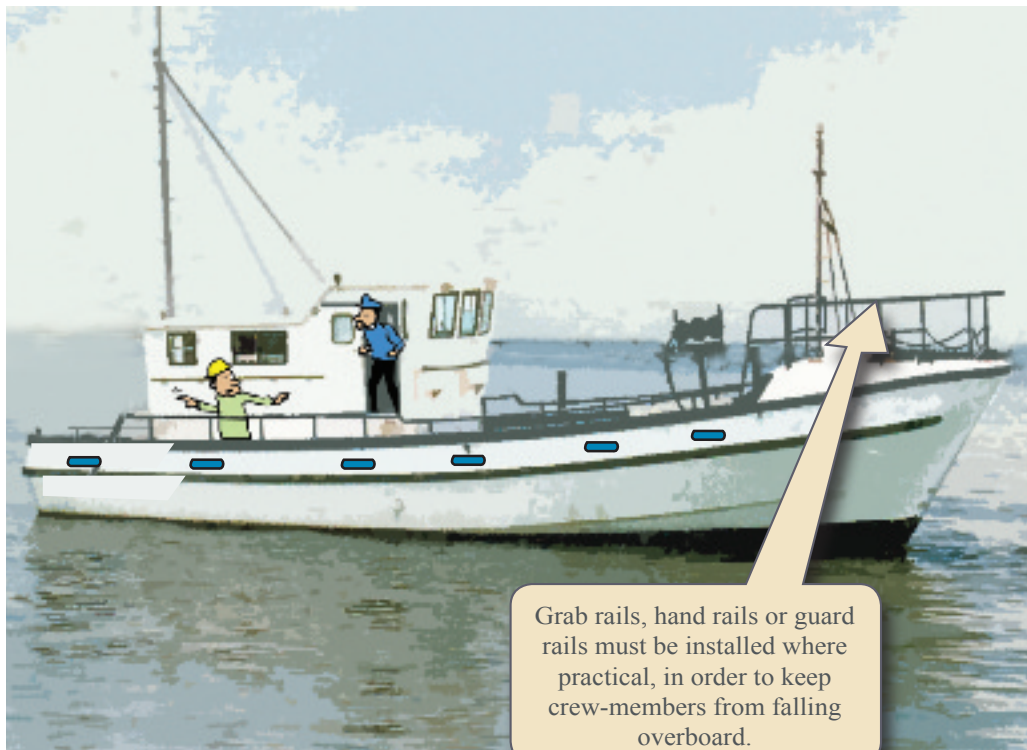


When hand-jigging for fish crew members must wear gloves that will adequately protect their hands.

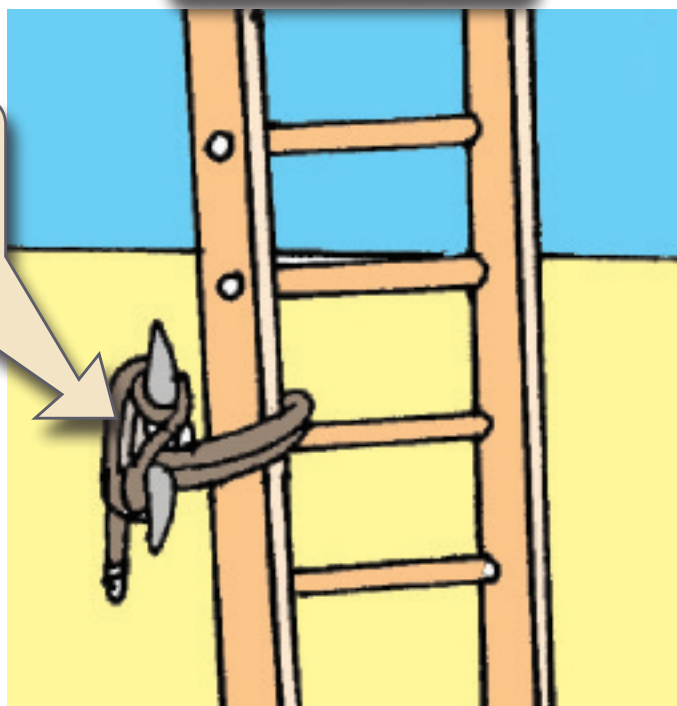


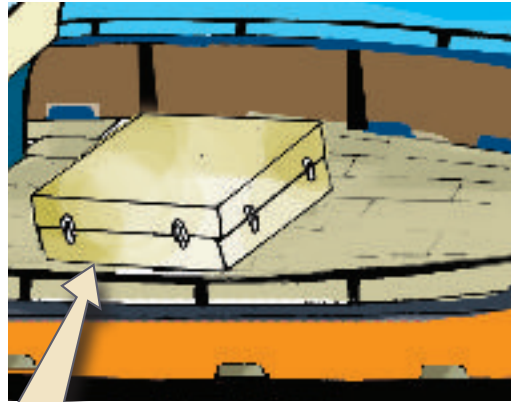
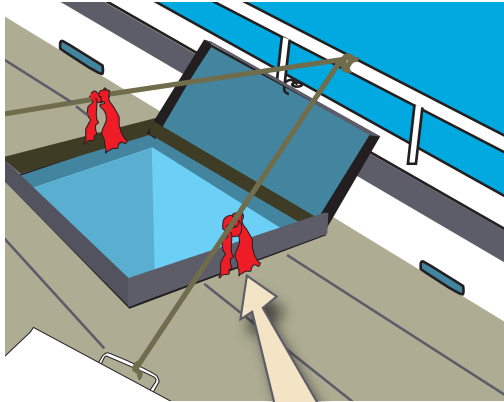
When traveling alone take the engine out of gear if you need to go out on deck. That way, if you fall overboard, the vessel is less likely to move away from you.

Guard rails and ladders



Keep ladders and gangways tied up below or store them safely when not in use.

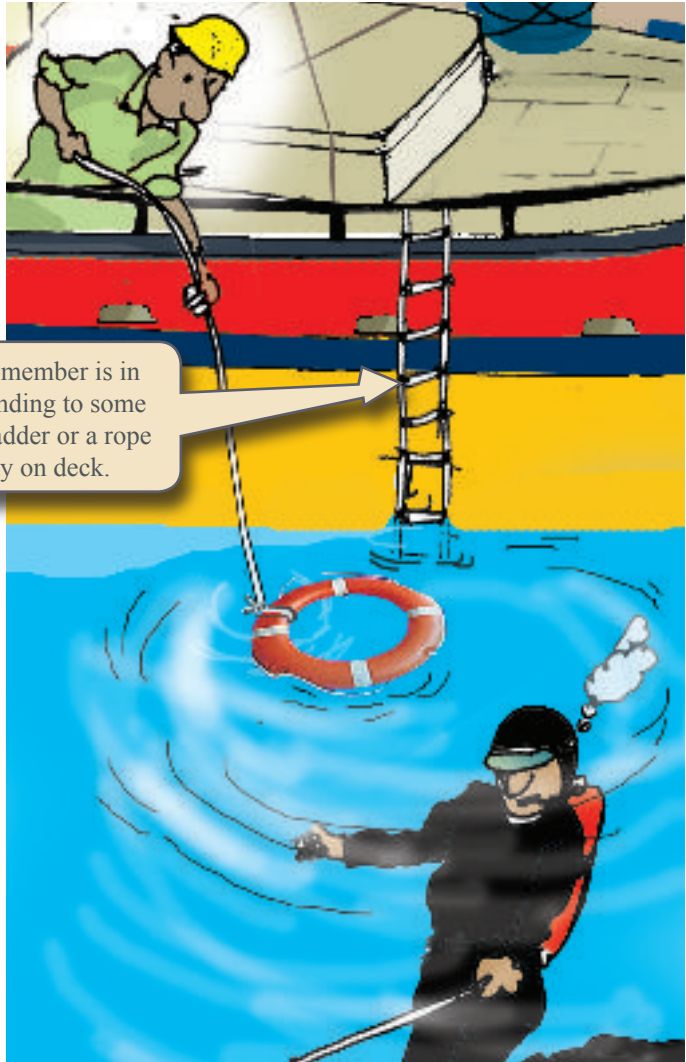




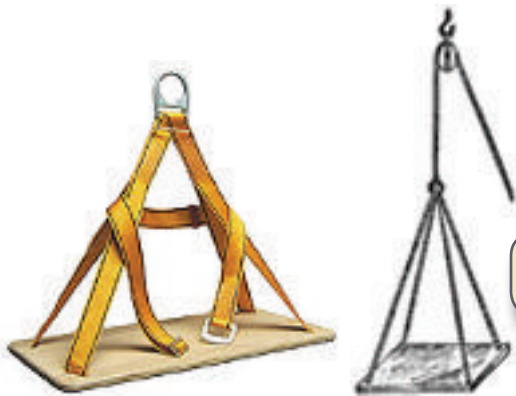
Deck openings and hatches that are not being used must be closed and secured in order to prevent down-flooding and also to prevent crew-members from accidentally falling in to them. Make sure that manhole covers are sealed properly.



Always check ladders to be sure they are well constructed, secured and maintained.



When a crew-member is in the water, attending to some work, keep a ladder or a rope ladder ready on deck.



Use a boson's chair when working aloft.

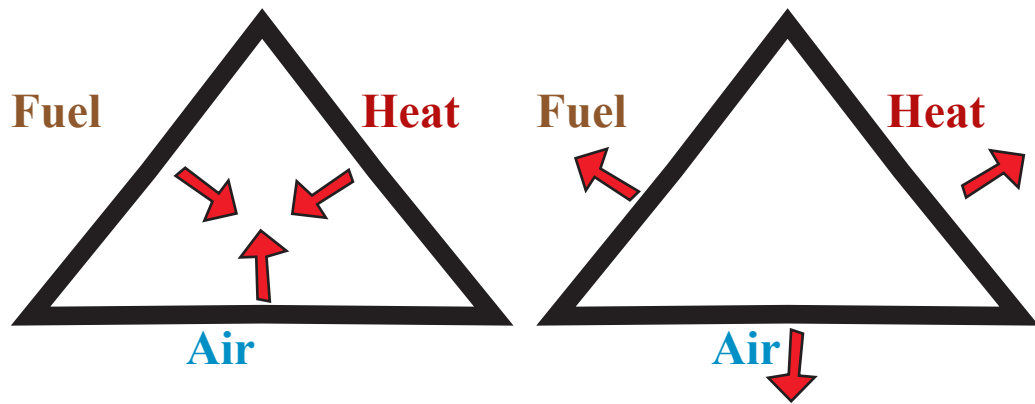


If at all possible avoid using portable ladders. If you have to use a portable ladder make sure it is tied securely.

Do not let oil and grease build up on ladders. Clean ladders regularly to prevent crew from slipping and falling.



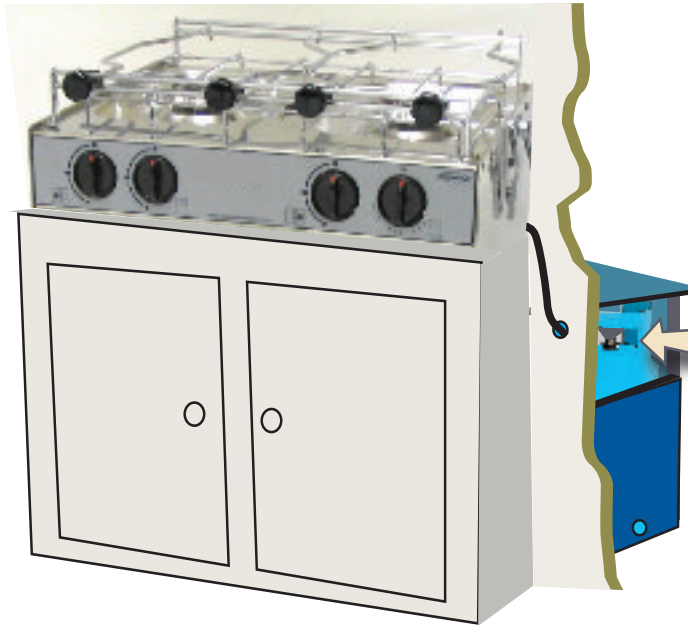
Fire Safety



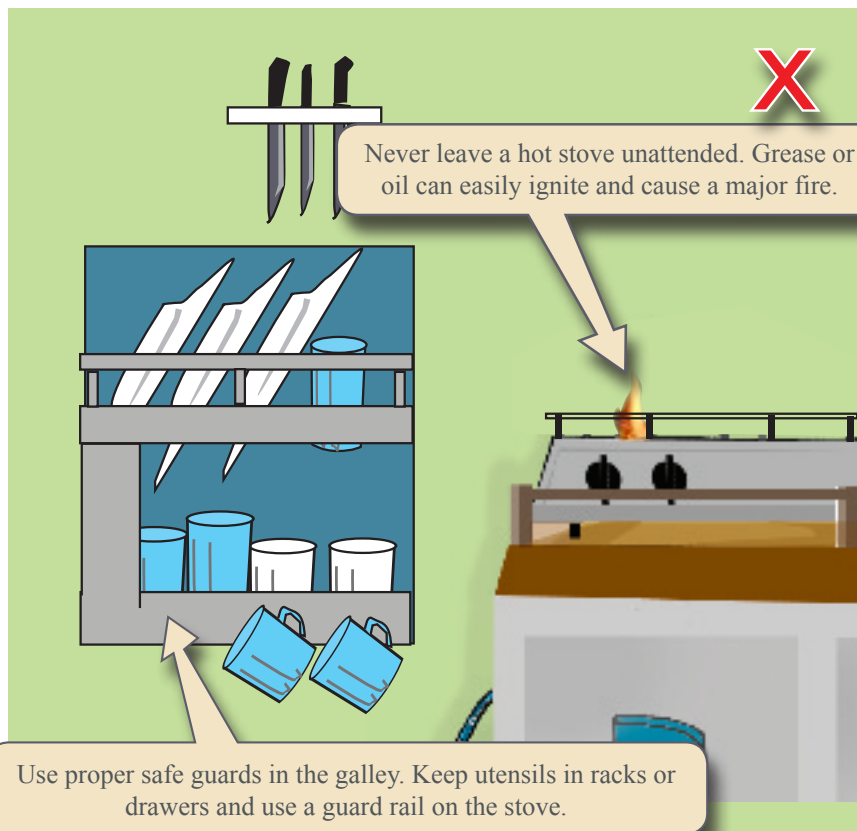
At sea, fire is the most dangerous and life threatening hazard. Always bear in mind that the best place for survival is your vessel, keep it free of fire hazards. Fuel, heat and air are the elements of a fire, to minimize risks keep them separate from each other.



Make sure the electrical system is in order. Immediately replace any loose connection, damaged and exposed electrical cables, overloaded plug outlets and faulty switches.



Turn off all burners and disconnect the gas regulator from the bottle when not in use. Use only approved type hoses and regulators. Propane and butane gases which are used for cooking can be more dangerous than gasoline. These gases are heavier than air, if they escape, they collect in the lower parts of the vessel and are very difficult to remove. Make sure all cylinders are properly secured on open deck.



Never leave a hot stove unattended. Grease or oil can easily ignite and cause a major fire.

Use proper safe guards in the galley. Keep utensils in racks or drawers and use a guard rail on the stove.



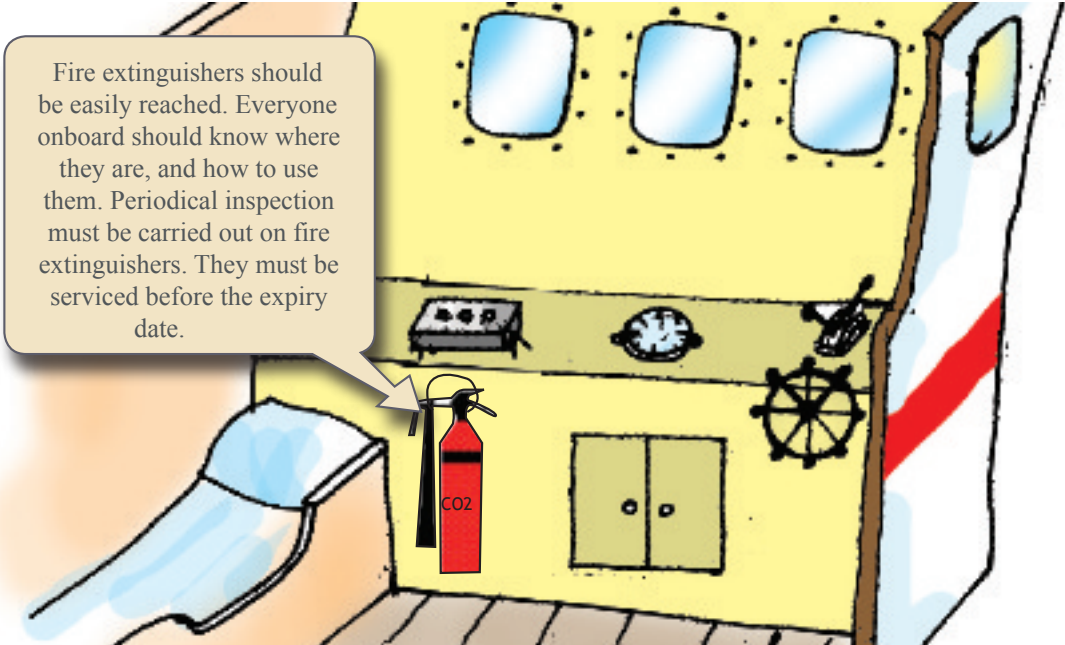
Flammables should be stored in proper containers away from crew accommodation.



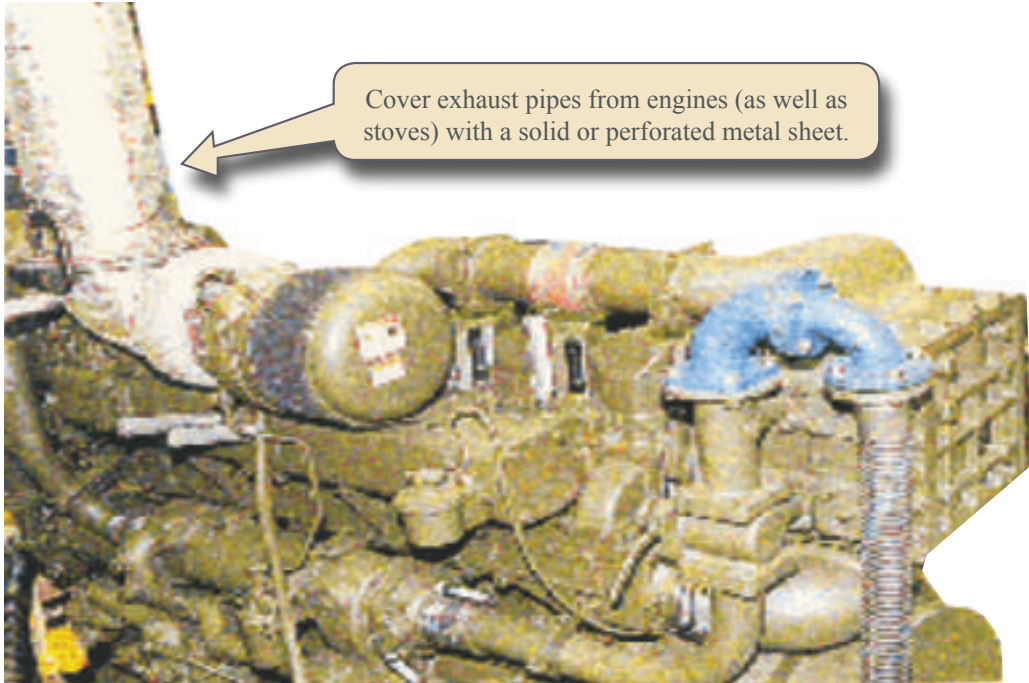
Always store oily rags in a non-flammable container. They don't look as if they could start a fire, but, in fact, they can burst in to flames by spontaneous ignition, without any other source of heat.



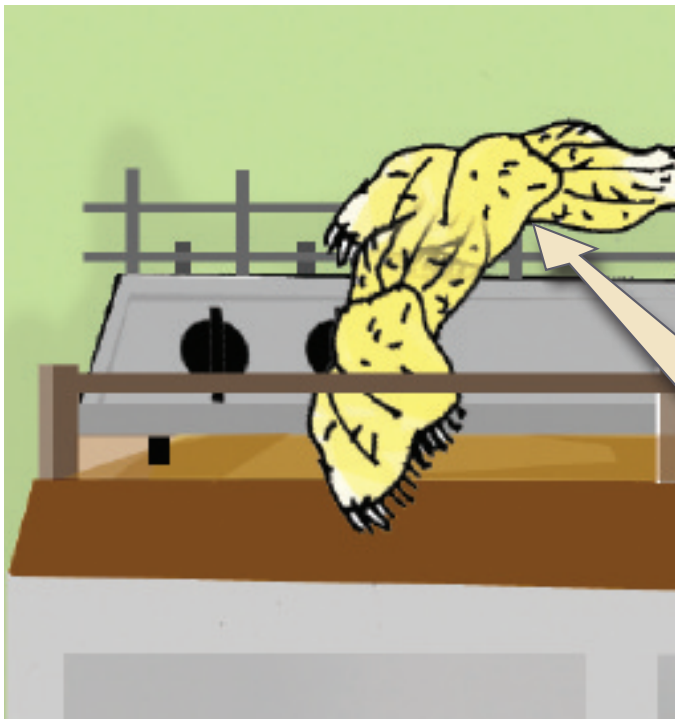
Arrange a common place for smoking instead of smoking in any part of the vessel. A fire extinguisher, a bucket of sand should be made available at this designated smoking area in order to extinguish fire. Never smoke in bed.



Fire extinguishers should be easily reached. Everyone onboard should know where they are, and how to use them. Periodical inspection must be carried out on fire extinguishers. They must be serviced before the expiry date.

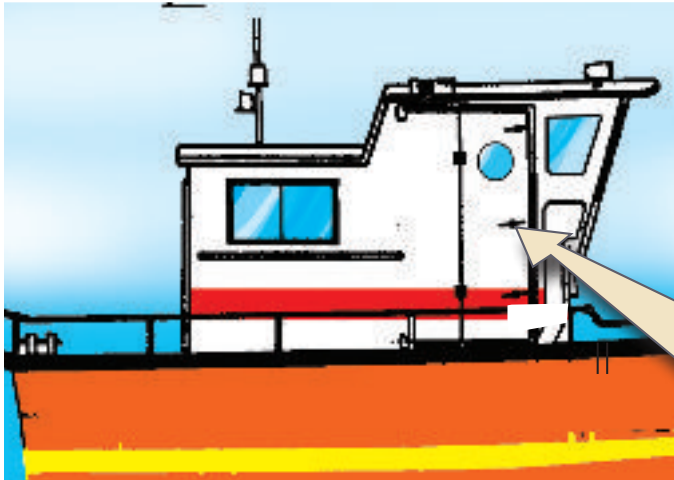


Cover exhaust pipes from engines (as well as stoves) with a solid or perforated metal sheet.



Do not hang washcloths, gloves, hats, or other items over the stove to dry- they could fall on to the stovetop and catch fire.

Stability



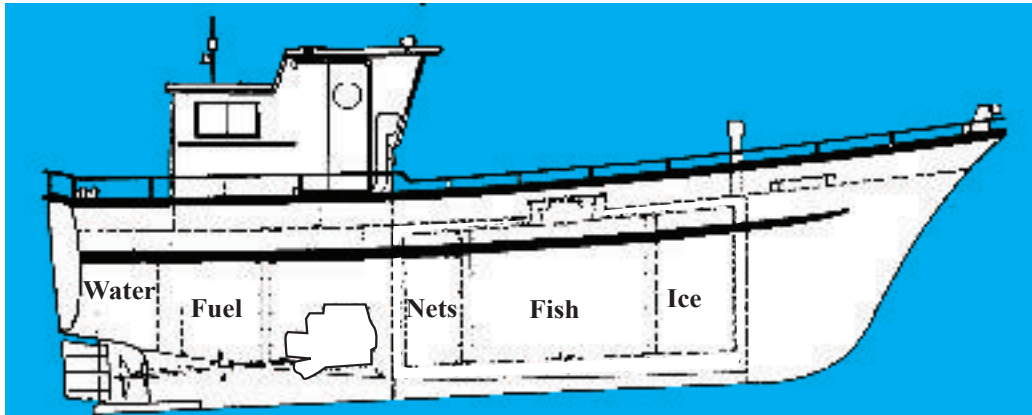
Keep all weathertight doors closed unless they are actually being used. Make sure that these weathertight doors are securely closed, especially when it is learned that rough weather may be encountered in the near future.



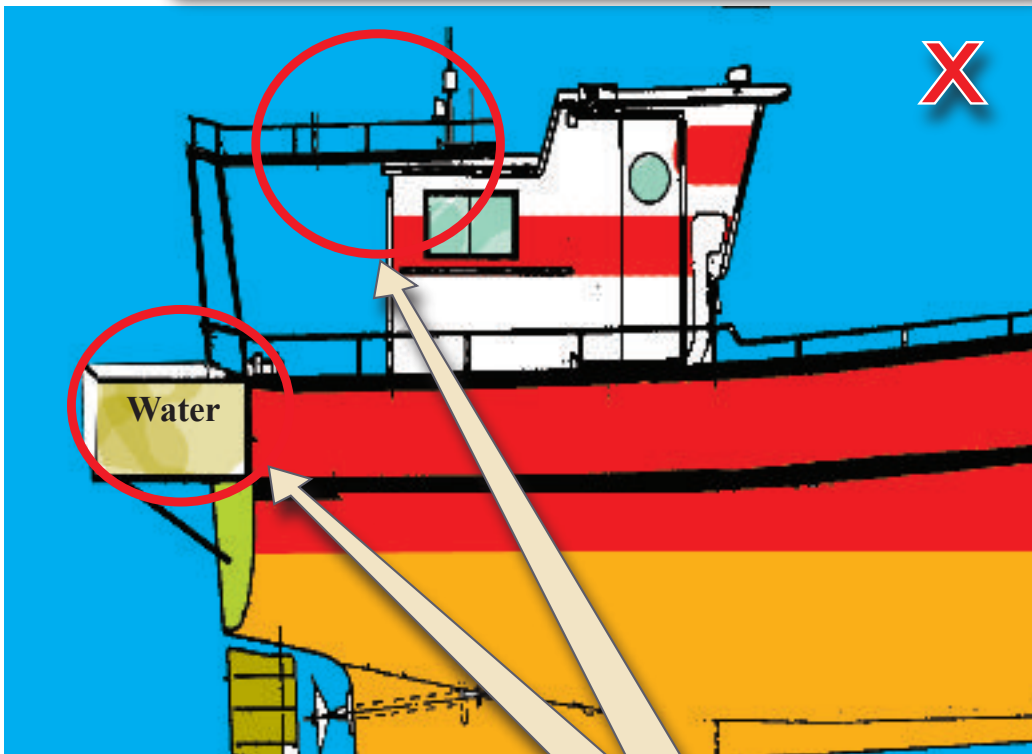
Blocked freeing ports can pose a serious hazard to the stability of the vessel.



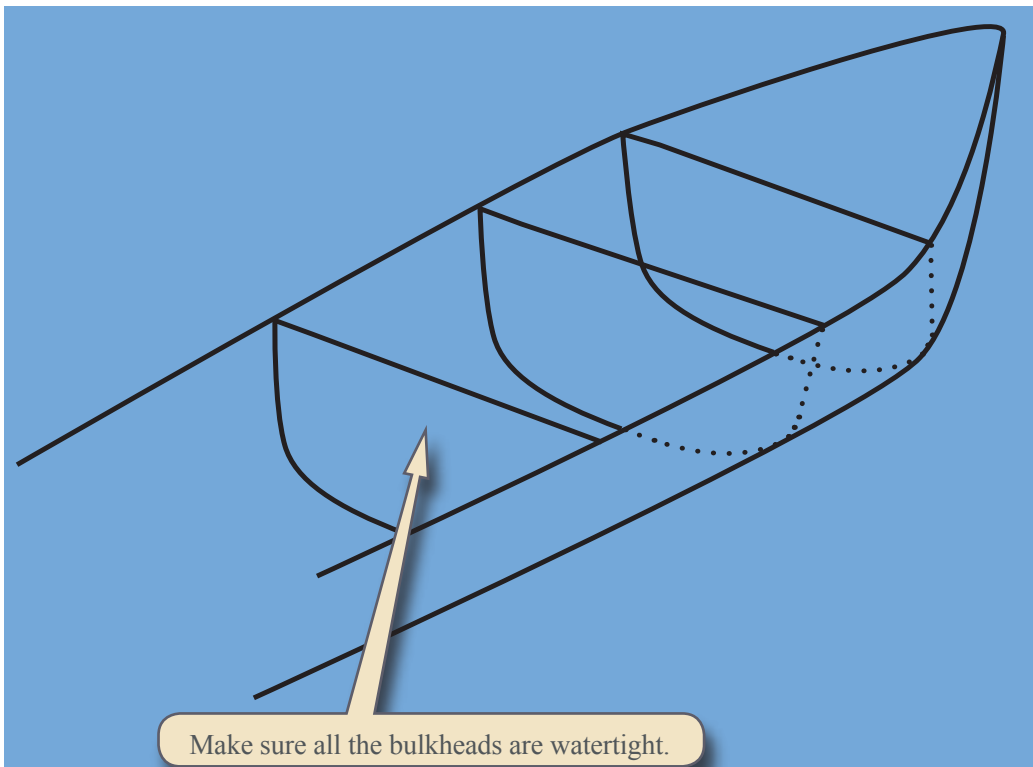
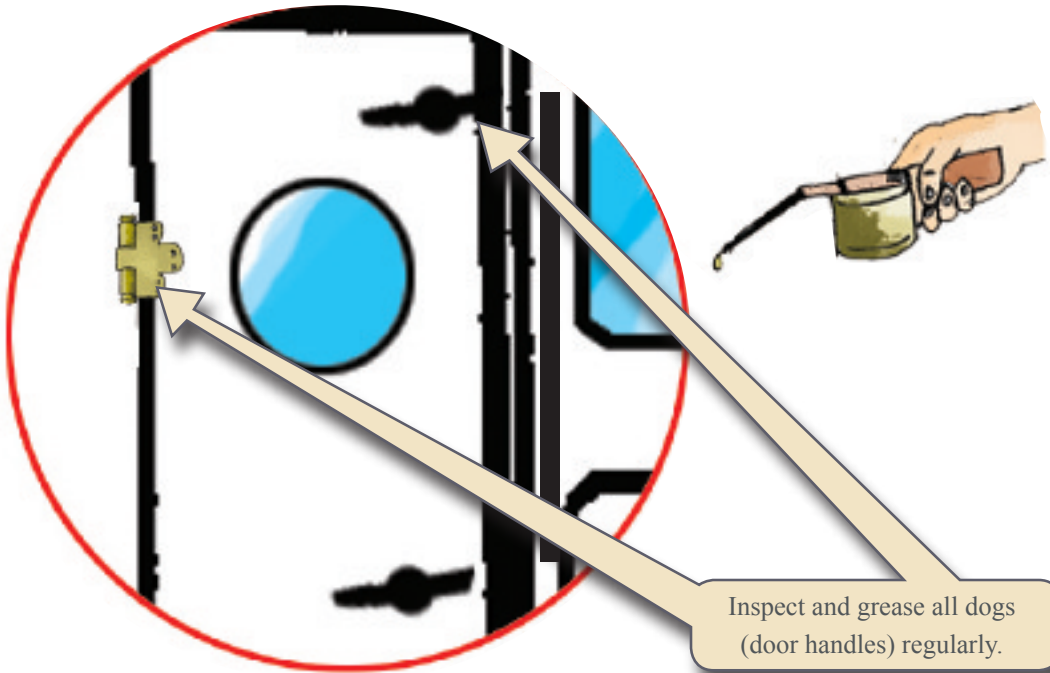
Make sure that all the freeing ports are not blocked by equipment, tools, fishing gear and/or debris in order that any sea water that lands on the deck during rough seas may be quickly drained out.



Make sure the vessel is not overloaded. Maintain a practice of keeping heavy weights as low down as possible. This improves the stability of the vessel and makes it less likely to capsize.

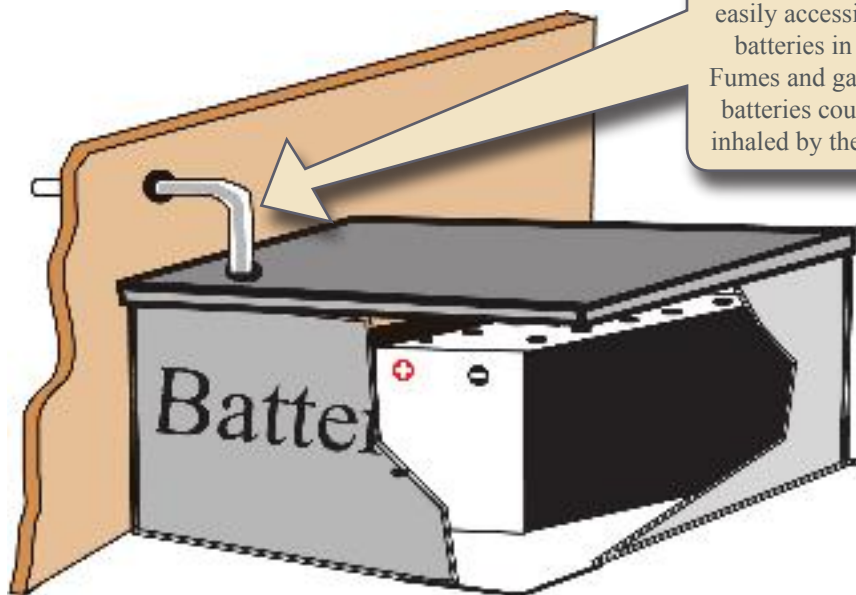


Do not undertake any major modifications to the vessel such as, extensions, wheel house alterations, and tank redesigns which will reduce the stability of the vessel, unless a boat designer has been consulted.

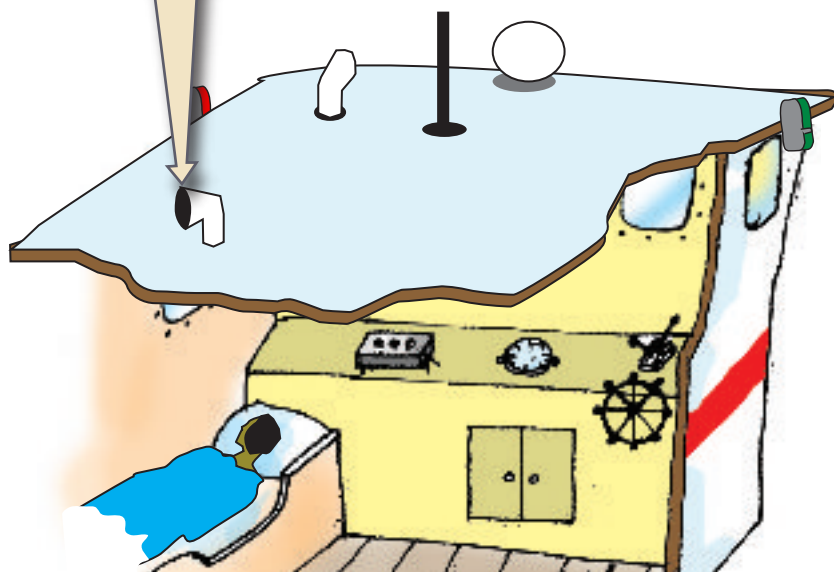


Ventilation

Batteries should be well secured and maintained in well ventilated areas that are easily accessible. Never store batteries in crew quarters. Fumes and gases emitted from batteries could be harmful if inhaled by the crew-members.



Sleeping quarters must be designed and constructed in such a way that there is sufficient fresh air for crew-members. Exhaust gases from the engine room can be deadly if allowed to build up.



Life-saving apparatus



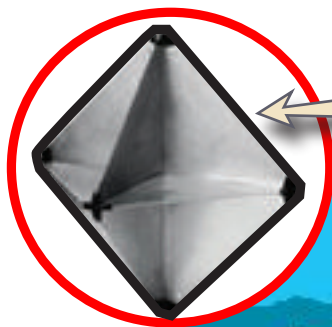
Life jackets of approved type should be available on board for each crew member.

Life rings should be available onboard to facilitate a person gone overboard. It is advisable to keep ready one life ring that is fitted with a self-igniting light or a buoyant lifeline.

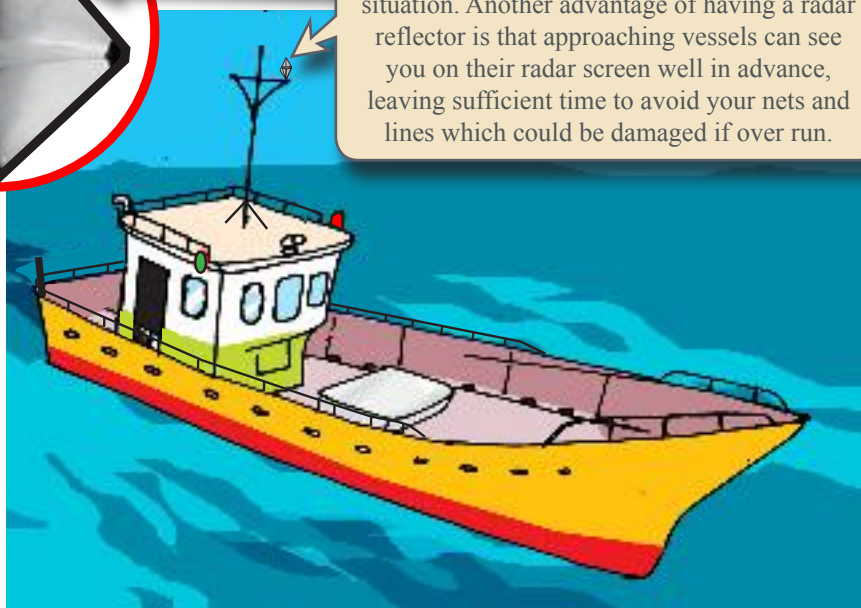




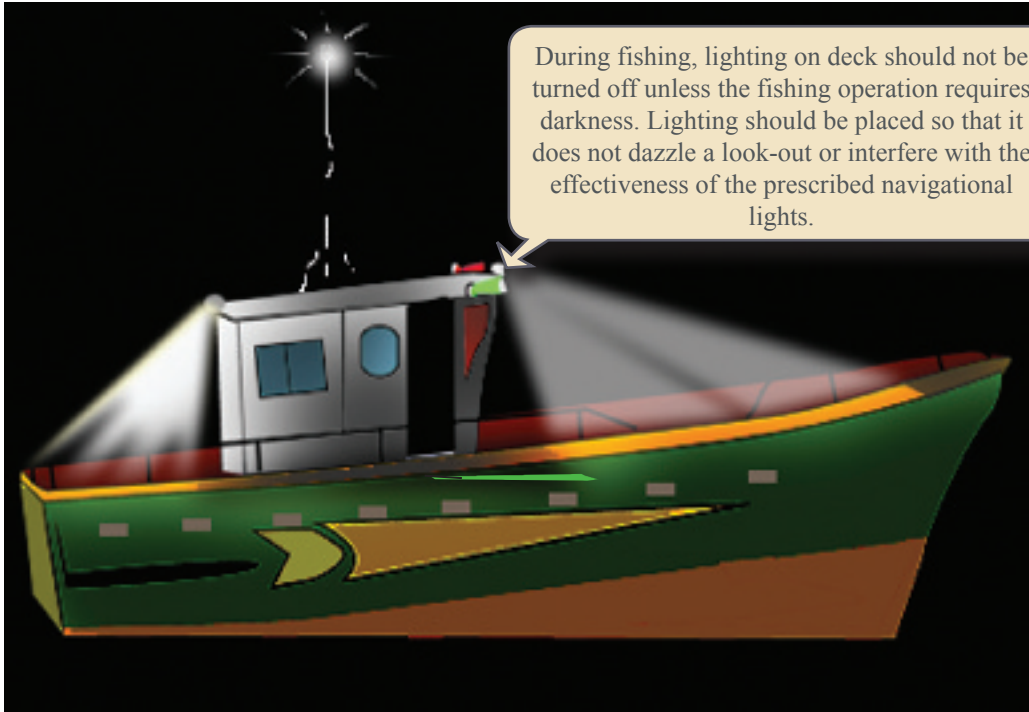
Flares, smoke signals and parachutes should be available onboard in order to indicate your position to other vessels when you require assistance in an emergency.



Having a radar reflector fixed on the vessel will make it easier for rescue vessels to find the location of your vessel in an emergency situation. Another advantage of having a radar reflector is that approaching vessels can see you on their radar screen well in advance, leaving sufficient time to avoid your nets and lines which could be damaged if over run.



Lighting



During fishing, lighting on deck should not be turned off unless the fishing operation requires darkness. Lighting should be placed so that it does not dazzle a look-out or interfere with the effectiveness of the prescribed navigational lights.

All work areas must have enough light so work can be undertaken safely. Make sure that there is enough lighting in the stairways, companion ways and also near ladders.



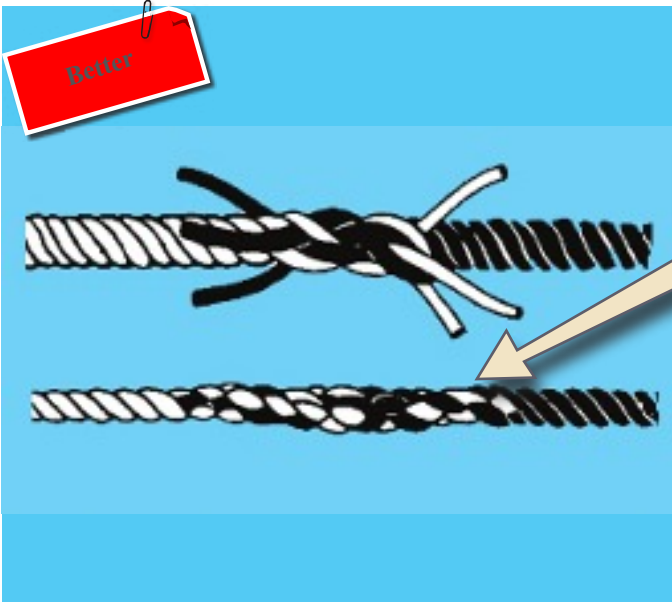
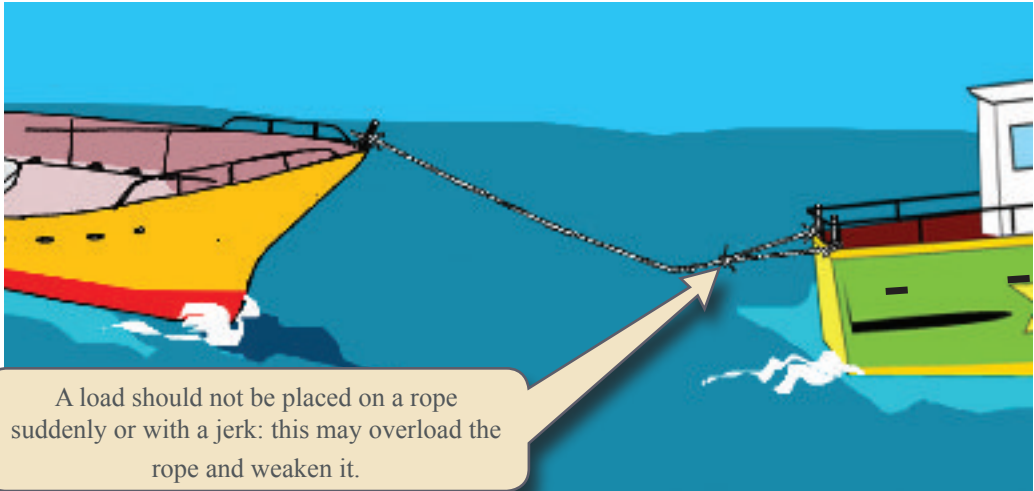
Rope and wire handling

Rope of right hand lay taken from a new coil should be withdrawn from the inside counter clockwise in order to retain the twist.

Kinks in ropes should always be taken out by correct coiling – right hand coiling for a right hand rope.



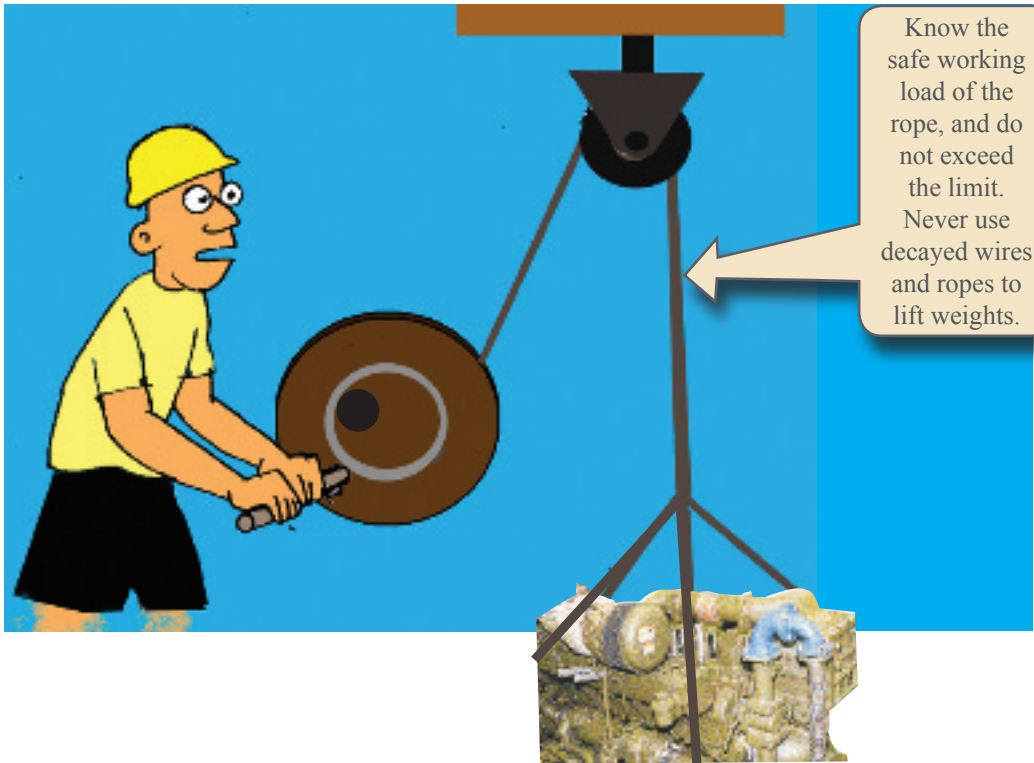
Never load a kinked rope or pull it through a block.



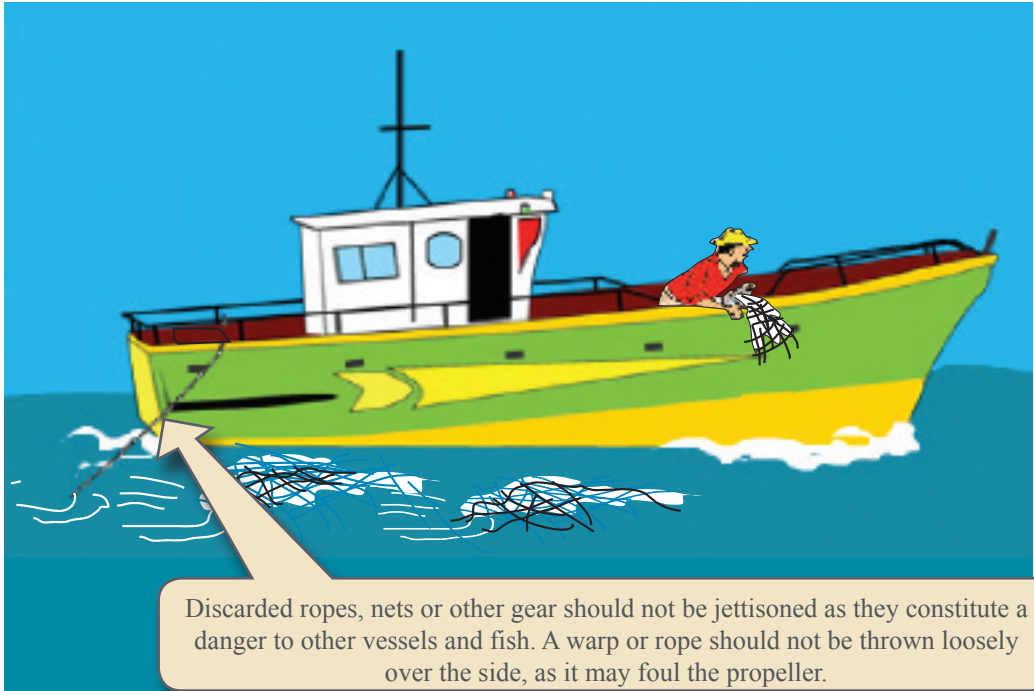
Where possible, a splice should be used in place of a knot as a knot can weaken a rope.



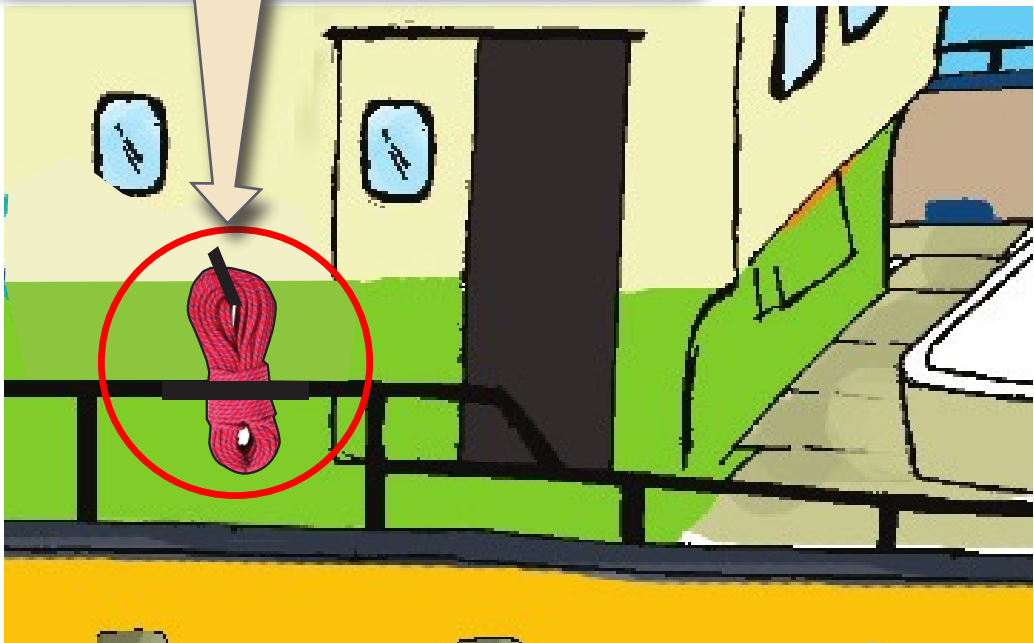
All blocks should be of sufficient strength and large enough for the rope. The diameter of the sheave should be suitable to the rope.



Know the safe working load of the rope, and do not exceed the limit. Never use decayed wires and ropes to lift weights.



Keep lines coiled and tied-up when not in use, so crew do not trip over them.



Abrasion will weaken a rope. Wrap and tie chafing gear around the rope.



Do not expose rope to oil, gasoline, paint or other chemicals.

Never "fold" a rope or bend it sharply, this will lead to the fibers being weakened.

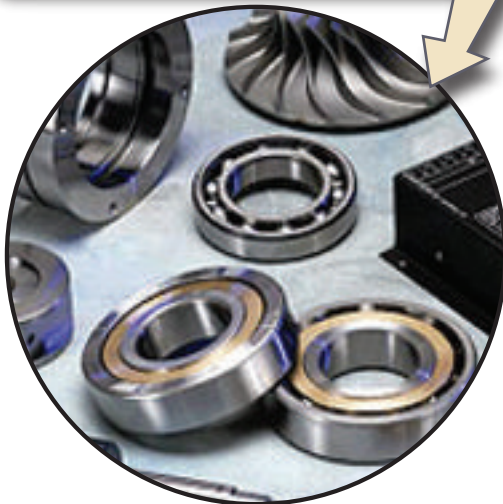


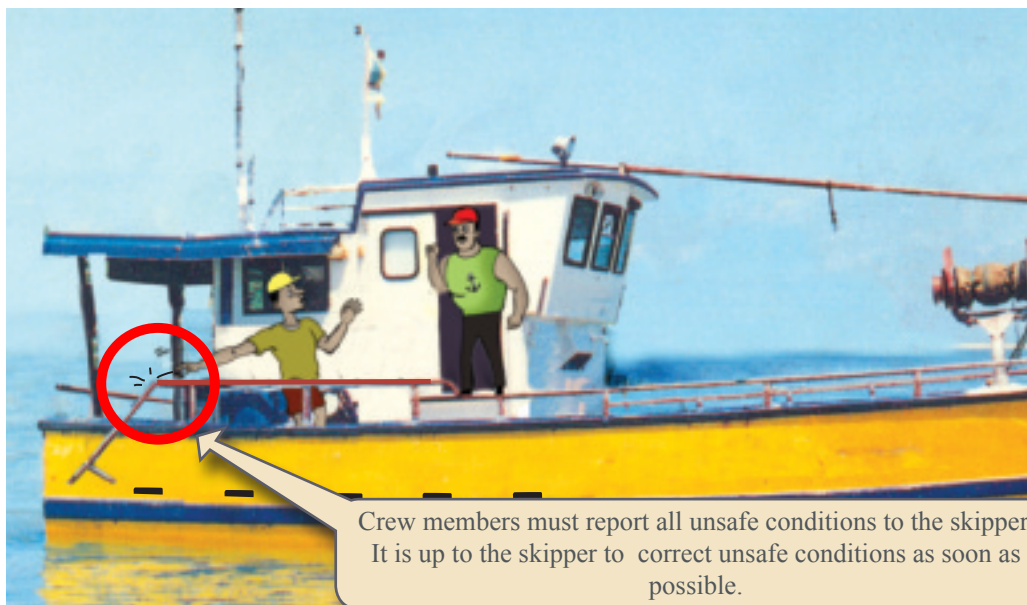
Important points to keep in mind



A sudden drop of the barometer reading indicates oncoming heavy weather.

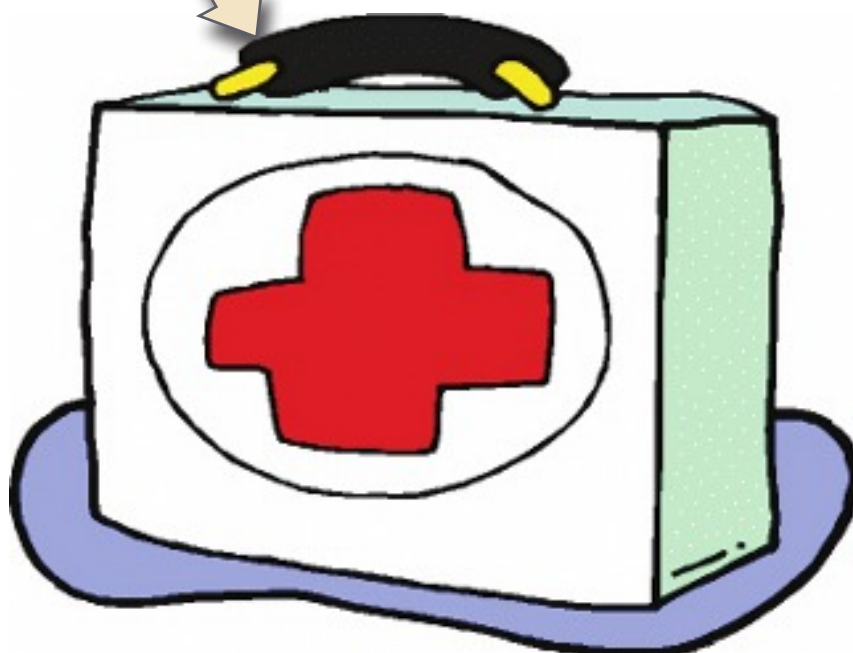
Always make sure that sufficient spare parts are available onboard prior to sailing. Gland packing and materials to stop any leakage through the hull must be available.





Crew members must report all unsafe conditions to the skipper. It is up to the skipper to correct unsafe conditions as soon as possible.

First aid can bridge the gap between life and death. Always ensure that your first aid box is well maintained and that all crew-members have practical and up-to-date knowledge and understanding of first aid.



Chapter II

Personal Safety

Never stand right under hanging weights, raised booms, derricks and cranes. Do not use decayed wires and ropes to lift weights. Avoid standing close to wagging weights unless they are properly secured.



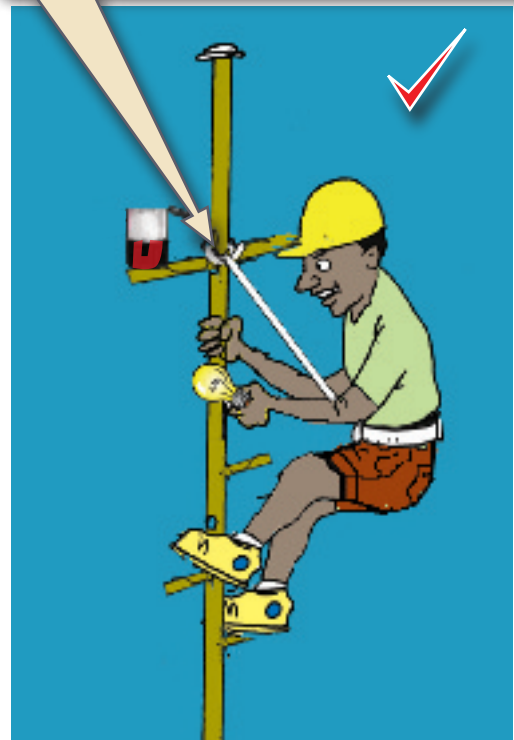


Avoid standing in line with tensioned wires and ropes. In the event of breakages tensioned wires and ropes moves towards the direction of the pull and can harm the body.



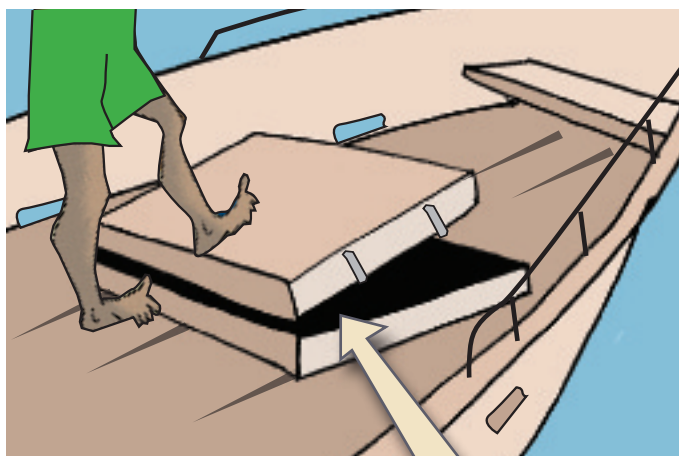
Do not stand on a tensioned wire or a rope. If it snaps you could be injured.

Use a safety belt while working aloft. If you slip, your safety belt will stop you falling.

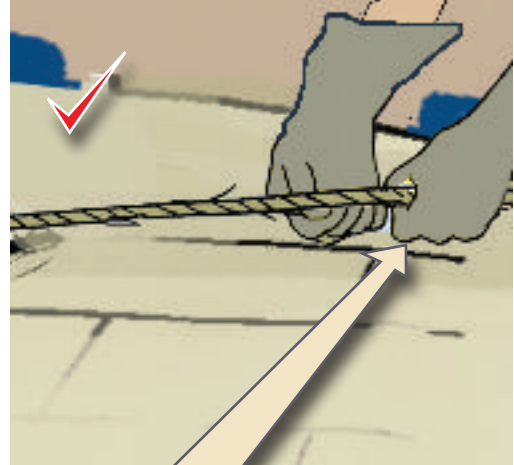
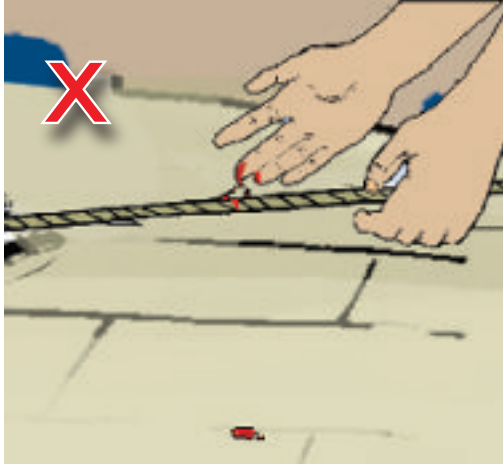




Never wear rubber slippers on the deck; they can cause you to slip most of the time when the deck is wet. Always wear safety shoes or deck shoes, cover your feet completely.



Do not step on to partly open hatch covers or manholes. If the hatch or manhole cover shifts, you could fall down the opening.



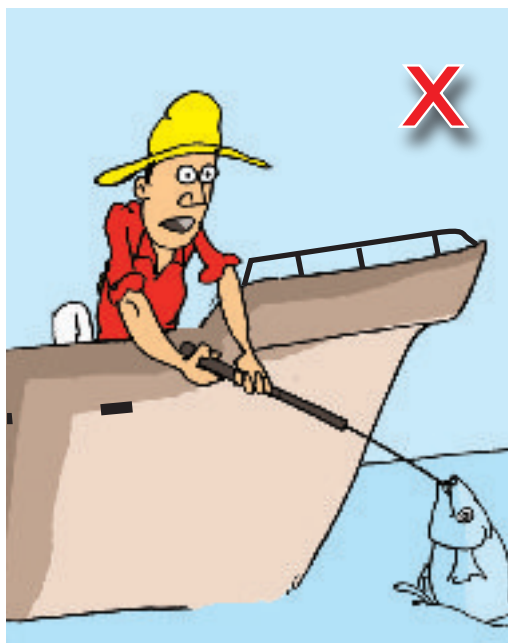
Do not attend to wire work without wearing hand gloves. Kinks may harm your hand.

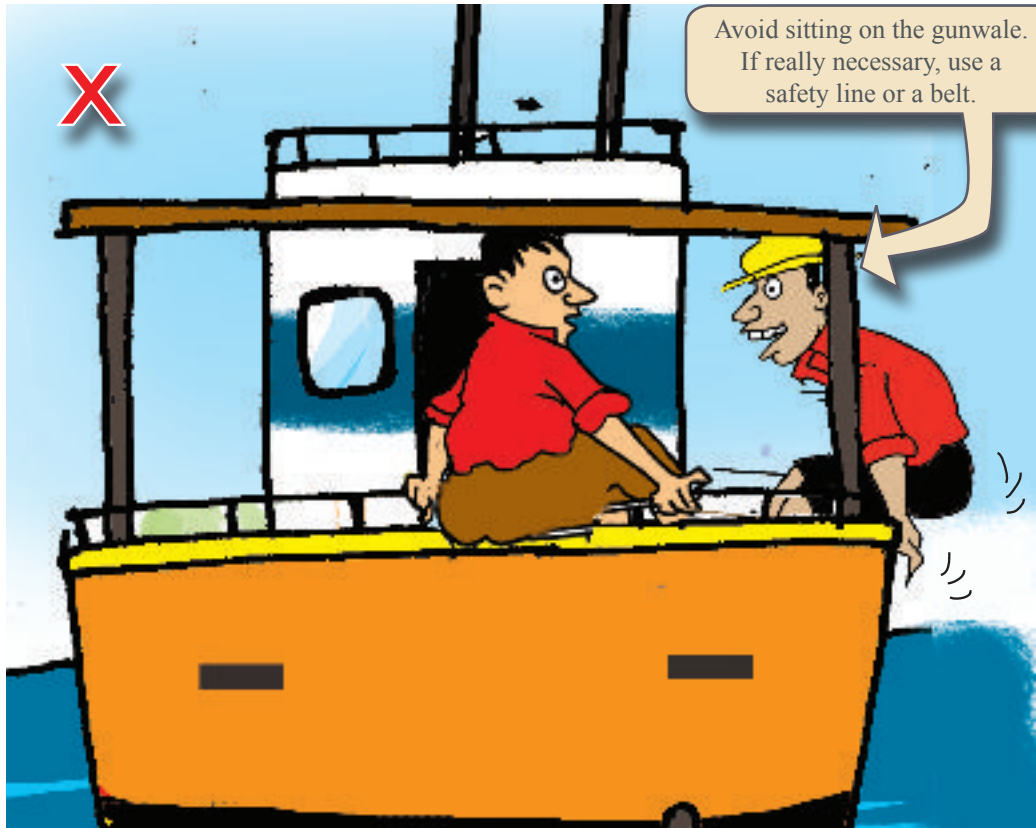


Never carry out repairs or adjustments on running engines.

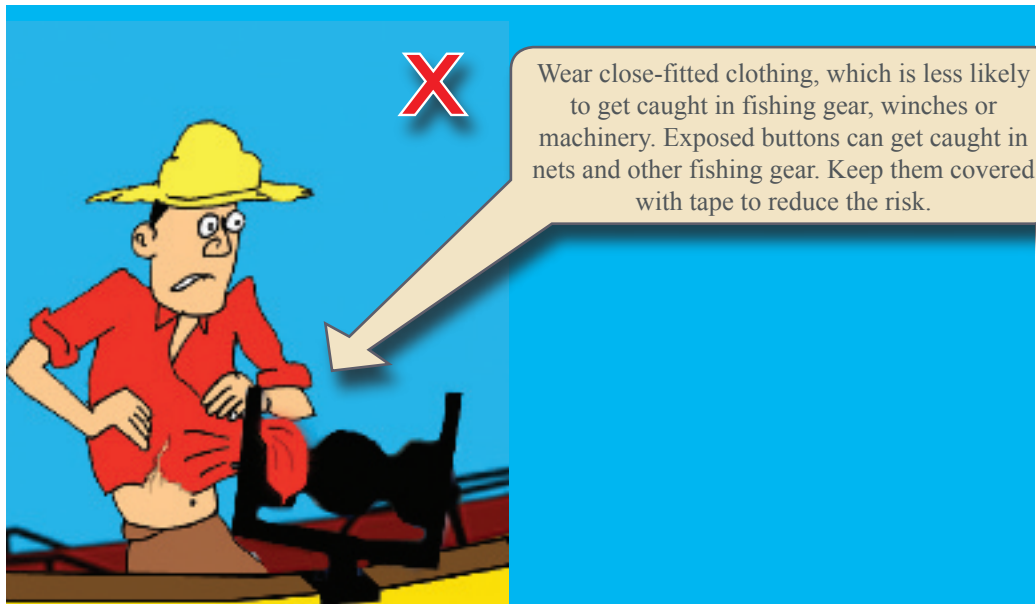


Avoid lifting a large heavy fish while facing the front of the moving vessel. Always leave the fish abaft of the vessel from your standing position before lifting it. This positioning allows you to let go the fish with the movement of the vessel in any difficulty.



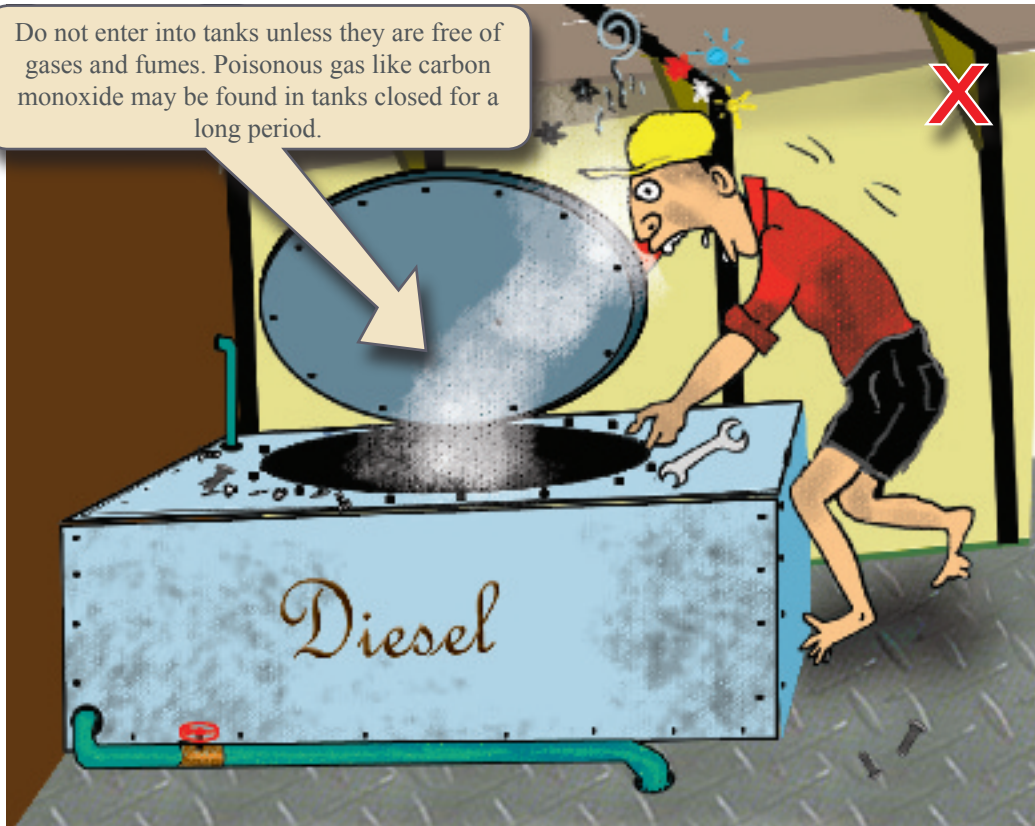


Avoid sitting on the gunwale.
If really necessary, use a
safety line or a belt.



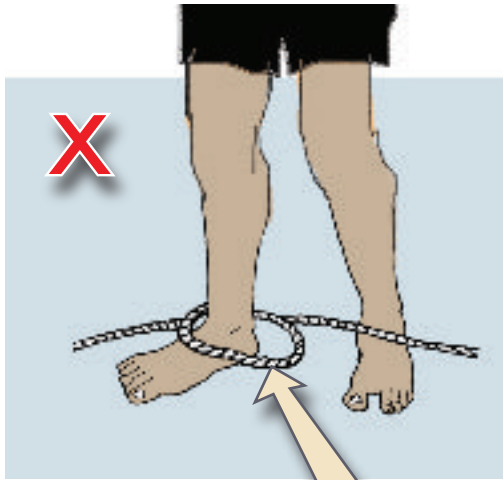
Wear close-fitted clothing, which is less likely
to get caught in fishing gear, winches or
machinery. Exposed buttons can get caught in
nets and other fishing gear. Keep them covered
with tape to reduce the risk.

Do not enter into tanks unless they are free of gases and fumes. Poisonous gas like carbon monoxide may be found in tanks closed for a long period.

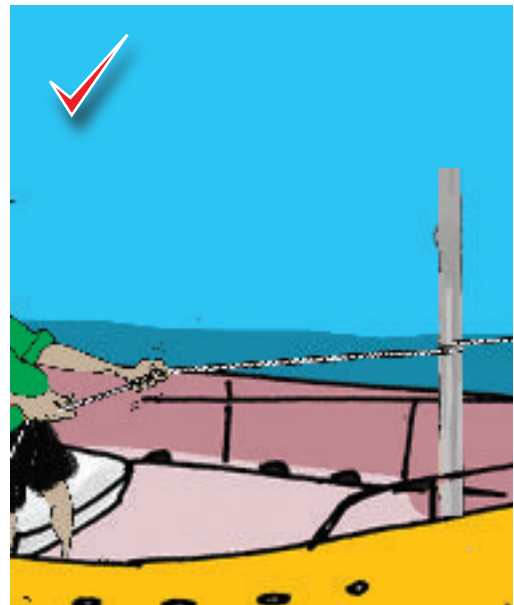


Wear appropriate eye-guard when attending to metal work, welding and painting, to protect your eyes from rays flying particles and irritant vapors.





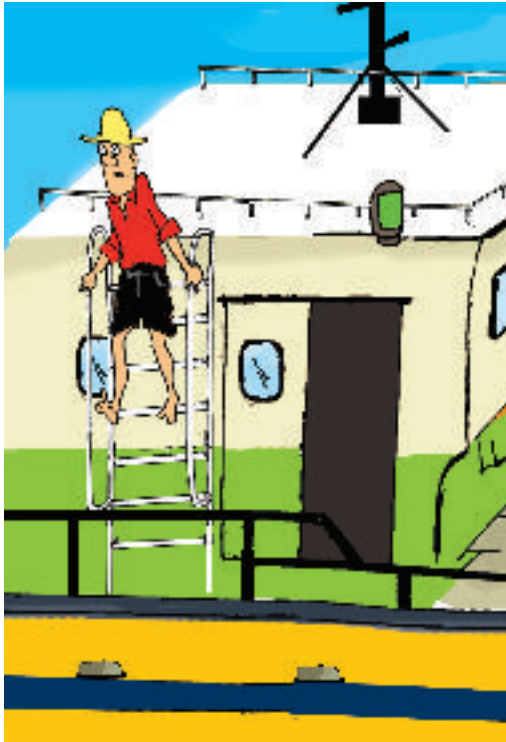
Do not stand in a bight of rope or wire. If it tightens suddenly, a serious injury may follow.



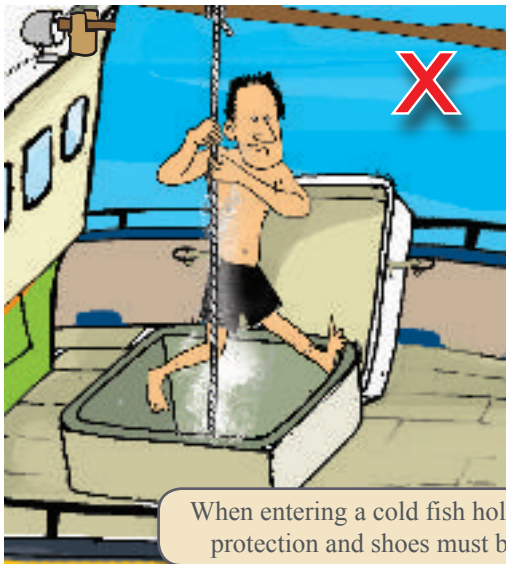
When surging or taking the slack of a rope always hold the rope with clear distance from the bollard.

Do not run over the deck or on ladders. You are more likely to slip, trip or fall. Never jump. Always use the ladder or the gangway when boarding or leaving the vessel.





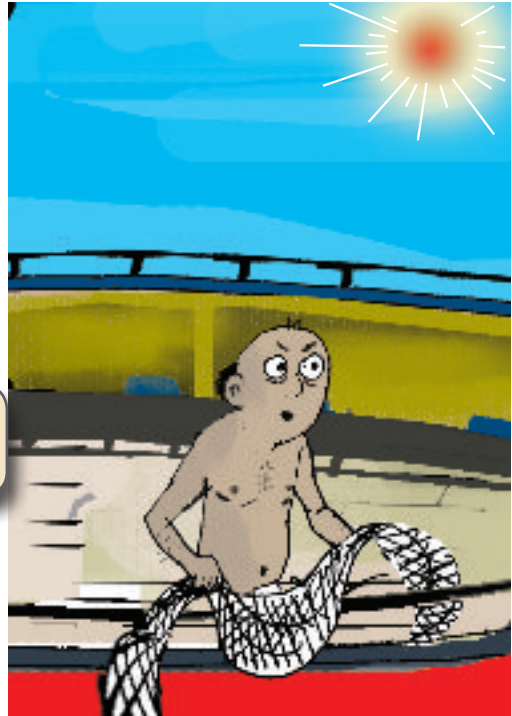
When you use a ladder or steps, keep your front facing the ladder or the steps, holding the grab rails firmly. You should be able to see each step you take. This positioning helps you to maintain your balance even during heavy rolling.



When entering a cold fish hold sufficient clothes, gloves, head protection and shoes must be worn to maintain body heat.



Do not expose your body to direct sun light. Over exposure to ultra violet rays coming from sun may cause skin cancer.



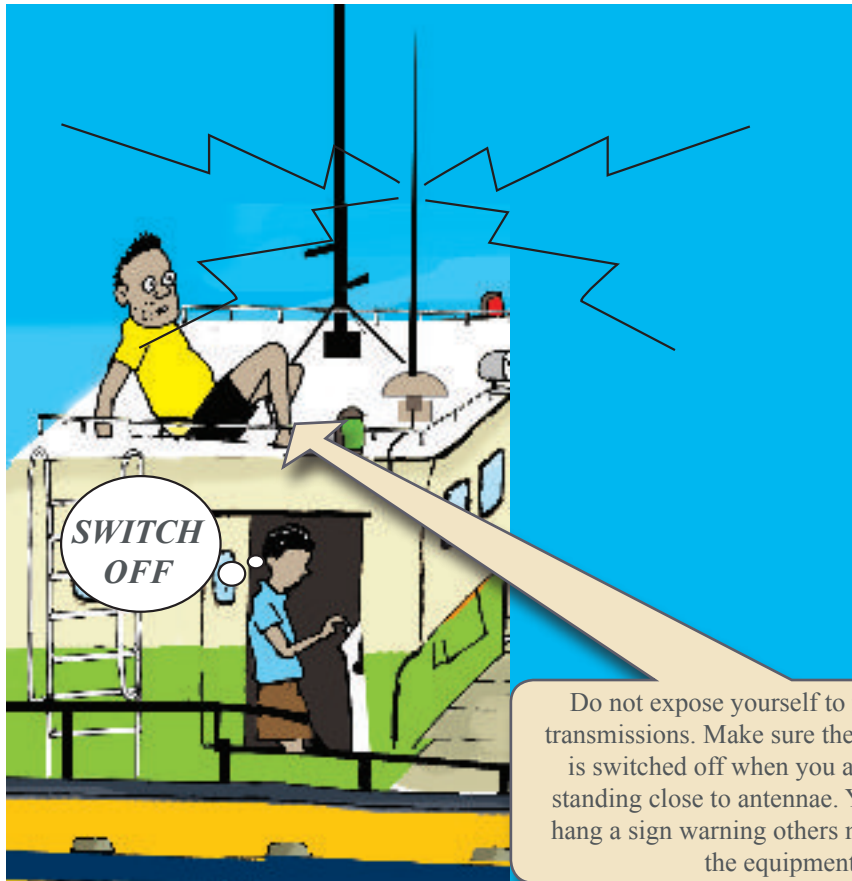
Never lift heavy weights by bending only your spine. Rather, bend your knees to half-sitting position with your feet a little apart, hold the weight properly, keep your back straight and stand with the weight. This way will prevent back injuries which could have serious consequences.



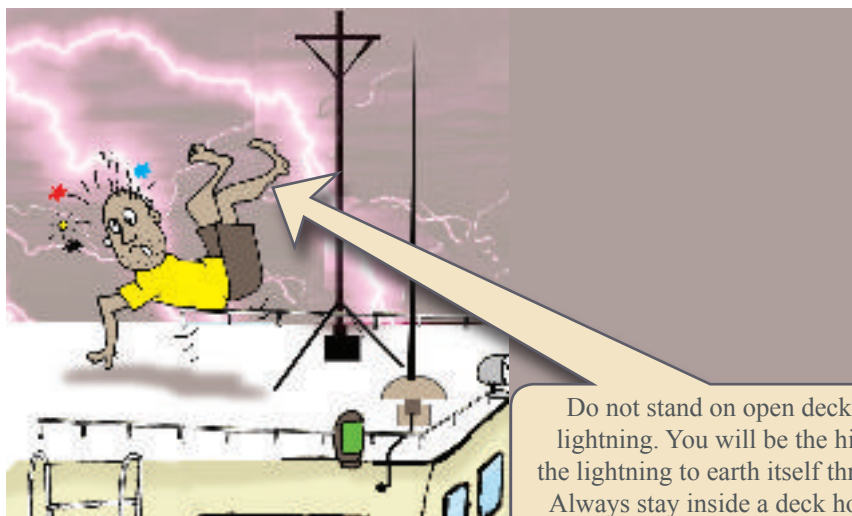
Make sure doors and windows are fastened. Rolling and pitching may swing a door or window and injure you.



Do not keep your hands on the gunwale or on the guard rail when alongside a pier or another vessel. You could get seriously injured.



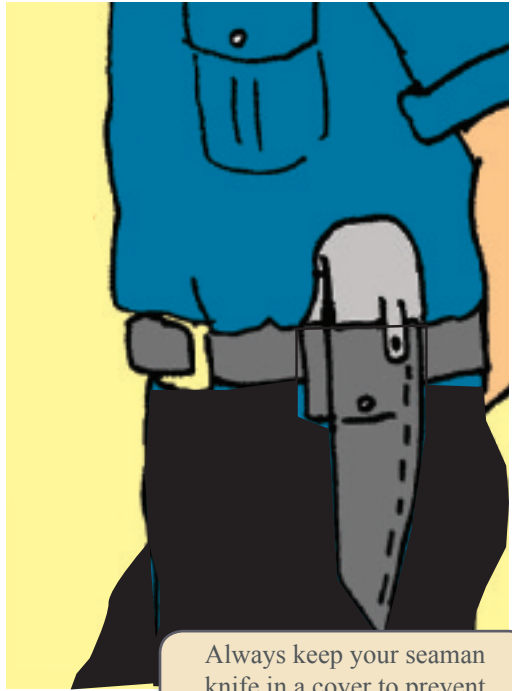
Do not expose yourself to radar or radio transmissions. Make sure the radar and radio is switched off when you are working or standing close to antennae. You should also hang a sign warning others not to switch on the equipment.



Do not stand on open deck when there is lightning. You will be the highest point for the lightning to earth itself through your body. Always stay inside a deck house so that you are shielded by a roof.



Wear dry, clean and tidy clothes as much as possible. Wear a hard hat or a helmet when working under moving equipment or when working under objects that could fall.



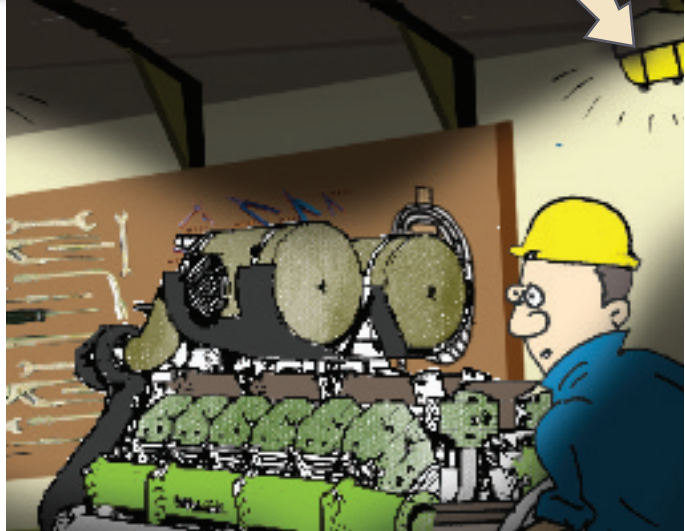
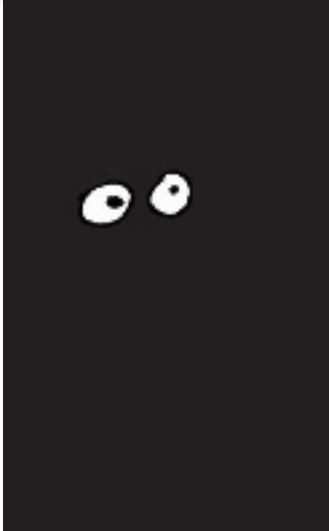
Always keep your seaman knife in a cover to prevent accidental cuts and abrasions.



Always mind your head when entering through doors. Vessel's door frames are lower than domestic ones.

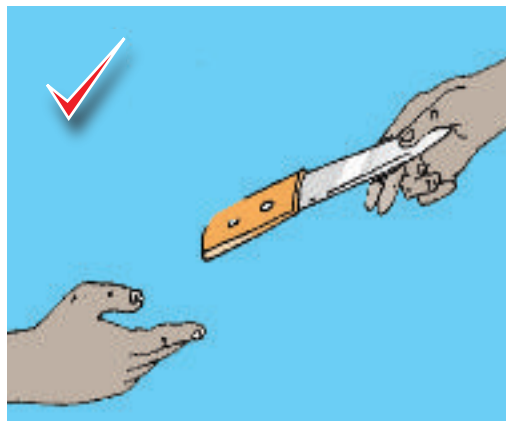
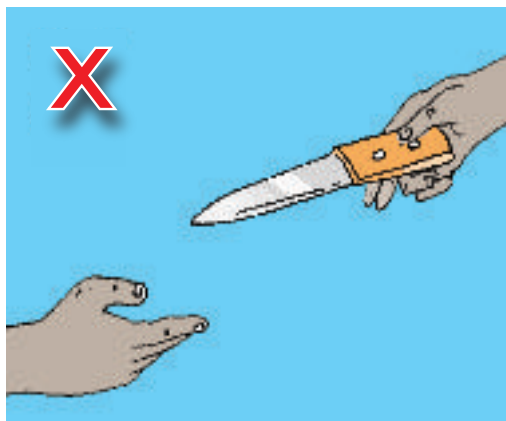
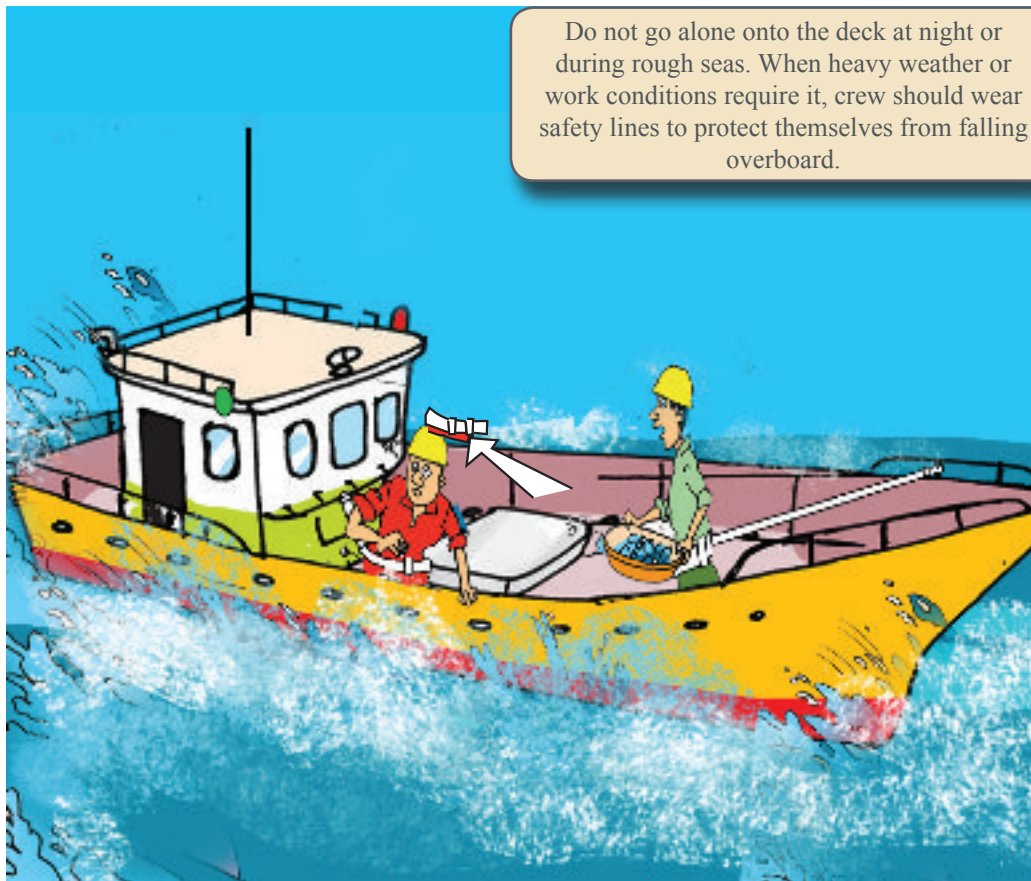


Do not enter into holds or hatches unless they are illuminated sufficiently. In addition to the normal lighting, an emergency lighting must be available in the engine room and in the wheel house.



Excessive use of alcohol or misuse of drugs is a threat to the safety of the vessel and the crew. Do not consume moon shine or illicit spirits. Many deaths have resulted from the consumption of poisonous spirits.

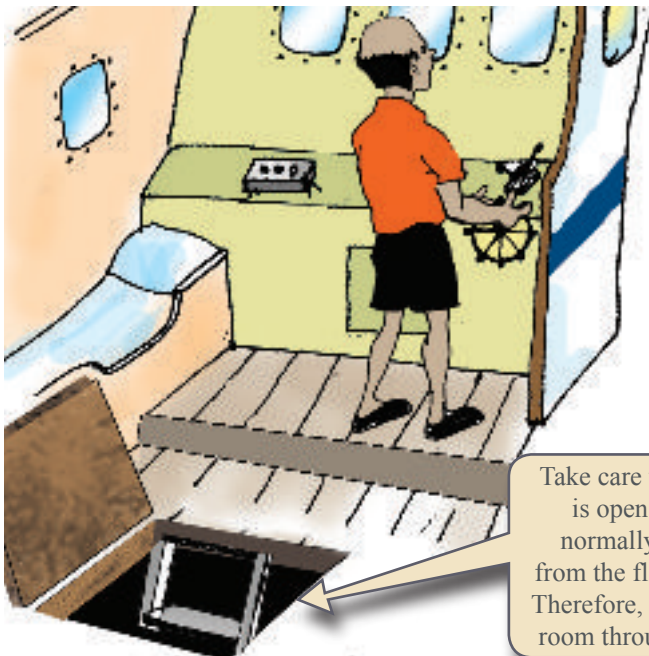
Do not go alone onto the deck at night or during rough seas. When heavy weather or work conditions require it, crew should wear safety lines to protect themselves from falling overboard.



Do not pass any sharp tool or object while holding the handle. Always hold the sharp end yourself and then pass it to the receiver.



Have yourself vaccinated in order to prevent possible virus attacks.



Take care when the engine room hatch cover is open. In Sri Lankan Multi-day boats, normally the access to the engine room is from the floor inside the accommodation area. Therefore, you could easily fall into the engine room through the opening if you fail to see it.

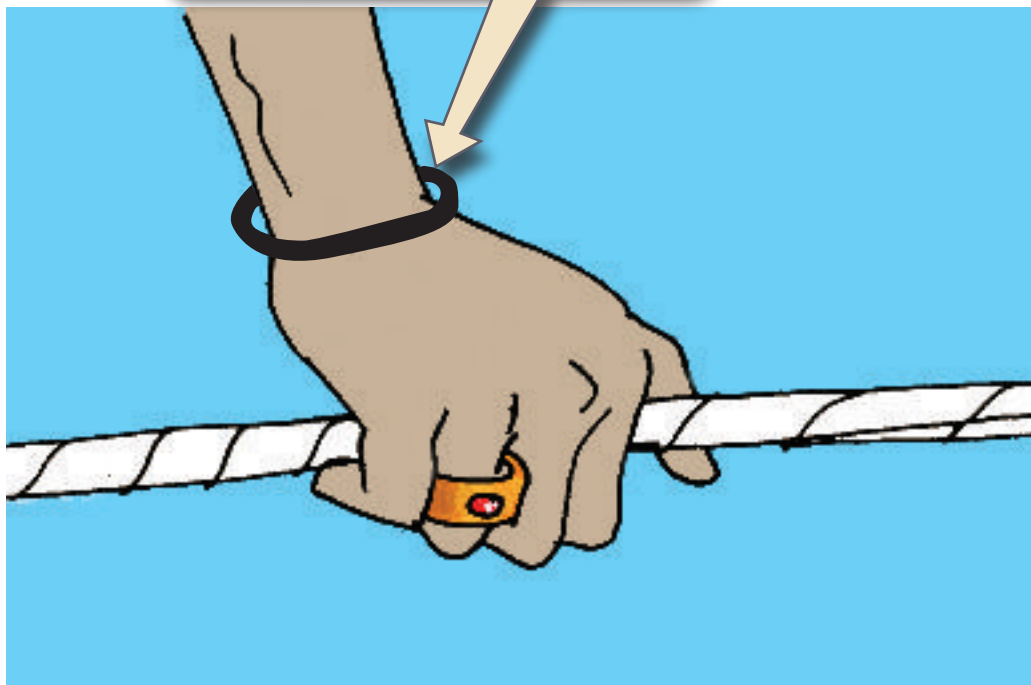


Never drink sea water even if you are in a desperate situation. You can survive longer without drinking water, than by drinking sea water.

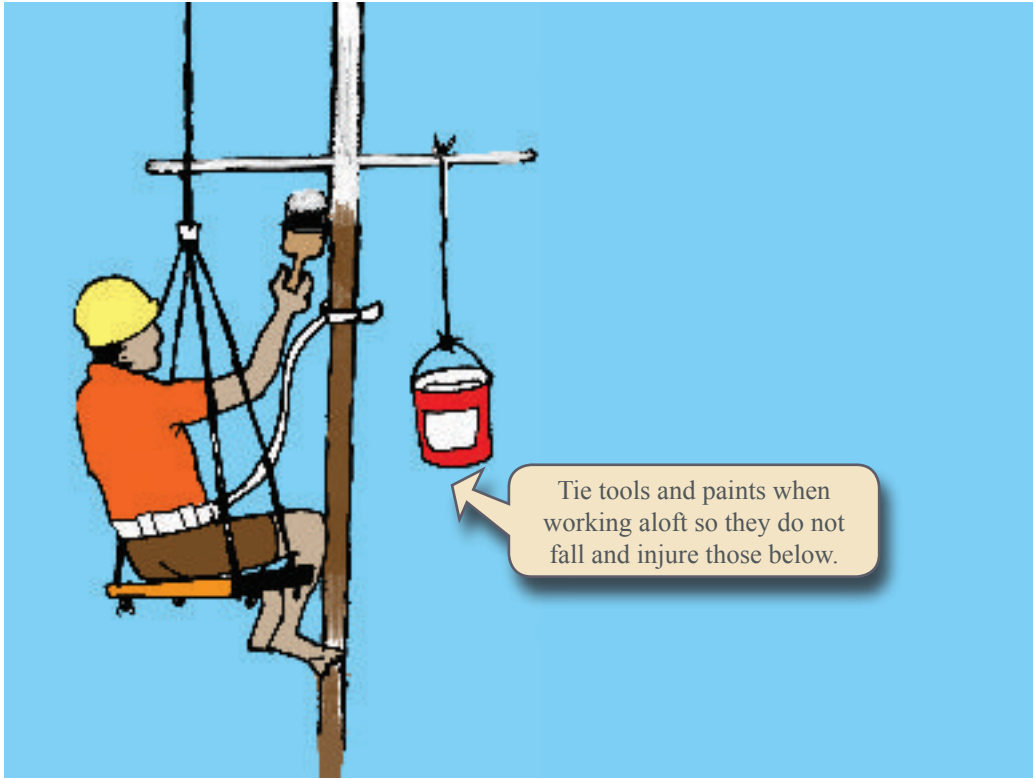


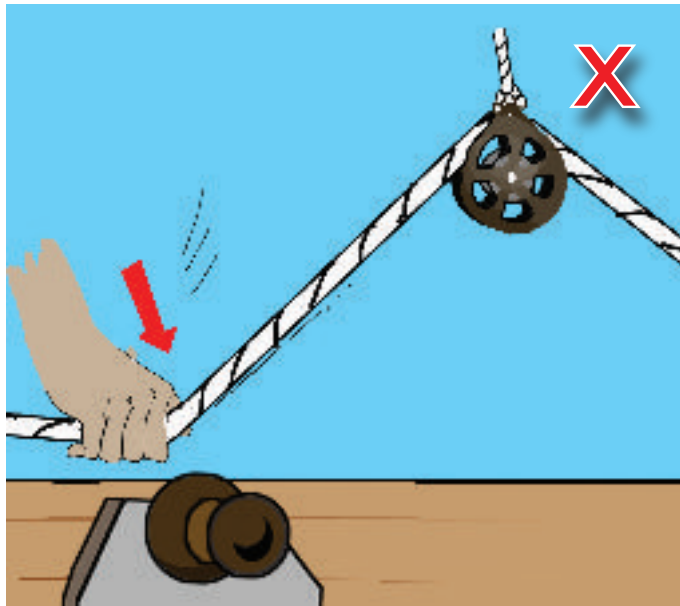
Keep long hair tucked under a hat. This way, hair is less likely to get caught in pulleys, winches and other equipment.

Avoid wearing rings and bangles. They can get caught in lines, nets, and other gear and equipment.

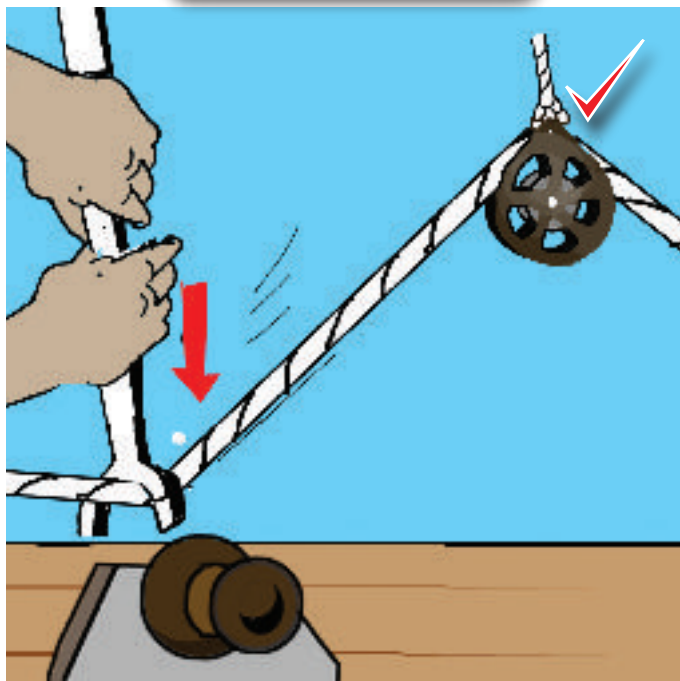


Never cut bait towards your self. Always cut away from your body.





Never attempt to guide a rope to a pulley with your hands. Use a lever. Never grip a moving line.

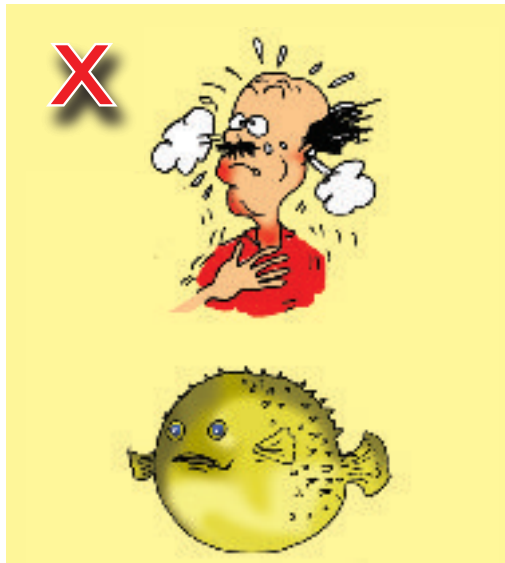




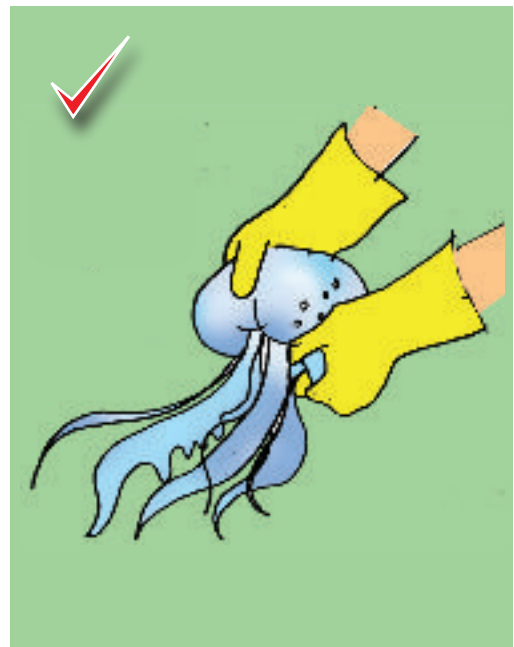
During your time off, make sure you are away from the work place.



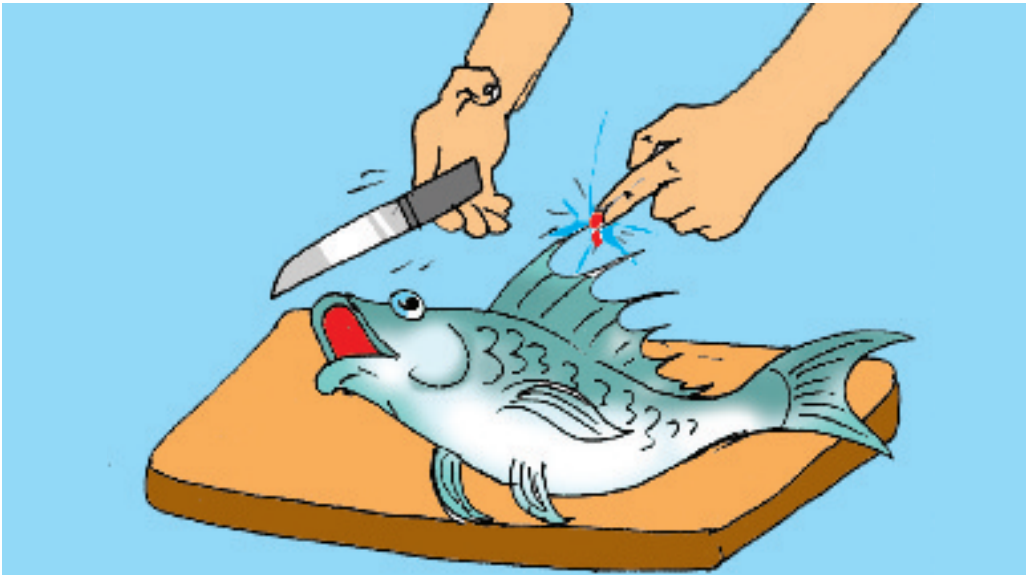
Do not try to control a large fish when it is alive. A shark's mouth may still contract for a period of time after the fish is killed. Skate has a poisonous spike in the middle of the tail and getting stung by it could be fatal.



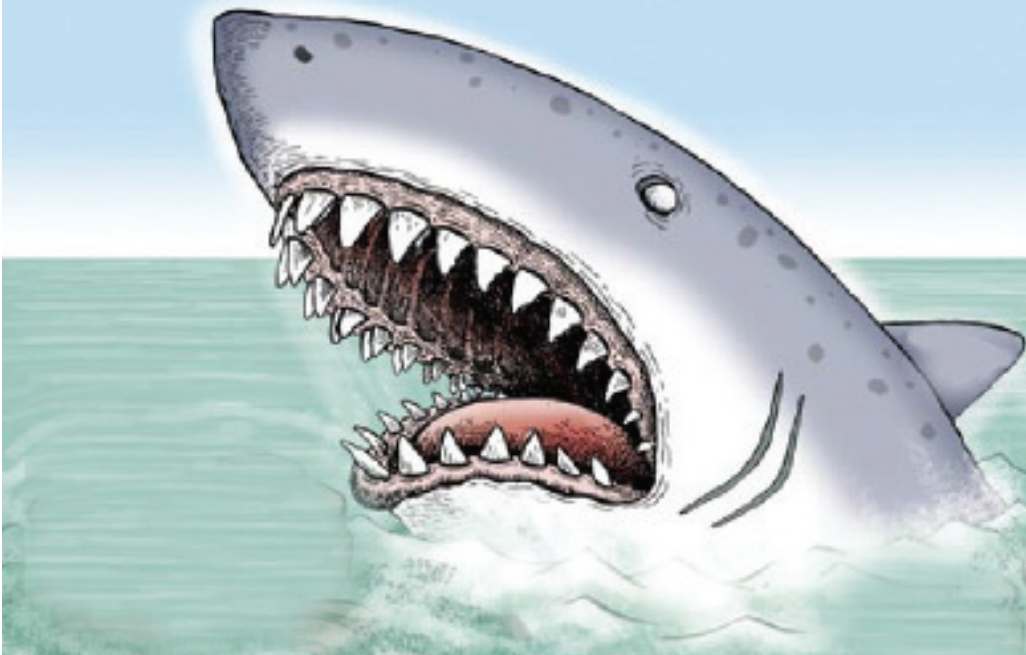
Do not eat inflated spiked fish, they could be poisonous.
Fish covered with scales are safer to eat.



Do not touch jelly fish or other living organisms floating in the water, with bare hands. They can irritate your skin when touched.



Take extreme care when gutting fish. Sharp fish bones, teeth and fins can be dangerous.



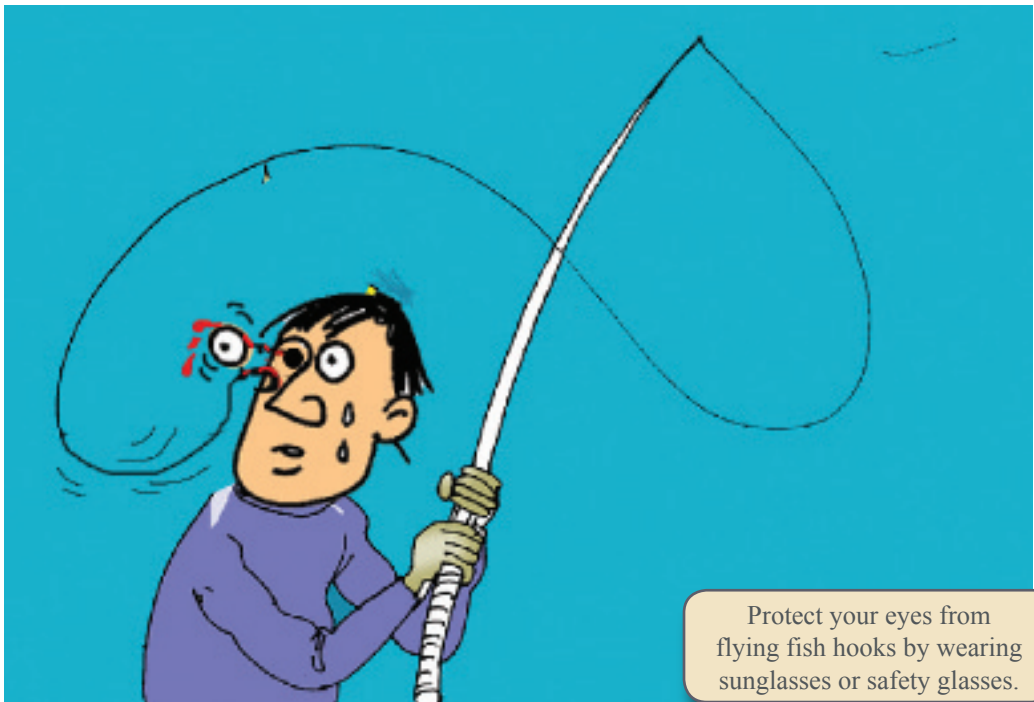


Never lift a heavy fish, use a winch or a tackle.





Wear safety shoes when handling large frozen fish.



Protect your eyes from flying fish hooks by wearing sunglasses or safety glasses.

Precautions against falling overboard

- Crew members should always be on guard against falling overboard as it is a major cause of fatalities. The pitch and roll of small vessels, the sudden accelerations, the conducting of complex fishing operations in exposed areas, the frequent hauling in and letting out of gear over the side or stern, the working on wet slippery decks and the inevitable fatigue which results from long working hours are conditions which cause fatalities of crew falling overboard.
- In the event of a change of course or speed, it is advisable to warn the crew, as the change in motion may catch them unawares. As the vessel is at this point most liable to ship a sea, it can expose the crew to high risk of being washed overboard.
- Lifelines should be set up, as appropriate to the class and size of the vessel. To prevent crew members from falling or being washed overboard in bad weather, suitable lifelines with man-ropes should be rigged on the working deck.
- When work is carried out where there is a risk of falling down or falling overboard, or when work is carried out in an exposed area in adverse weather, a safety harness with a safety line attached should be used. The length of the safety line should be adjusted to prevent falling overboard. If the work is carried out where a safety harness and safety line cannot be used, other adequate precautions should be taken such as wearing a lifejacket or a safety work vest.
- Work outboard while the vessel is under way should be carried out only when absolutely necessary. Necessary safety precautions should be taken before such work takes place.

Chapter III

Dive fishing safety

Seafood harvesters who use scuba or surface-supply diving gear must be trained in the equipment and procedures necessary for their particular diving activities. For all diving operations, minimum crew requirements must be followed. A diving supervisor must be on-site and in control. Other requirements include:

1. Employers must ensure that all divers have adequate training and know how to use available diving gear.
2. When diving is in progress, a standby diver must be on the dive site at all times to give emergency aid, if needed. The standby diver must be able to enter the water within one minute.
3. Each dive site must have a radio or a phone to allow voice contact with emergency services.
4. Dive sites must have all necessary first aid equipment, which includes an oxygen therapy unit. Each diver must be qualified in artificial respiration (CPR) and oxygen therapy.
5. Both the diving supervisor and the diver must keep separate diving logs. The log must include the type of apparatus and gas medium, times, maximum depth, surface interval, decompression tables used, date, and remarks. The diving supervisor's log must be filled with the employer after the dive.
6. Vessels engaged in diving operations must display or fly the international code "Alpha". Show this flag only while diving operations are in progress and remove the flag when diving operations cease – when no divers are in the water.
7. Each dive site must have an up-to-date list of the locations and telephone numbers of nearby facilities with recompression chambers for emergency services such as the coast guard, medical airlifts, navy, and doctors knowledgeable and competent in diving medicine.
8. Divers aged 40 and over must be examined at least once every year by a doctor knowledgeable and competent in diving medicine. Divers under 40 must be examined every two years. After each dive, divers must wear a medical alert tag for at least 24 hours. These tags will state that the wearer may be susceptible to diving illnesses such as decompression sickness.
9. A ladder should extend far enough into the water so that a diver can easily climb back onto the boat. If the ladder is too short, the diver may be injured getting aboard.

10. Getting trapped under water and rising too fast to the surface are among the most dangerous hazards for scuba divers.
11. Each diver must be in constant communication either with a buddy diver or with the surface by means of lifelines, floats, or voice communication.
12. Divers must not stay at any depth longer than the maximum time planned.
13. Scuba divers must not dive deeper than 40 meters (130 feet).
14. Scuba cylinders must be visually inspected internally every year. Cylinders must be hydrostatically tested every five years.
15. As a minimum, scuba divers must use the following equipment as appropriate to the diving conditions and as specified by the diving supervisor:

- Scuba unit with a quick-release harness and a pressure gauge
- Face mask
- Swimming fins
- Diving knife
- Depth gauge
- Exposure unit
- Inflatable buoyancy device
- Underwater watch with an elapsed-time indicator
- Weight belt with a quick release buckle

16. Surface – supplied divers must know their depth and time limits to ensure safe diving.
17. Surface – supplied divers must have a diver's tender.
18. Each diver's air line must have a pressure gauge and a separate valve. The gauge must be downstream from the valve.
19. Surface supply hoses must be attached to life lines to prevent undue stress on the supply hose or the helmet. Life lines must be 16mm in diameter, made of polypropylene or an equivalent synthetic fiber. Divers must use only hoses designed and suitable for surface – supplied diving.



Chapter IV

Passage to fishing ground and back to the harbour

Maintaining stability of the vessel

1. Load the vessel as per the recommendations in the stability booklet provided by the boat builder. Never encourage the crew to overload the vessel. Vessel owner must ensure that the vessel is not overloaded with fuel, ice, and other provisions that are required to stay out at sea for a longer period, neglecting the safety of the crew and builder's recommendations on stability. The skipper of the vessel should never jeopardize the safety of the crew.
2. Voyages should be calculated and planned in accordance with the capacity limits of the vessel. Draft marks and the load line mark are excellent means of determining whether your boat is overloaded.
3. Do not leave fish slack on the deck or in the hatch. Fish that can move freely makes the vessel less stable. Proper removable separation boards will help to keep the fish unmoved.
4. Take extreme care of stability while hauling gill nets or purse seine nets by winches. A heavy load of fish in the net can seriously reduce the stability of the vessel.
5. Many multi-day boats stack their dry fish on top of the wheel house in bulk. This should not be done as the stability of the vessel will be considerably reduced.
6. You should pay constant attention to the way your vessel rolls. If it takes longer and longer for the vessel to complete a roll your stability is decreasing and you are in danger.
7. Watch the end of the roll. If the vessel hangs at the end of the roll instead of immediately returning to the upright position you are in real danger.
8. Whenever possible, do not allow tanks to be half-filled as the free surface effect reduces the stability of the vessel. The tanks should preferably be either completely full or completely empty.
9. Always try to maintain a good stability of the vessel, without the vessel being too tender or too stiff.
10. Pump the bilges regularly and ensure that they are empty.

Safety and health of the crew

1. The skipper, as the owner's representative, has the overall responsibility for the safety and health of the crew and the safe operation of the fishing vessel and should provide such supervision as will ensure that as far as possible crew members perform their work in the best conditions of safety and health.
2. Crew members should co-operate with the owner, the skipper and other members of the crew to maintain their own health and safety as well as the health and safety of other crew members and other persons on board.
3. If there are any crew-members that are on medication, they must carry the necessary amounts of medical supplies that would be sufficient for the duration of the entire voyage.
4. The crew-members should be free of any encumbrances which hampers their stay out at sea.
5. Any member of the crew that is suspected to be ill, should not be enlisted for the voyage.
6. All crew members should keep the skipper and their colleagues informed of any allergies to certain types of medication if any and also of all other medical requirements.

Check-ups and procedures

1. Handover your voyage plan to the harbor authority for their records. It should include important details such as the names and addresses of the crew, boat owner's name and contact details, name and registered number of the boat, area where you expect to carry out fishing operations, expected date of arrival, communication equipment available onboard, etc.
2. Do not place metal objects near the magnetic compass. This leads to the development of additional deviation on the compass card, causing considerable errors to occur to your steering course.

3. Always keep a track of the weather forecast and be vigilant, especially during the south-west and north-east monsoon seasons in June-July and November-December. During these months there are dangers of cyclones in the Bay of Bengal, Indian Ocean. Crew-members must be prepared to avoid the path of a cyclone or face it successfully.
4. Ensure your safety equipment such as fire extinguishers, life jackets, life rings, life rafts, fire pumps and hoses, position indicating flares and signals, etc. are in good condition.
5. Basic knowledge in fire-fighting, survival at sea and first aid is a must for the crew.
6. Ensure you have sufficient fuel, fresh water, food provisions and first aid facilities.
7. Spare parts for the engines and machinery, lubricants, tools, etc. must be available onboard to use in an emergency or a break down.
8. Check your S.S.B radio, G.P.S. and the echo sounder if available.
9. Check the condition of the batteries and the charging system.
10. Magnetic compass should be checked for deviation and variation. Maintain a record of courses taken.
11. Count prevailing and expected winds and currents when calculating time and speed for the passage.
12. Charts should be available onboard demarcated with major shipping routs, restricted areas, exclusive economic zones (E.E.Z) of adjacent countries, etc. Instruments for chart work should be available.
13. Ensure the engines and machineries are in sound condition so as to avoid encountering troubles when out at sea.
14. Make sure you have the required identification documents to produce before authorities when in foreign waters.

15. Prepare and practice a watch schedule (duty roster) for passages that extend for longer periods of time. It eases stress on the crew.
16. Always try to group with other vessels and try to be in the vicinity of each other. This will help you to obtain assistance from other vessels in case of an emergency.
17. Inquire about other vessels already engaged in fishing activities out at sea and vessels returning from fishing. Keep track of their movements. It will help you in an emergency and you will be able to predict, up to a certain degree, fishing and the weather conditions.
18. Always plot your position on a chart. Make sure that you update it every hour when at deep sea and every 30 minutes when coasting.
19. Contact shore radio station at least twice a day and inform them of your position. Gather from them whatever possible information on the weather.
20. Do not use your radio for unnecessary conversations. Keep the radio free as far as possible for receiving emergency calls from other vessels. This should be strictly adhered to, make sure that the crew-members are aware of the importance of listening.
21. Do not try to lift onboard unidentified objects that are floating in the sea. Such objects could turn out to be sea mines or explosives that could pose a threat to your life. Report them to the shore base as soon as possible indicating the position.
22. Always be vigilant of other vessels coming head-on and crossing your bow. Take necessary precautions in time to avoid collision.
23. Do not keep fishing gear on the deck while proceeding to the fishing ground and also on your way back.
24. Do not go alongside other vessels out at sea unless it is necessary.
25. Always try to shoot your fishing nets and lines with the wind, haul them against the wind. It will help to maintain the vessel behind the nets and lines without drifting on to them.

Chapter V

Survival at sea

Sri Lanka is an island situated in the Indian Ocean, just south of India, approximately 6° degrees north of the equator. The distance between India and Sri Lanka is approximately 26Km over the ocean through Polk Strait from the northern peninsula of the island. The west coast of the island is bordered with the Indian Ocean spreading over 400 nautical miles (NM) up to the Maldives Islands and the east coast of the island is bordered with the Indian Ocean spreading over 500 NM up to the Andaman Islands through Bay of Bengal. The southern coast of the island is bordered by the open ocean up to the south pole, except for a few small isolated islands such as the Cocos Island, Diego Garcia Island etc.

In general, during half of the year, rough seas can be experienced around the island; western seas are rough during the south-west monsoons and the eastern seas (Bay of Bengal) are rough during the north-east monsoons. Strong currents can be observed during the monsoon seasons which reach a rate of 20-30 NM a day. Strong tropical cyclones developed due to depressions have been reported frequently during the months of June-July and November-December.



The Sri Lankan fishing fleet consists of coastal fishing vessels and deep sea fishing vessels that engage in fishing activities in the Indian Ocean throughout the year. All deep sea fishing vessels are mechanized. Most of the coastal fishing vessels are also mechanized except for a small percentage of coastal vessels that are traditional in nature, and are manual-operated canoes. Sails and oars are the main power source of canoes. Deep sea fishing vessels very often sail over a few hundred nautical miles and stay out at sea for few weeks depending on the availability and the haul of the catch. They use GPS to find their position on the chart and use SSB radio to communicate with the land and other Sri Lankan fishing vessels. In most cases, operators of these vessels lack knowledge in proper navigation methods and other safety measures to be undertaken out at sea in order to safeguard the vessel and its crew. GPS is the sole equipment available on board to find the position and way back to land. If something goes wrong with the GPS or in a situation where there is a power failure, the crew will find themselves in trouble, marooned out at sea.

Unfortunate incidents encounter at sea

1. Fire onboard
2. Man falling overboard
3. Personal accidents harming the crew
4. Water leaks in the hull
5. Loose position and become stranded
6. Loss of fishing gear
7. Engine failure
8. Loss of steering system
9. Loss of propeller
10. Brakedown in the gear box.
11. Running short of fuel
12. Encountering a cyclone
13. Run short of drinking water and provisions
14. Collision with another vessel
15. Lose of communication
16. Falling in the hands of pirates
17. Run aground
18. Explosions
19. Encountering strong winds and currents
20. Lightning

As mentioned earlier monsoon season is very dangerous in terms of safety for Sri Lankan fishermen. Fishermen are tempted to go fishing, despite the sea being very rough, for the simple reason that the fish catch in the monsoon season is fabulous. Fish are caught in foreshore and offshore areas in close proximity to the land allowing fishermen to make good profit with less expenditure and less effort. Fishing during monsoon season is relatively risky, as any engine failure of a vessel could cause it to drift to an adjacent country, often for several weeks or months, unless salvaged by another vessel. Vessels that drift to the west or east of the island are safer because other countries are around, but vessels that drift to the south of the island are in real danger as there is hardly any land to embark.

In the event of an engine failure fishermen should know how to handle the situation. The following points will help to bring the situation in to control.

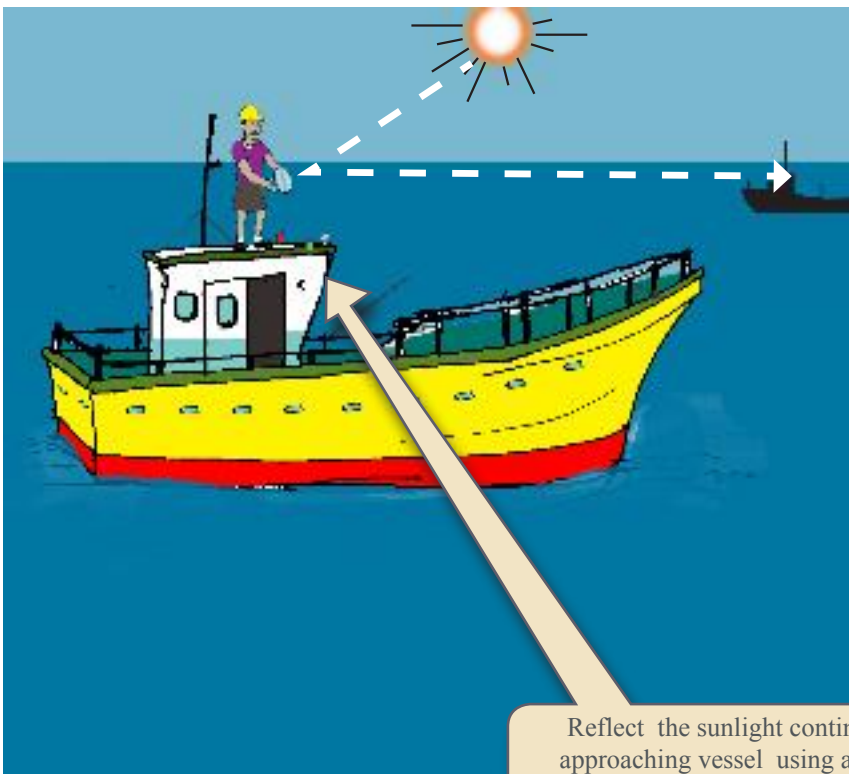
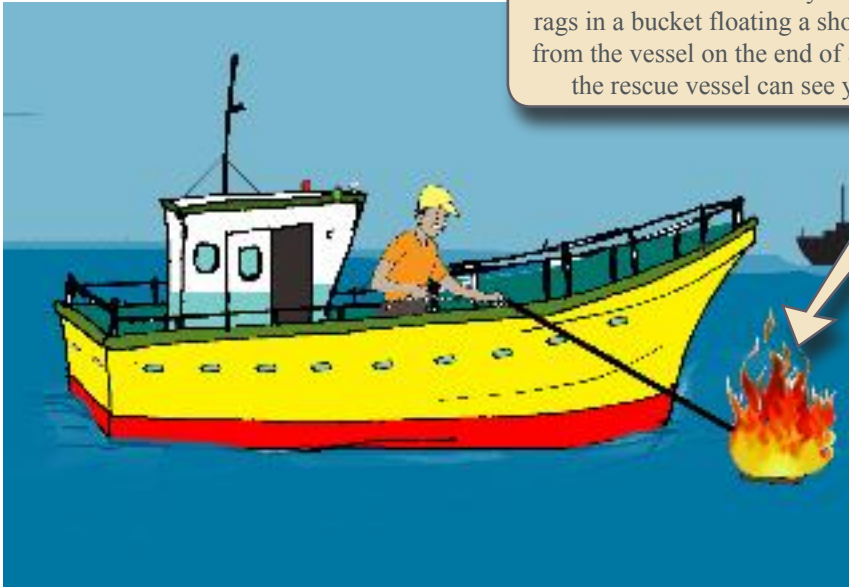
- Find your exact position and inform the local authorities and other vessels in the area of your need for assistance. Make sure you inform them of your exact position.
- Plot the position on a chart and watch for the drift. If you are drifting away from the land make your fishing nets like a rope, fasten the anchor at one end and drop it into the sea. This will help you to minimize the drift and maintain your position closer to your initial position.
- Drop the sea anchor if available.
- Try to repair the engine using existing spare parts if the repair is manageable.
- Search for other vessels in the vicinity or closeby who can assist you if the repair is beyond your control.
- Minimize the use of radio to save your battery strength.
- Inform local authorities of your position at least twice a day.
- The skipper should keep the crew strictly under his command and should not panic.
- Let the vessel drift, if the drift is towards the land. Use the sail if available.
- Ration your drinking water and provisions, enabling to stay out at sea for a maximum period.

- Do not engage the crew for daily routine work such as maintenance of the vessel and other hard work so they can preserve their body energy.
- Maintain a look out and watch duty in order to find a vessel passing by which can help you.
- Send SOS or MAY DAY signals on channel 16 for other vessel's attention if VHF radio is available onboard.
- If you can see a vessel in the vicinity try to get its attention by carrying out the following actions:



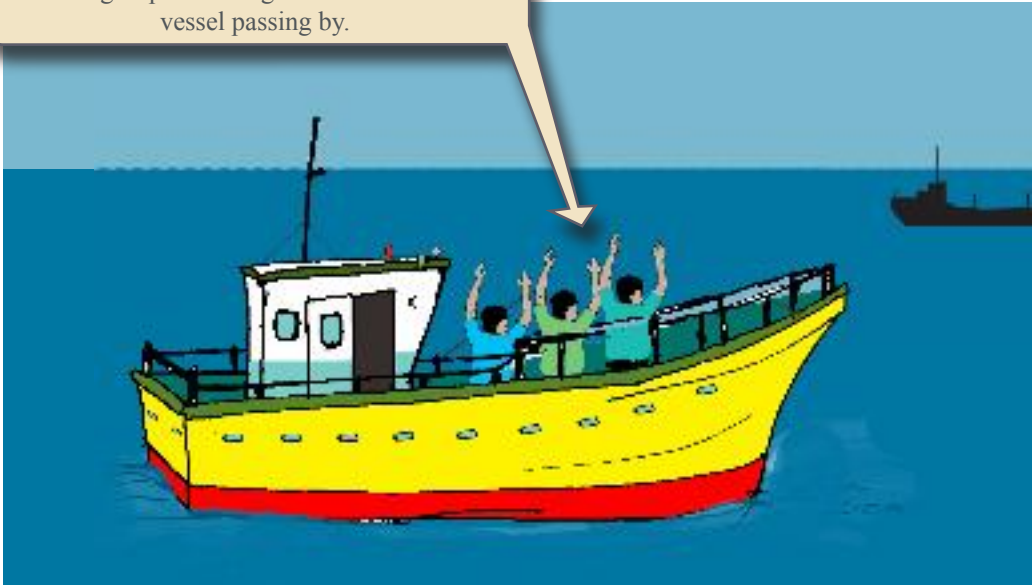
Slowly and repeatedly raise and lower your arms outstretched to each side when standing on the top of the wheelhouse or another visible place.

Make smoke and flame by burning oil soaked rags in a bucket floating a short distance away from the vessel on the end of a buoyant line so the rescue vessel can see your location.

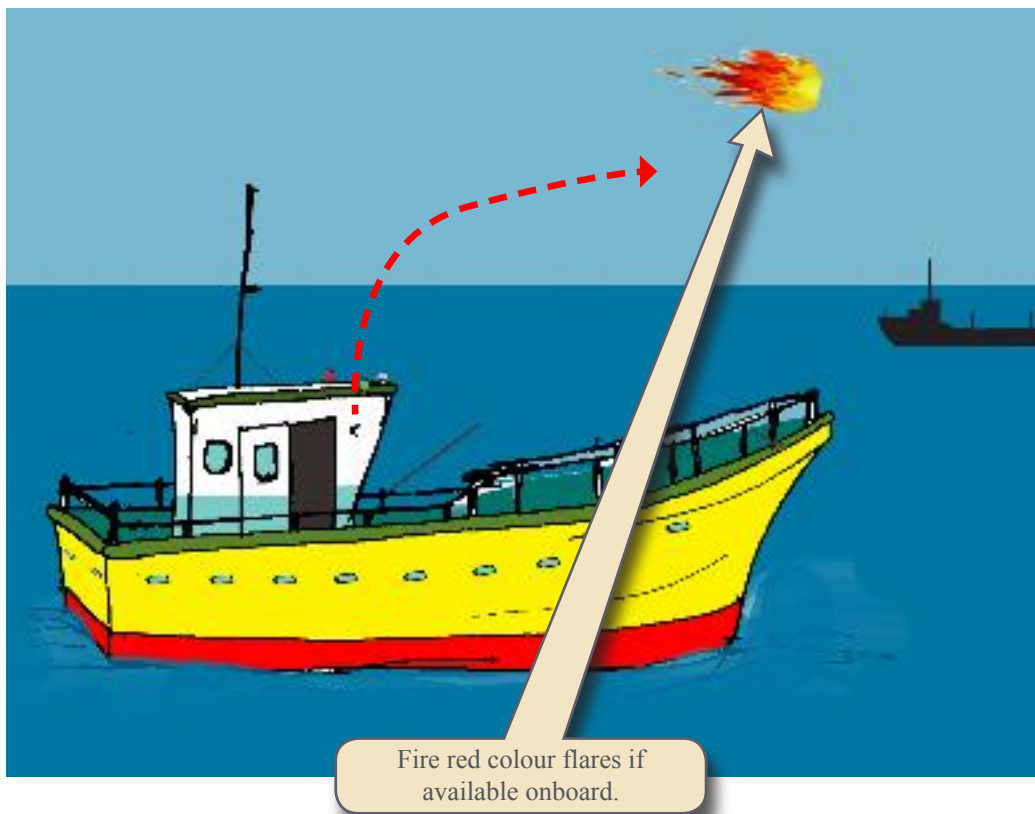
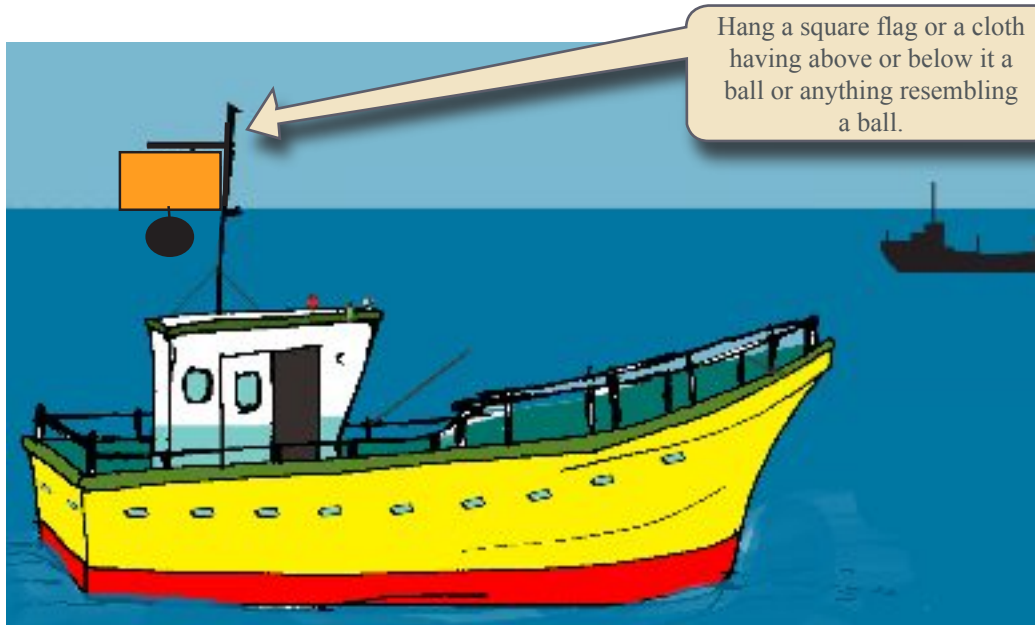


Reflect the sunlight continuously to the approaching vessel using a mirror or any other reflecting object.

Make a group shout to gather attention of the vessel passing by.



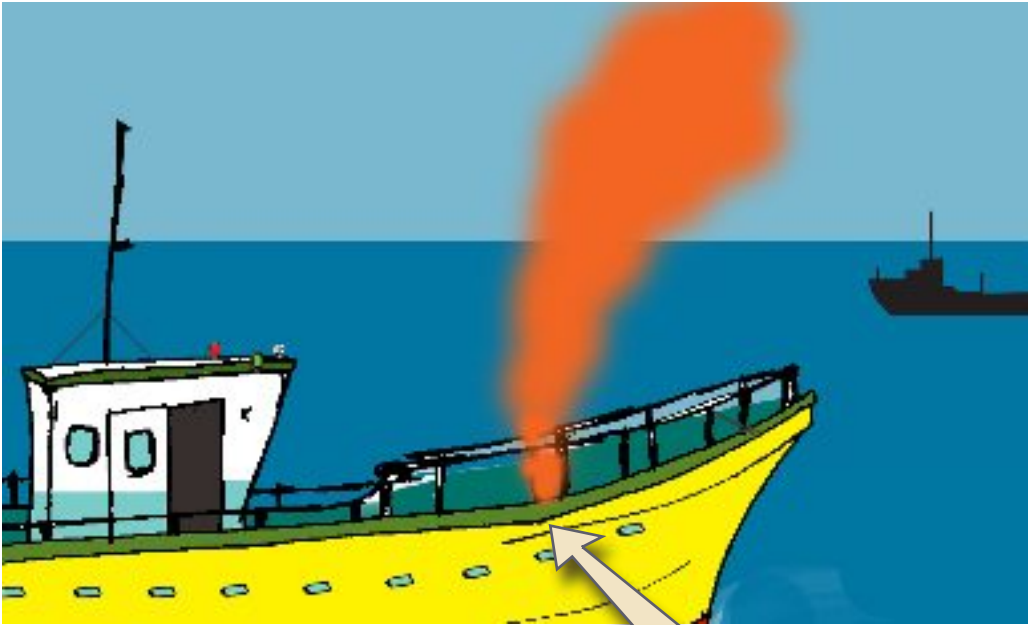
Hang a highly coloured canvas on the wheel house or at the most visible place.



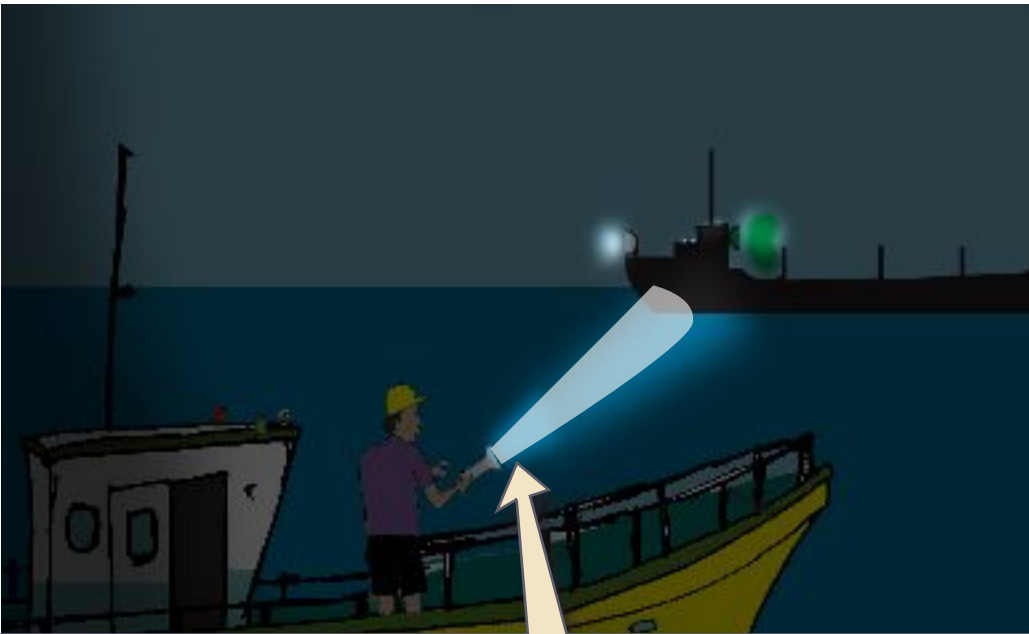
Hang the flag “November” on the mast accompanied with the flag “Charlie”.



Blow your whistle continuously if the approaching vessel is within reach.



Use orange color smoke signals.



Flash your torch or the flash light directly to the wheel house of an approaching vessel. Use a signal consisting of the group •••—••• (SOS) in the Morse code.

- Do not allow the crew to drink sea water at any time. Remember 40 per cent of total deaths reported, were a result of drinking sea water.
- Do not expose to sea breeze and to sea water.
- Do not drink alcohol or the blood of birds.
- Avoid protein rich foods. It will dehydrate your body. Consume only carbohydrate and glucose rich foods.
- Remember that one liter of fresh water a day is enough for a person to survive in tropical areas.
- Collect rain water in clean containers and store for future use.
- Do not smoke as it tends to dehydrate your body.
- In a desperate situation, you can collect plankton to fight hunger by using a funnel made out of cloth. When you pull the cloth funnel through sea water for some time you can see plankton deposits at the cod end. A sleeve of a shirt can be used for this purpose. Remember that eating plankton or seaweed increases the requirement of fresh water for your body. The spinal fluids of fish, however, contain fresh water and may safely be sucked out and swallowed.
- Do not expect a quick rescue. It may take considerable length of time. Therefore be patient.
- If any other vessel can save only the crew, forget about the crippled vessel and save the crew.

Life rafts and life jackets

Sri Lankan fishing vessels are not geared with life rafts or buoyant apparatus on board for use in an emergency. Life jackets are very rarely seen onboard. Life jackets are essential to have onboard vessels. This equipment could save your life in an emergency situation, for example, where a vessel must be abandoned. A life jacket can enable a person to float for a considerable time. However, a long stay in sea water leads to dehydration weakness. In a desperate situation a life jacket is helpful to keep a person afloat until a rescue boat arrives.

A life raft is a marvelous piece of equipment to have onboard in case a vessel needs to be abandoned. Crew members can get into the life raft until the rescue boat arrives. Different capacities of life rafts are available in the market, one onboard a vessel should be capable of accommodating the full crew. A life raft is very useful in deep seas enabling crew to survive for weeks or more. In some cases crews have managed to survive in a life raft for 100 days or more until they were sighted and rescued. The effects of cold, seasickness, anxiety, thirst and hunger all combine to work against the will to survive. Case histories have shown that people with a strong will to survive have overcome seemingly impossible difficulties, it is most important for the raft leader to keep up spirits and to maintain confidence in eventual rescue.

The ideal life raft should consist of

- One buoyant rescue quoit (ring), attached to not less than 30 meters buoyant line.
- One safety knife of the non-folding type, with a buoyant handle and lanyard attached and stowed in a pocket on the exterior of the canopy near the point at which the painter is attached to the life raft. In addition, a life raft, shall be provided with a second safety knife, which need not be of the non-folding type.
- One buoyant bailer is a requirement for a life raft which is permitted to accommodate not more than 12 persons. However, for a life raft that has the capacity for 13 or more persons, the requirement is two buoyant bailers.
- Two sponges.
- Two approved sea-anchors, each with shock resistant hawser and tripping line, one being spare and the other permanently attached to the life raft in such a way that when the life raft inflates or is waterborne it will cause the life raft to lie oriented to the wind in the most stable manner. The strength of each sea anchor and its hawser and tripping line shall be adequate for all sea conditions. The sea anchor shall be fitted with a swivel at each end of the line and shall be of a type, which is unlikely to turn inside out between its shroud lines.
- Two buoyant paddles.
- Three tin openers. Safety knives containing special tin – operator blades are satisfactory for this requirement.
- One approved first-aid kit in a waterproof case capable of being closed tightly after use.
- One whistle or equivalent sound signal.
- Four rocket parachute flares complying with requirements.

- Six hand flares complying with requirements.
- Two buoyant smoke signals complying with requirements.
- One approved waterproof electric torch suitable for Morse signaling together with one spare set of batteries and one spare bulb in a waterproof container.
- An efficient radar reflector.
- One approved daylight signaling mirror with instructions on its use for signaling to ships and aircrafts.
- One copy of life-saving signals on a waterproof card or in a waterproof container.
- One set of approved fishing tackle.
- Approved food rations totaling not less than 10,000 Kilojoules for each person the life raft is permitted to accommodate; these rations shall be kept in airtight packaging and be stowed in a watertight container.
- Watertight receptacles containing a total of 1.5 liters of fresh water for each person the life raft is permitted to accommodate, of which 0.5 liters per person may be replaced by approved de-salting apparatus capable of producing an equal amount of fresh water in two days.
- One rustproof graduated drinking vessel.
- Six doses of anti-sea-sickness medicine and one sea-sickness bag for each person that the life raft is permitted to accommodate.
- Approved instructions on how to survive.
- Approved instructions for immediate action.
- Thermal protective aids complying with the requirements sufficient for 10 percent of the number of persons the life raft is permitted to accommodate or “two” whichever is greater.

Hazards of cold exposure (Survival techniques)

Cooling as a result of exposure to cold water is the most frequent cause of death at sea. Investigations of ship disasters have shown that the risk of dying from exposure to the cold is greater than the risk of drowning.

Knowledge about protection against exposure to the cold and treatment of persons who have been exposed to the cold is therefore of great importance. A person may get incapacitated due to the cold and then he/she may drown as a result.

The normal temperature of the human body is approximately 37°C. When the temperature rises to 40-41°C, it results in the person being in a state of delirium. If the temperature falls to 33°C or below, the person will become unconscious. At approximately 25°C, death occurs as the heart cannot beat at temperatures lower than 25°C.

When a person falls into cold water, it will immediately penetrate their clothes. The insulating layer of air in the clothes will be displaced by water and the skin will be strongly cooled. If a person falls in to water below 30°C the blood vessels of the skin will become narrow in an attempt to preserve heat, however, this action will no longer aid the victim to preserve body heat.

The body will try to produce more heat by tightening the muscles, as a result of this action, shivers will occur.

If the temperature continues to fall, shivering decreases and the person will no longer feel the cold to such a stronger degree, but will slowly go into a state of unconsciousness.

If a crew-member falls overboard into cold water, the person's limbs will be somewhat frozen and the person may experience paralysis causing him/her to be unable to hold on to or grasp any line etc that may be thrown to him/her in order that he/she be rescued.

If you accidentally fall into the water, there are certain things that you yourself can do in order to survive. If the possibility exists try to get out of the water as much as possible. Please keep in mind that water cools 5-6 times more than air, even at high wind velocities.

Hypothermia

Hypothermia is the condition of low body-core temperature. This results from prolonged heat loss due to immersion in cold water or insufficient clothing or covering when in cold weather, wet and windy conditions. It is also associated with physical exhaustion, hunger and anxiety or low morale. All survivors, especially those in an open craft, are likely to find themselves in these circumstances.

All survivors should know that hypothermia is a killer. Its onset can be rapid and if not recognized by the victim or other survivors, death is likely to follow within one hour. A victim of hypothermia often does not realize his condition so it is important that the signs of hypothermia are known. People have died of exposure without even complaining of the cold. Very early stages of hypothermia can be identified by the shivering of the body in order to produce more body heat. However if the exposure is severe, the body will be unable to conserve or produce enough heat. Body core temperature begins to fall further and when it is below 35°C the person is suffering from “hypothermia”. This can be identified by discomfort, tiredness, poor coordination, numbness, impaired speech; disorientation and mental confusion are well established in the victim. Although death may occur at any stage of hypothermia, when a person’s body temperature is below 30°C it is very difficult to be sure whether he is alive or dead. Death by hypothermia is then defined as a failure to revive on re-warming.

Hypothermia is not easily recognizable. A victim is exhausted, reluctant to do anything, difficult to reason with and has slowed mental and physical reactions. Sense of touch is poor, speech may be slurred, and lips, hands and feet may swell.

The only safe treatment for hypothermia is to shelter the victim from wet and wind conditions. Warm the person with extra clothing or coverings and by also warming the body through physical contact, such as having two people lie alongside him/her. On no account should the body or limbs be rubbed in an attempt to warm the victim. When survivors reach land, victims of hypothermia must not be placed close to external heat, such as a fire.

The following measures can be taken to treat a hypothermia:

- Prevent further heat loss due to evaporation or exposure.
- Place the victim next to other people for warmth. Huddling together under covers is a faster way to provide the victim with sufficient heat for his/her body.

- Avoid unnecessary physical contact with the person.
- When the victim is conscious, give him/her a warm sweet drink.
- Do not wrap in a blanket unless the air temperature is less than the water temperature or unless the blankets have been preheated. (Unheated blankets insulate the cold surface of the body surface from the source of external heat).
- Do not massage the body or limbs.
- Do not feed solids or liquids to an unconscious survivor.
- Do not give alcohol.

Immersion foot

Immersion foot is the result of a limb being exposed to the cold. It is usually caused by a limb being immersed in to cold water. The limb becomes chilled and wet, resulting in poor circulation.

The affected part is swollen, numb and painful, and later, the skin may become discolored or broken.

If immersion of the foot occurs, keep the victim warm, and make sure that effected part of the body is elevated. Warm the victim's body first, then the limb and do not massage the limb. Relieve the victim's pain. If ulcers or blisters occur, cover them with clean dressings.

Any shoes and socks should be removed at intervals, the feet dried and the legs and feet exercised as far as possible by making full knee and ankle movements.

If the feet begin to swell take off any footwear and keep the feet in dry clothing material or warm them in the laps of other survivors.

Sunburn

Crew-members whose duties are to be performed out in the open, such as lookouts, should take care to cover up as much of their skin as possible in order to prevent sunburn. They should keep out of the sun as much as possible.

Because of the conditions in a vessel or life raft, survivors are more susceptible to sunburn. This is likely to lead to blistering and runs the risk of infection.

Sunburn should be treated as a mild burn. Do not prick any blisters but apply antiseptic cream and cover.

Salt water boils and sores

These are likely to occur when a survivor's skin is saturated with salt water, such as when sitting in water in survival craft or vessel. Skin sodden with salt water is not resistant to infection in small cuts and scratches.

Do not squeeze boils or sores but cover with antiseptic cream and dressings and leave to heal.

Chafing sores are likely to form on buttocks after several days of being on a survival craft or vessel.

Bodily functions

All survivors should be made to urinate frequently so as to keep the bladder free of urine. If not it could have serious consequences as the kidneys will continue producing urine. There is no benefit from retaining urine in the bladder, as water cannot be restored from urine into the general circulation.

Survivors should not worry if they become constipated after the first couple of days. There is very little waste residue in the emergency rations in life raft.

Dehydration

The human body contains about 40 liters of water, of which approximately 25 liters are needed to maintain life. The normal amount of water lost by a resting person each day when neither food nor water is taken is about one liter. A person should therefore survive for about two weeks if there is no additional loss of water.

Accelerated water loss will, however, be caused by exertion, sweating, vomiting, diarrhoea, drinking urine, drinking sea water, or eating or sucking fish. Exertion should be avoided as far as possible. Particularly in the tropics, sweating should be minimized as far as possible.

Vomiting must be avoided by taking seasickness tablets, as vomiting leads to the reduction of water content in the body.

Survivors must avoid any foodstuffs likely to cause diarrhoea because of the loss of body water involved. If affected, avoid food until recovered.

Urine contains poisonous waste materials dissolved in water. These waste products are of no use to the body. **Urine must not be drunk regardless of the desperate nature of the situation.**

Survivors should **not drink seawater as it increases dehydration**, which continues even after consumption. It could therefore prove to be a fatal mistake.

Survivors should **avoid the temptation to use seawater for dry and cracked lips.**

Delirium and mental disturbance

Delirium is most likely to be caused by drinking seawater. A delirious person will have delusions and may sometimes attempt to jump in to the water. It is impossible to reason with a delirious person; restraint may be required. Survivors suffering from exhaustion, injuries, etc. may become irrational or light headed. They should be humoured as much as possible, but carefully watched, for any sudden irrational action.

Hygiene

Survivors should be urged to keep their skin and mouth clean. The skin is likely to become infected from ingrained salt and dirt and salt covered clothing rubbing against it. Temperature permitting exposure to rain water, bathing and brief exposure to sun and fresh air are likely to be beneficial. If bathing, survivors should be attached to the survival craft by life lines and should not waste energy by swimming about. A look out should be kept for predatory fish.

Survivors are likely to find that their lips and tongues will become swollen and their lips may crack due to the small ration of water and the lack of saliva in the mouth. The inside of the mouth is likely to become furry and foul tasting.

