Volunteers Saving Lives on the Water

Canadian Coast Guard Auxiliary - Pacific

Pleasure Craft Operator Manual

This boating safety course manual has been approved by Transport Canada strictly on the basis that it meets the minimum requirements of basic boating safety knowledge set out in Transport Canada's Boating Safety Course and Test Syllabus (TP14932E).

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Preface

This manual is not intended to cover how to actually operate and drive power boats (boat handling), but rather provides the knowledge operators need to be able to comply with all of the legal requirements and standards when using pleasure craft in Canada.

If you are a novice, there are commercial courses available to teach boat handling, navigation, and boating safety. Do take advantage of these. There are yacht and sailing clubs which are also a good source of information.

If you are new to power boating and need somebody to “teach you the ropes," there are several options to consider for gaining hands-on instruction in the skills of boat handling, docking, anchoring, navigating, using marine radio, etc.

- In some cities, **commercial boating schools** offer practical training (they are required to carry insurance).

- Some **yacht clubs and boating associations or groups** organize courses and clinics (these will also have insurance to cover your activities).

- **Knowledgeable boaters** sometimes share their love of boating with beginners (their insurance will *not* cover your activities).

In some cities, commercial boating schools offer practical training.

1. Introduction

Boating is an activity where the courteous and thoughtful operation of vessels helps create a safe and enjoyable environment for all water users, whether you are in or on the water or on adjacent shorelines, enjoying the natural beauty and cleanliness of our rivers, lakes and coastal waters.

This manual has been written to provide you, the new pleasure craft operator, with sufficient information to operate safely while complying with all legal requirements. Additionally, should something go wrong, you'll be prepared to deal with an emergency in the best way possible.

The most important recommendation is that everyone on a boat should wear a lifejacket or personal flotation device (PFD). Find one that is comfortable for you, and wear it every time you are on board. If everything else goes wrong, a lifejacket or PFD will keep you afloat. When you are already in the water, it's very difficult to put one on. Planning ahead just may save your life.

The Competency of Operators of Pleasure Craft Regulations requires that everyone operating a powered pleasure craft in Canadian waters, except the Northwest Territories and Nunavut, must hold appropriate proof of competency, and carry proof of that competency when operating a vessel. There are geographic limits as well as requirements for non-residents operating Canadian vessels.

Generally the proof of competency is the Pleasure Craft Operator Card (PCOC). Your original proof of competency must be carried on board whenever you operate a vessel. Any superior qualification issued by Transport Canada, such as professional marine certification can also be used as proof of competency.

Competency can also consist of proof of completion of a boating safety course in Canada before 1 April 1999.

A list of approved Proof of Competency certificates can be found:

- By visiting the Office of Boating Safety pages on the Transport Canada website http://www.tc.gc.ca/eng/marinesafety/debs-obs-courses-pcoc-list-marine-safety-certif-1323.htm;
- By visiting your local Service Canada kiosk;
- By calling 1-800-267-6687.

Non residents, who are in Canadian waters 45 consecutive days or more operating their own boat, require proof of competency in boating safety knowledge issued by their own government, or Canadian proof of competency. Non residents operating a Canadian vessel require proof of competency in boating safety knowledge from their own government, or a Canadian proof of competency.

The Boat Rental Safety checklist is a valid proof of competency, when someone rents a boat from a rental agency and does not have a Pleasure Craft Operator Card or any other recognized proof of marine competency.

If law enforcement stops your vessel, you will likely be asked to provide submit your proof of competency. Failure to provide valid proof of competency can result in a fine of up to $250.

1.1 Requirements for Safe Operation

As the operator of a pleasure craft you are responsible for the safety of the craft, the safety of anyone you invite to go out, and also for any damage that your craft causes, such as in a collision or from the effects of your vessel's wake.

You are also prohibited from operating the vessel in a careless manner, without due care and attention.

Requirements for knowledge, construction standards and equipment do change. Please keep yourself up-to-date with such changes.

Pleasure craft operators are governed by numerous laws many of which are referred to in this manual.

Some of these laws include:

- Criminal Code of Canada
- Contraventions Act and Regulations
- Radio Communications Act and Regulations
- Canada Shipping Act 2001
- Small Vessel Regulations
- Collision Regulations
- Vessel Operation Restriction Regulations
- Competency of Operators of Pleasure Craft Regulations
- Charts and Nautical Publications Regulations
- Navigation Safety Regulations
- Regulations for the Prevention of Pollution
- from Ships and from Dangerous Chemicals

1.2 Most Common Causes of On-Water Incidents or Fatalities

Boaters who recognize the four most deadly risk factors, can take steps to avoid them.

1. Not wearing a Lifejacket or Personal Flotation Device (PFD)

If you are not used to being on the water, you have to get used to wearing the necessary personal safety equipment. The lives of most people who die boating could be saved by wearing PFDs or lifejackets.

2. Person overboard

Most small pleasure craft are not stable platforms due to their size. This is made worse when the craft is moving, in the wind, tide, waves generated by wind or other vessels on the water, or due to irresponsible handling of the craft by the users. You must take care moving around, and on a small boat, always hang on.

Children must be discouraged from riding up on the unrailed bow of the boat. A careless movement can result in someone going overboard, and possibly getting hit by the hull or worse the propeller.

3. Capsizing and collision

These are two major risks when the boat is out on the water.

a) Capsizing is when a boat is overturned, dumping all aboard into the water. This can happen if the boat flips, rolls over, turns or broaches.
Capsizing can also occur if:

i) Excess water gets into your boat through a leak, the boat fills up with water and possibly overturns or sinks;
ii) Your boat is swamped by waves from the effects of the wind, or wash from passing boats spilling into the boat;

iii) The boat is flooded after a collision with floating debris, logs or another vessel;
iv) The boat is run hard aground (i.e. strikes bottom or rocks) with loss of buoyancy.

b) Collison: The people on board a boat can be seriously hurt, or killed in the sudden deceleration caused by a collision with an object on the water, either floating or fixed, or by the boat hitting an underwater object, such as a rock.

The people on board can be forcibly thrown overboard into the water or onto the rocks, through the windshield, or into a solid part of the boat. Remember, there are no seat belts to protect people in a crash on the water.

4. Alcohol and drug-related boat operation

Driving a boat while impaired by alcohol or drugs or both, slows your reaction time and changes your perception of your surroundings. This is dangerous for everyone on board as well as for everyone else on the water.

You are more susceptible to hypothermia, especially in cold water immersion, when under the influence of alcohol, as well as less able to judge your risk of collision with another vessel, and the rate of closure.

It is safer for all on board if you have your full mental faculties when operating a boat, especially if things go wrong.

The bottom line is that it is against the law and a criminal offence to operate a boat, an air cushion vehicle, water-skis, surfboard or any towed object under the influence of alcohol or drugs.

Consideration for other people

In Canada, most navigable waterways must be shared with other users, including residents living near waterways.

Use courtesy and common sense so as not to create a hazard, threat, stress or irritant to yourself, others, the environment, or wildlife.

Section 1007 of the The Small Vessel Regulations states that:

"No person shall operate a vessel in a careless manner, without due care and attention or without reasonable consideration for other persons."

Some examples of operating a vessel in a careless mannner include:

- Operating your vessel at a high-engine regime in circular or crisscross patterns for extended periods of time in the same location;
- Jumping the waves or wake of another vessel unreasonably close to that vessel or so as to cause engine RPM to peak and make unusual or excessive noise;
- Weaving through congested marine traffic at high speeds;

Examples of operationg a vessel in a careless mannner (continued)

- Swerving at the last possible moment to avoid collision ("playing chicken");
- Operating a vessel at a speed higher than is necessary to maintain steerage way when near swimmers, or non-powered vessels.

You can be stopped by law enforcement if you operate your vessel carelessly or without due attention.

Examples of considerate vessel operator behaviour include:

- Not passing close to other vessels at high speed;
- Staying out of swimming areas;
- Avoiding damage and erosion to shorelines, shore properties, or injury to people on shore or close to shore caused by the build up and draw off of your wake;
- Staying clear of small craft which may easily be swamped or capsized;
- Following the Collision Regulations;
- Abiding by restriction notices;
- Staying clear of wildlife, especially protected wildlife.

The amount of wake is dependant upon three factors – the underwater shape of the hull, the type of hull (i.e., displacement or planning) and SPEED. The rule of thumb is **"the slower the speed, the smaller the wake."** Be considerate of other water users when operating at speed, and keep a good distance from other water users.

A particular boating danger is operator fatigue. Both the operator and other people on board must pay attention to the fatigue level of the operator. Fatigue level may be affected by lack of sleep, the operator's personal fitness, passenger lack of experience (creating a higher workload for the operator), and poor weather conditions.

Always wear a lifejacket or personal flotation device out on the water.

1.3 SUMMARY

Be Aware And Prepared.

Avoid trouble. But if you can't, having the know-how and equipment to survive can make the difference.

The most successful boaters make a habit of doing four things:

1. Insisting that everyone routinely wears a lifejacket on board.
2. Never getting behind the wheel if impaired.
3. Avoid making bad choices and errors by improving your situational awareness and knowledge, and by acting responsibly.
4. Be well prepared to survive mishaps by being aware of potential dangers and being equipped to improve your chances of survival.

Notes

2. Use of Life Jackets and Personal Flotation Devices

2.1 Use

It is strongly recommended that the vessel operator ensures that each passenger dons a properly-sized lifejacket or personal flotation device (PFD) before boarding. Each passenger should also know how to use his lifejacket or PFD in an emergency.

Everyone should keep their lifejacket on while on the water. It is almost impossible to put on a lifejacket or personal flotation device once you are in the water.

The operator should have enough flotation aids of the correct size for everyone on board. On larger boats, flotation devices should be worn whenever passengers are on outside decks.

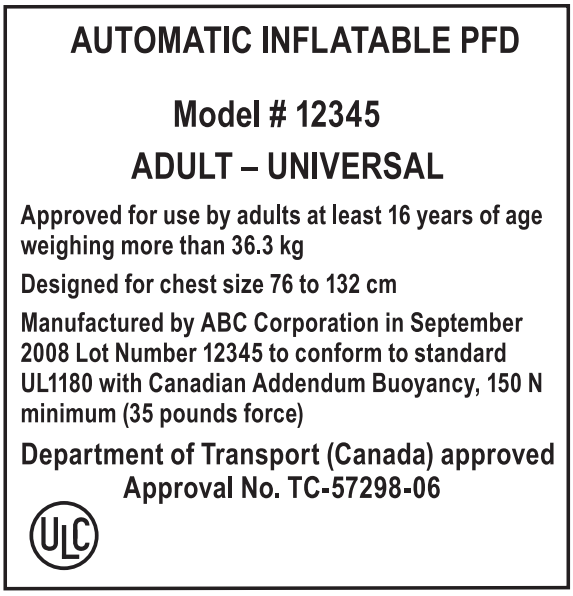
One size does not fit all. Ensure all passengers are wearing the right size. It is mandatory that everyone under the age of 16 wears an inherently buoyant lifejacket or personal flotation device.

All lifejackets or personal flotation devices used on Canadian pleasure craft must have the approval label sewn into the flotation device, showing the Transport Canada (or Department of Transport) or Department of Fisheries

and Oceans approval (or is appropriately stamped on the SOLAS lifejackets) and the size of person for whom it is designed.

Check that the size shown on the flotation device is appropriate for you and for everyone on board.

Flotation devices approved by the United States Coast Guard are not approved for Canadian vessels, as the U.S. uses lighter body weights for an adult. Please note that some flotation devices are *manufactured* in the United States, and are approved by Transport Canada for use in Canada. Look for the Transport Canada (Department of Canada) or Department of Fisheries and Oceans approval label.



Example of personal flotation device approval label.

2.2 Lifejacket versus Personal Flotation Devices

There are three types of lifejackets:

1. **SOLAS specification lifejackets** are available in two sizes: over 32kg (70lbs) and under 32kg (70lbs). The SOLAS (Safety of Life at Sea) lifejacket is approved for use on commercial ships, and is designed to keep someone afloat for a longer period of time. However the SOLAS lifejacket is big, uncomfortable, and likely to be worn in an emergency only.
2. **Standard lifejackets** are available in two sizes: over 40kg (88lbs) and under 40kg (88lbs).
3. **Small vessel lifejackets** are available in three sizes: over 41kg (90lbs), 18kg (40lbs) to 41kg (90lbs), and less than 18kg (40lbs).

Small vessel lifejackets are designed to be more comfortable than the standard lifejacket, and are more likely to be worn by small vessel operators.

A lifejacket's principal benefit is that it will turn an unconscious person onto his back with his face clear of the water in five seconds. The drawback is that it is less comfortable and practical for working.

The following table illustrates the principle differnece between the three most common types of lifejackets/PFDs.

	STANDARD LIFEJACKET	SMALL VESSEL LIFEJACKET	PERSONAL FLOTATION DEVICE VEST AND OTHERS
			
Style	Keyhole only	Vest and keyhole	Vest, keyhole, jacket, etc.
Reversible	Yes	Generally	No
Colour	Orange	Orange, red or yellow	Produced in many colours, some more visible
Capacity	Adult Child	Various sizes for range of weights	Various sizes for range of weights
Use	Emergency use on commercial ships	Emergency and underway use on vessels less than 15 gross tons	General use where risk of falling overboard exists – all the time on some craft
Buoyancy	100% solid	Yes	Yes
Turn unconscious person on their back	Yes	Yes (maybe)	No
Donning	Place over head; tie up one or two tapes. Follow manufacturer's instructions.	Easy to put on. Zip up and fasten one or two straps. Follow manufacturer's instructions	Easy to put on.Zip up and fasten three straps. Should fit snugly. Follow manufacturer's instructions
Advantages	Lots of buoyancy.		Is reasonably comfortable worn all the time
Disadvantages	Could not be worn all the time	Not too uncomfortable	Will not turn an unconscious person with their face out of the water

Personal flotation devices will keep a person afloat, but will not turn an unconscious person face-up. There are many styles available, designed for different water sports – find one that is suitable for your type of activity. Personal flotation devices are also available in a variety of colours – select a bright colour that will help you to be seen if you end up in the water.

There are two types of inflatable personal flotation devices currently available:

1. The manually-triggered pouch type which is folded up and worn on a belt, and has to be placed over the head when inflated. This PFD comes

equipped with a sealable tube for blowing in air.
2. The type which is worn around the head and inflates in place, either by manual or water-activated trigger release of inflation gas, or by blowing into the oral inflation tube.

Inflatable personal flotation devices are not recommended for weak swimmers due the time that they may take to inflate (made worse by the extra time needed to don the pouch-type PFD). Emergencies do happen and it is important that you know the required on-board equipment that will allow you to signal the distress, and get help.

2.3 Person Overboard

If you fall overboard, or end up in the water from a sinking boat, it is suggested that you have about 10 minutes of useful movement in the cold waters around Canada before the effects of hypothermia set in. If you do not have a lifejacket or personal flotation device, or you cannot get one on properly when in the water, you could drown very quickly.

If you have a lifejacket or personal flotation device on when you go in the water, your chances of survival in the water are greatly increased.
Too many adults and children die annually in Canada from not wearing a lifejacket or personal flotation device when they are out on the water.

All lifejackets and personal flotation devices should be properly and snuggly tied in order to sit at the correct height if you are in the water. This helps ensure that your head, nose and mouth will be at an appropriate height above the water. Every lifejacket and/or personal flotation device on board your vessel should have a plastic whistle attached to it, so the wearer can signal for help if needed.
Lifejackets and personal flotation devices should be regularly inspected, and tested annually in the water. They should be cleaned as necessary using only mild detergents as detailed on the label. They must be replaced when they get damaged. They should not be used as cushions, should not be stowed with chemicals or in oily bilges, and above all, must be readily available for use in an emergency.

Inflatable Lifejackets and Personal Flotation Devices
There are SOLAS inflatable lifejackets that are much more comfortable and compact than those described earlier in this chapter. However they are not readily available, and are expensive. They inflate automatically upon immersion, and can also be inflated manually. In the event of loss of buoyancy in any compartment they still meet the performance criteria.

There are also inflatable personal flotation devices, which require the user to inflate them, should the automatic CO^2 system fail.
The Small Vessel Regulations outlines some restrictions on the use of

inflatable lifejackets/PFDs.

They:

- Must be worn by an adult (at least 16 years of age and weighing 36.3 kg or more), in the case of an open boat or on deck/cockpit in any other type of boat, or readily available to any other adult occupant while below deck.
- Are not approved for white water paddling or personal watercraft use ;
- Must be fitted with an unpunctured, and fully functional inflation cartridge, or be worn fully inflated.
- Must be fitted with compatible inflation mechanism parts (refer to owner's manual). The fitting of any other part could result in the device failing to inflate or inflating improperly.

Parents should ensure their children are always wearing a well-fitting lifejacket or PFD when playing in or near the water.

2.4 SUMMARY

Wearing a lifejacket or personal flotation device (PFD) whenever you are on the water is an easy way to stay prepared for emergencies.

There are different kinds of lifejackets and PFDs. You should know the differences between them, and which type is best suited for your boating activities.

The **Small Vessel Regulations** contain restrictions related to lifejackets and PFDs. Familiarize yourself with the rules that apply to you and your passengers.

Notes

3. Signaling Distress

Upon arrival on board, you should show each of your passengers where all safety equipment is located and how it works, as well as the equipment (e.g., VHF radio, flares, flashlight, etc.) available to signal distress, and how to use it. Everyone should try on their PFD or lifejacket too.

If you have a VHF radio, the use of correct radio procedures should be outlined also. All of this becomes vitally important in the event that the operator falls overboard.

3.1 Distress Equipment

The Collision Regulations (with Canadian modifications) define the distress signals that may be used exclusively for attracting attention and initiating rescue or assistance on the water. Transport Canada determines the minimum requirements for onboard distress equipment that must be available for use (e.g., flashlight and flares) for each size and type of vessel.

You should be familiar with the operation of this equipment, make sure it is up-to-date, and readily available.

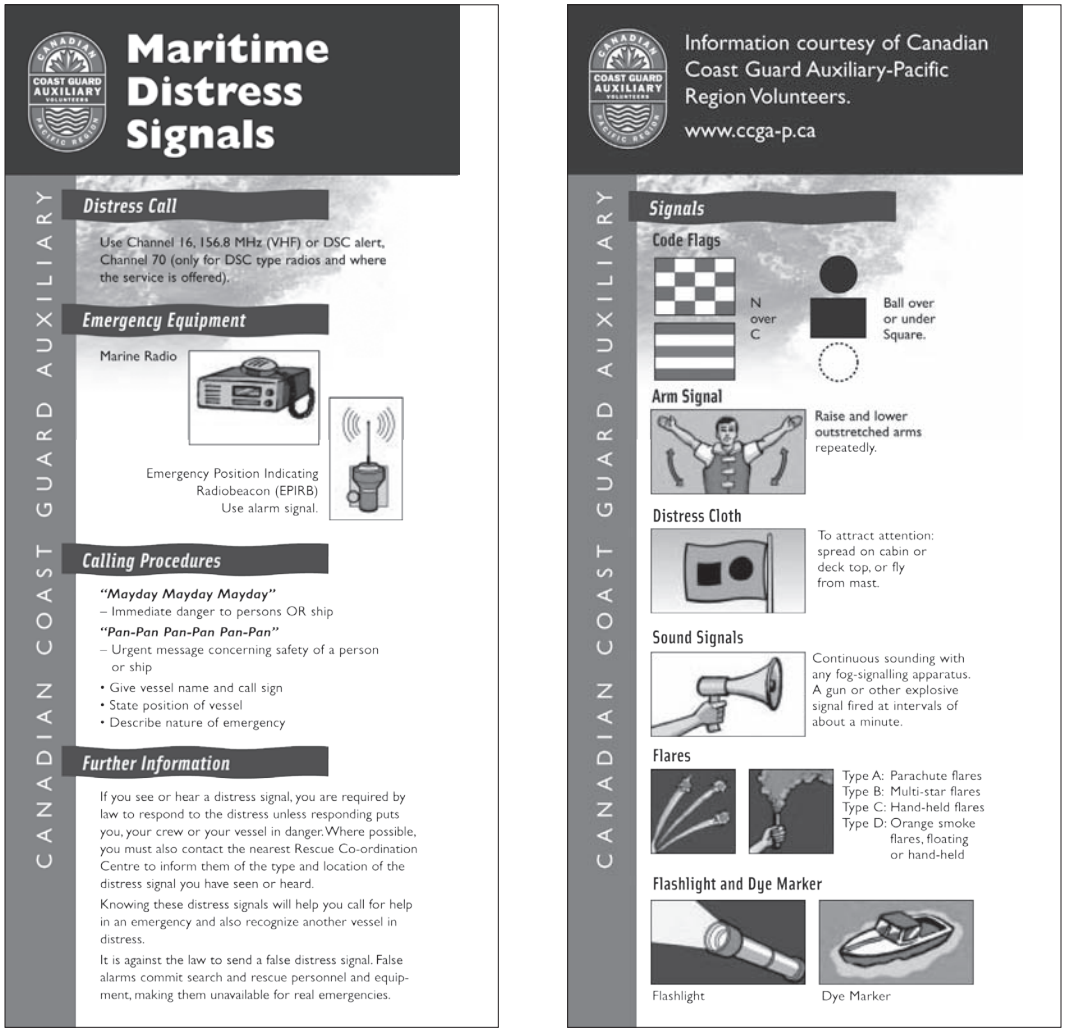
In addition, you should be familiar with all distress signals, so that you can recognize one when used by another vessel in need of immediate assistance.

Your duty upon sighting or hearing a distress signal is to report it to the nearest radio station. Then you should determine how close you are to the signal, and fulfill your obligation to assist the vessel if needed.

If you are the closest vessel or close (i.e., you can reach them without serious danger to your own craft and passengers), you are obligated to assist every person found at sea or danger of being lost.

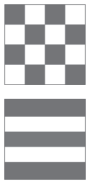
3.2 Distress Signals

Cards, like the one below, are available to aid in the recognition of distress signals. Information on each signal is provided on the following pages.



(front) (back)

Example of Canadian Coast Guard Auxiliary Pacific Maritime Distress Signal Card.

SIGNAL TYPE	DESCRIPTION
	**Radiotelephone** Call: “Mayday!” Give: name and position Use: 156.8 MHz- Ch16 VHF and/ or use VHF-DSC alarm signal. 2182 kHz can also be used; **406 MHz Emergency position indicating radiobeacon** EPIRB
	**Code Flags** N over C
	**Distress Cloth**
	**Ball over or under square**
	**Sound Signals** Continuous: Foghorn, bell, whistle
	**Gun or any explosive:** 1-minute intervals
	**Flashlight** Morse Code Signal . . . - - - . . . (SOS)
	**Arm Signal** Do not use near helicopter (different meaning)
	**Flame on Vessel** **(**As from burning tar, oil in barrel, etc.)
	**Dye Marker**

FLARE TYPES					
TYPE DESCRIPTION		SOLAS	VISIBILITY	USE	RECOMMENDATION:
A	Parachute Flare 	Yes	Fire slighty upwind - goes 300 metres high in the sky and shows red flare for at least 40 seconds	Used to attract distant vessels to your location	Recommended – day and night
B	Twin Star 	No	Fire slighty upwind - goes 100 metres high in the sky and shows 2 red flares for at least 5 seconds	Used to attract distant vessels to your location	Not recommended but cheap – day and night
C	Hand Flare 	Yes	Is held in the hand down-wind and clear of anything flammable and shows red flare for 60 seconds	Used to nar-row down search to your location	Recommended – day and night
D	Orange Smoke 	Yes	Is thrown in the water and emits large volumes of orange smoke for 3 minutes	Used to narrow down search to your location	Recommended – For daytime only

Flares

There are minimum requirements for the number of flares needed on a vessel. All flares must be approved by Transport Canada, and show the date of manufacture and expiry.

Safe handling of flares

All flares must be up-to-date as marked on the exterior, and have a life of four years from date of manufacture. Flares must be properly disposed of, and not set off. Consult your local police or fire department for more information regarding the proper disposal of flares. In B.C. there is no provincial agreement regarding the disposal of flares (March 2011).

The CCGA-P suggests that you use SOLAS-approved flares, which does not include Type B (Twin star).

Know the type of pyrotechnic you have on board, and how to set off each type. Be ready for an emergency.

3.3 SUMMARY

There are many types of equipment used for signalling distress.

You should know:

- Which equipment is required for your boat classification
- Where it is kept
- How to use it safely and effectively

Your passengers should also be aware of this. It's not only essential if an onboard emergency occurs, but the ability to identify signals will help in recognizing when other boaters are in need of assistance.

Notes

4. Vessel Licensing/Registration

4.1 Hull Identification Number

The Small Vessel Regulations require that when a new craft is built or imported for sale in Canada, it must come marked with a Hull Identification Number (HIN). This applies to all vessels from August 1, 1981 onwards. If applicable, check your vessel to be sure that it has an HIN.

The Hull Identification Number (HIN) provides a uniform method for identifying the following:

- Any specific vessel;
- The construction standards that apply to that specific vessel;
- Vessels subject to a manufacturer's defect recall;
- A lost or stolen vessel.

The HIN is located where it is clearly visible when the vessel is in the water, specifically, on the upper starboard quarter of the outside surface of the transom or if the vessel has no transom, on the uppermost starboard side at the aft end of the hull.

The HIN also must be marked in a second location on the hull, either beneath a fitting or an item of hardware, or an in area that is on the interior of the vessel and is unexposed.

The owner of a home built vessel must apply for a HIN from Transport Canada. For more information, call 1-800-267-6687.

4.2 Capacity Plate or Compliance Notice Display

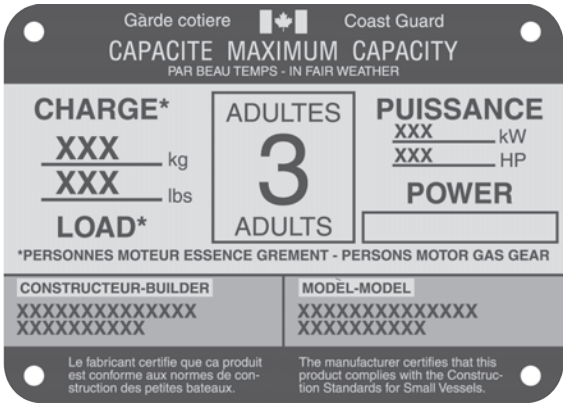
Capacity plates are permanently attached to the vessel. Pleasure craft less than six metres in length are fitted with a compliance notice display issued by Transport Canada.

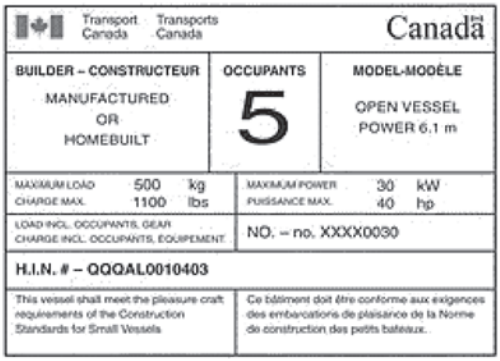
The Capacity Plate indicates the safe limits of the vessel including:

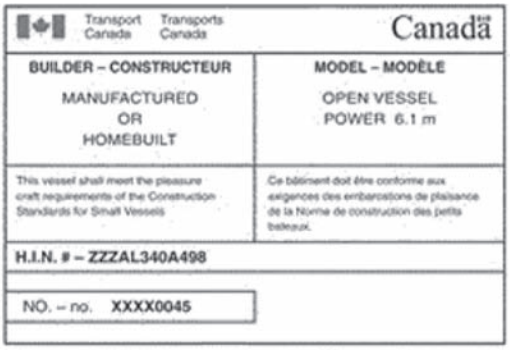
- The number of adults to be on board;
- The maximum load (in kilograms)including the engine, fuel, steering, persons, equipment and stores;
- In situations where the vessel is designed for use with an outboard engine, the maximum power of the engine.

All Capacity Plate information is based on travel in fair weather conditions.

For pleasure craft of six metres or greater in length, the compliance notice display will include a statement that it was built to pleasure craft construction requirements. Compliance notice displays are no longer required for home built vessels .







Examples of Capacity Plates.

Plan ahead for your trip. Adverse conditions may dictate that you carry fewer persons, stores or equipment on board.

As a safety precaution, avoid exceeding the recommended engine power, loading the craft over the "recommended gross load capacity" or over the "equivalent number of adult persons." Position your passengers and gear on board so as to evenly distribute the weight. The craft's centre of gravity must be lowered by keeping the load as low as possible on board the craft. Lash the gear or stow it in lockers designed specifically for this purpose. Doing so, you will prevent uncontrolled movement of the gear and avoid injuries or even loss of life.

Overloading
Loading the craft over the "recommended gross load capacity" or over the "equivalent number of adult persons" will increase the draft and decrease the freeboard of the craft. This will make your craft more likely to flood or capsize, and can place everyone on board in danger.

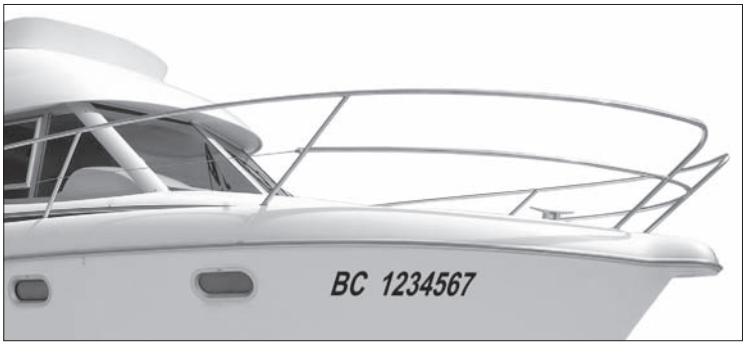
Licensing/registration on board
The license or registration of the vessel (or a copy) must be kept on board whenever it is underway, and presented to any enforcement officer should they decide to stop your vessel.

4.3 Licensing

The Small Vessel Regulations establish the licensing requirement as follows: *"All pleasure craft powered by an engine of 10 HP (7.5 kW) or more and operated in Canada must be licensed, unless they have a vessel registration."*

The owner of a pleasure craft powered by an engine under 10 HP or 7.5 kW may choose to have his boat licensed. New vessel owners have 90 days to obtain a license.

Licenses are issued free-of-charge by applying to the Pleasure Craft Licensing Centre. A boat's license number is permanent, and the license is valid for ten years. This license must be carried on board.



Your craft's registration number is to be displayed as shown above.

Markings must be in block characters at least 7.5 cm (3 in.) high. Markings must be in a colour that contrasts with their background.

These markings are to be placed on both sides of the boat and as close as possible to the bow; they can either be positioned directly on the hull or on a plate permanently attached to the boat. The number must be clearly visible from each side of the vessel.

You need to keep the Pleasure Craft Licensing Centre updated with any changes of name and address. If you sell your boat, you and the new owner must file the change of ownership with the Pleasure Craft Licensing Centre within 90 days.

4.4 Registration

Registration is optional for all pleasure craft. The benefit of registration is that it provides proof of title and ownership. Registration fees vary.

To apply for registration, you need to supply proof of ownership and complete the Vessel Registration Form at the local Port of Registry. A Certificate of Registry is valid for three years.

If your vessel is less than 15 gross tons, it likely will not need to be measured. If larger, the vessel will need to be measured by an approved measurer.

On a registered pleasure vessel, the name and port of registry must be clearly marked on the outside; the minimum height of the block characters for the name of the boat is 10.3 cm [4 in.], depicted in a colour contrasting to the background.

The registration number and net tonnage are to be permanently etched, either on the main beam or, in the case of a fiberglass boat, on the forward bulkhead, inside and in a readily visible location, in such a manner that any alteration would be readily apparent.

4.5 SUMMARY

Different types of licensing, registration and vessel identification exist for boats and operators. You should know what they are and their purposes:

They are:

- The HIN (Hull Identification Number)
- The Capacity Plate or Compliance Notice Display
- Vessel license
- Vessel registration

You should know which of these applies to you and your vessel's classification, and how to obtain and display them.

Notes

5. Equipment Required

Transport Canada sets the requirements for all the safety equipment that is needed on board when your vessel is underway.

The minimal equipment that you are required to have on board depends on your craft's length, type and propulsion. You must also know how to use, maintain and check this equipment.

Your vessel's saftey equipment is required to:
- Preserve lives;
- Preserve your boat;
- Signal for distress in an emergency.

As a part of your pre-departure check, you should ensure your safety equipment is:
- In place;
- Readily accessible and available for immediate use;
- Properly maintained and is in good working order, in accordance with the manufacturer's instructions or recommendations (and renewed as necessary before it goes out of date);
- In the case of portable fire extinguishers, be fully charged, and have an up-to-date service tag.

In addition there is other optional equipment and supplies which should be on board, such as a tool kit.

Your safety equipment may be checked by law enforcement, should they decide to stop your vessel for any reason.

5.1 Pleasure Craft Courtesy Check Program

Transport Canada supports a program of voluntary and free inspection of pleasure craft by trained volunteers, to ensure that principal navigation and safety equipment is on board, including lifejackets and PFDs.

Items such as flares and fire extinguishers are checked to see if they are in date and ready for use should the need arise. Also inspected are: CO detectors, safe stowage and ventilation for propane cylinders, and heat protection around the engine.**The Canadian Coast Guard Auxiliary** offers a similar program called the **Pleasure Craft Safety Check** that is similar to that described above, and is also free.

It is suggested that you take advantage of the opportunity to participate in a free Pleasure Craft Courtesy Check or Safety Check annually to ensure that you have all the necessary equipment, and that it is up-to-date. It could save you a sizeable fine.

5.2 Required Equipment

The following tables show the equipment required on all pleasure craft.

Table of Required Equipment, Vessels Up To 9m

	HUMAN POWERED PLEASURE CRAFT (SEE TABLE OF EXCEPTED CRAFT)	PLEASURE CRAFT UP TO 6M (SEE SECTION ON PWC)	PLEASURE CRAFT OVER 6M BUT NOT MORE THAN 9M
Lifejacket / personal flotation devices	One inherently buoyant of the correct size and type for everyone on board	One of the correct size and type for everyone on board	One of the correct size and type for everyone on board
Buoyant heaving lines/ lifebuoy	Yes >15m	Yes >15m	Yes >15m OR Lifebuoy with > 15m line
Re-boarding devices (cannot be part of propulsion unit)	Required if freeboard more than 0.5 metres	Required if freeboard more than 0.5 metres	Required if freeboard more than 0.5 metres
Manual propelling device	Yes	Yes	Yes

Table of Required Equipment, Vessels Up To 9m (continued)

	HUMAN POWERED PLEASURE CRAFT (SEE TABLE OF EXCEPTED CRAFT)	PLEASURE CRAFT UP TO 6M (SEE SECTION ON PWC)	PLEASURE CRAFT OVER 6M BUT NOT MORE THAN 9M
Anchor	Not required	Yes attached to >15m of line, cable or chain	Yes attached to >15m of line, cable or chain
Bailers / manual water pumps / bilge pumping arrangements	Bailer or manual pump or bilge pumping arrangement	Bailer or Manual water pump	Bailer or Manual water pump
Fire extinguishers (appropriate number, appropriate type, approved)	Not required	One 5 BC extinguisher if has inboard engine, fixed fuel tank, or fitted with fuel burning cooking, heating or refrigerating appliance	One 5BC extinguisher if power driven AND one 5BC if fitted with fuel burning cooking, heating or refrigeration appliance
Axe	Not required	Not required	Not required
Buckets	Not required	Not required	Not required
Flares	Six flares of type ABC other than smoke, if greater than 6m in length	Three flares of type ABC or watertight flashlight	Six flares of type ABC AND watertight flashlight
Sound-signaling device or sound-signaling appliance	Device or appliance	Device or appliance	Device or appliance
Navigation lights	Yes if out at night or in restricted visibiltiy	Yes if out at night or in restricted visibiltiy	Yes if out at night or in restricted visibiltiy
Watertight flashlight	Yes if vessel is greater than 6m in length	See flares	See flares
Magnetic compass	Yes	Yes	Yes
Radar reflector	See details in text	See details in textz	See details in text

Table of Required Equipment, Vessels From 9 m Up To More Than 24m

	OVER 9M BUT NOT OVER 12M	OVER 12M BUT NOT OVER 24M	OVER 24M
Lifejackets / personal flotation devices	One of the correct size and type for everyone on board	One of the correct size and type for everyone on board	One of the correct size and type for everyone on board
Buoyant heaving lines/ lifebuoy	Yes >15m AND Lifebuoy with > 15m line	Yes >15m AND Lifebuoy with > 15m line and self-igniting light	Yes >30m AND Two lifebuoys. 1 with >30m line. 1 with self igniting light
Re-boarding devices (cannot be part of propulsion unit)	Required if freeboard more than 0.5 metres	Required if freeboard more than 0.5 metres	Required if freeboard more than 0.5 metres, plus lifting harness with rigging
Manual propelling device	Not required	Not required	Not required
Anchor	Yes attached to >30m of line, cable or chain	Yes attached to >50m of line, cable or chain	Yes attached to >50m of line, cable or chain
Bailers/manual water pumps or bilge pumping arrangements	Manual water pump OR Bilge Pumping Arrangements	Bilge Pumping Arrangements	Bilge Pumping Arrangements
Fire extinguishers (appropriate number, appropriate type, approved)	One 10BC extinguisher if power driven AND one 10BC if fitted with fuel burning cooking, heating or refrigeration appliance	One 10BC extinguisher at: 1.each access to a space fitted with fuel burning cooking, heating or refrigerating appliance, 2.entrance to any accommodation space, and 3. entrance to the machinery space	One 10BC extinguisher at: 1.each access to a space fitted with fuel burning cooking, heating or refrigerating appliance, 2.each entrance to any accomodation space, 3.the entrance to the machinery space, and 4.a power driven fire pump outside the machinery space with fire hose and nozzle, from water can be directed to every part of the vessel
Axe	Not required	One required	Two required
Buckets	Not required	Two x > 10 litre buckets	Four x >10 litre buckets
Flares	Twelve flares (not more than 6 to be Type D) AND watertight flashlight	Twelve flares (not more than 6 to be Type D) AND watertight flashlight	Twelve flares (not more than 6 to be Type D) AND watertight flashlight
Sound-signaling device or sound-signaling appliance	Device or Appliance	Appliance	Appliance
Navigation lights if out at night	As required by Collision Regulations	As required by Collision Regulations	As required by Collision Regulations
Watertight flashlight	See flares	See flares	See flares
Magnetic compass	Yes	Yes	Yes
Radar reflector	See details in text	See details in text	See details in text

Table of Required Equipment, Excepted Pleasure Craft

	PERSONAL WATER CRAFT (PWC)	SAILBOARD/ KITEBOARD	HUMAN-POERED PADDLEBOATS, WATERCYCLES, AND SEALED-HULL, SIT-ON-TOP KAYAKS
Lifejackets / personal flotation devices	Provide one inherently buoyant of the correct size and type worn by everyone on board	Provide one of the correct size and type worn UNLESS in competition where safety boat carries appropriate-sized lifejacket/PFD that can be donned in the water	One of the correct size and type for everyone on board
Buoyant heaving lines/ lifebuoy	Not required	Not required	Not required
Re-boarding devices (cannot be part of propulsion unit)	Not required	Not required	Not required
Manual propelling device	Not required	Not required	Not required
Anchor	Not required	Not required	Not required
Bailers/manual water pumps or bilge pumping arrangements	Not required	Not required	Not required
Fire extinguishers (appropriate number, appropriate type, approved)	Not required	Not required	Not required
Axe	Not required	Not required	Not required
Buckets	Not required	Not required	Not required
Flares	Three flares of type ABC other than smoke, or watertight flashlight	Not required	Not required
Sound-signaling device or sound-signaling appliance	Device required	Device, except if in competition	Appliance
Navigation lights if out at night	Yes if out after sunset or before sunrise, or in restricted visibility	Not required	As required by Collision Regulations
Watertight flashlight	Not required - see flares	Yes if out after sunset or before sunrise, or in restricted visibility	Yes if out after sunset or before sunrise, or in restricted visibility, except if safety boat is available
Magnetic compass	Yes if the PWC is navigated out of sight of seamarks	Not required	Not required
Radar reflector	See details in text	See details in text	See details in text

Table of Required Equipment, Excepted Pleasure Craft (continued)

	RACING CANOES AND RACING KAYAKS	ROWING SHELLS
Lifejackets / personal flotation devices	Provide one of the correct size and type carried for everyone on board UNLESS in competition where safety boat carries appropriate-sized lifejackets/PFDs that can be donned in the water	Provide one of the correct size and type carried for everyone on board UNLESS in competition where safety boat carries appropriate-sized lifejackets/PFDs that can be donned in the water
Buoyant heaving lines/ lifebuoy	Not required	Not required
Re-boarding devices (cannot be part of propulsion unit)	Not required	Not required
Manual propelling device	Not required	Not required
Anchor	Not required	Not required
Bailers/manual water pumps or bilge pumping arrangements	Not required	Not required
Fire extinguishers (appropriate number, appropriate type, approved)	Not required	Not required
Axe	Not required	Not required
Buckets	Not required	Not required
Flares	Not required	Not required
Sound-signaling device or sound-signaling appliance	Device, except if safety boat available	Device, except if safety boat available
Navigation lights if out at night	Not required	Not required
Watertight flashlight	Yes if out after sunset or before sunrise, or in restricted visibility, except if safety boat is available	Yes if out after sunset or before sunrise, or in restricted visibility, except if safety boat is available
Magnetic compass	Not required	Not required
Radar Reflector	See details in text	See details in text

Magnetic Compass

The magnetic compass is the instrument that shows the direction of magnetic north, and consists of a permanent magnet mounted on a circular card marked from 000 to 359 degrees.

To correct the reading to show true north, a figure called "variation", which is the difference between magnetic north and true north, needs to be added or subtracted. Variation can be found by looking at the compass rose on the navigation chart.

In addition the boat may also have its own magnetic field, from electronics, electric cables, as well as any iron or steel on board. The compass should be situated as far away as possible from these potential sources of interference. Any error from these sources is called deviation, and should also be known and adjusted for.

All vessels are required to be equipped with a magnetic compass. This compass should be properly installed and calibrated.

Navigational Charts/Geographic Positioning System

When sailing in your own waters it is not compulsory to carry charts if on coastal waters or a map if on a lake. However you need to make sure that your knowledge of such waters is good. While you may know the local waters, your passengers may not. If you fall overboard they will need to determine their location.

It is strongly recommended that an up-to-date corrected navigational chart is kept on board and consulted as necessary to ensure the safe navigation of the vessel, especially in tidal waters.

A topographical map should be carried on lakes where no chart is available.

The operator and passengers on board should be familiar with the chart and map, and the symbols

Navigational Charts/Geographic Positioning System (continued)

used. If the operator falls overboard, then they know that someone else on board will know what to do and safely get the boat back to recover the operator. Make sure you know how to:

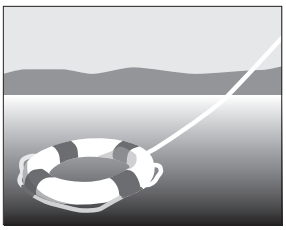
- Plot a course;
- Find your position from the chart;
- Use a compass with the chart, and electronic equipment;
- Use nautical publications such as tide tables;
- Read the buoyage system.

Global Positioning System (GPS) receivers with latitude and longitude readouts are readily available, and operators are urged to have one available. Some chart plotters have a Global Positioning System built in and also have the capability of holding digital charts. However a paper chart is always needed as a back up in case the electronic system fails.

You should make sure that you have coverage for the area where you will be navigating, and that the information displayed is up to date. It is important to know how to use your GPS and its limitations.

In a distress situation a GPS system can give rescue authorities an extremely accurate position for emergency rescue response.

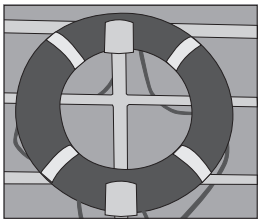
Buoyant Heaving Line



A buoyant heaving line is designed to get a line to someone who is in the water. The line must float, be made from one piece of rope, be the correct length for the boat, and should be fitted with a light buoyant object or heaving line knot on the end to aid retrieval by the person in the water.

The buoyant heaving line should be used as safety equipment only and needs to be readily accessible in an emergency. Practice using it so that you will become skilled at throwing it accurately.

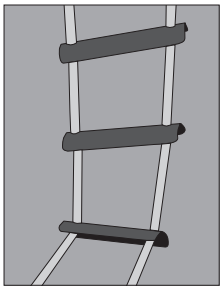
Lifebuoys



Approved lifebuoys are designed to help someone who has fallen overboard float. Like lifejackets and PFDs, lifebuoys must have Transport Canada-approved markings. Pleasure craft may use small vessel (610mm diameter) lifebuoys.

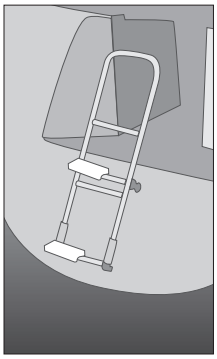
Flotation devices required on board, such as lifebuoys, must operate as expected. A lifebuoy or flotation aid is of little use if it is damaged, falling apart, waterlogged, contaminated by oil, not readily available or otherwise unfit, should it be suddenly needed in an emergency. They should be tested by following the manufacturer's instructions, and then be properly flushed with fresh water and dried before being stowed again.

Reboarding Device



The reboarding device is designed to allow someone who has fallen overboard to get back on board.

This device could be a swim grid, a transom ladder or steps molded in the transom. It may also be a rope ladder rolled up or a piece of line pre-knotted with loops for the feet to fit into, outfitted with a piece of line down to the waterline to allow it to be released by the person in the water awaiting resuce.

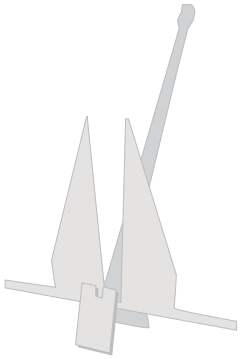


Reboarding devices are required for all vessels with a freeboard greater than 0.5 metres. A swim grid lower than 0.5 metres complies with this. It is not allowed to be part of the propulsion system because climbing over the running propellers is a bad idea. **Examples include:**

- A tethered ladder that can be released by a person in the water;
- A permanent affixed ladder or steps to the waterline fixed to or part of the hull;
- A simple rope hanging to the waterline with bowlines prettied to act as handholds and steps.

Manual Propelling Device

A propelling device such as a paddle or oar or other human powered device is required on all vessels of nine metres or less in length. This requirement may be replaced by an anchor and line, for vessels greater than 15 metres in length.

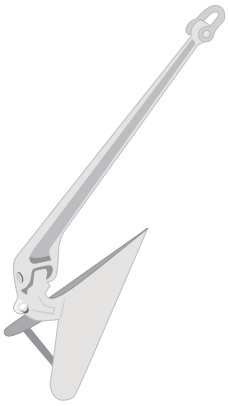


Anchor and Line

Where defined, the vessel must carry an anchor with a line attached and the pin of the shackle secured so it cannot come out. The size of anchor and the line diameter must be adequate for the size of boat, and the type of anchor suitable for the type of seabed where the vessel is operating. **Of the three types of anchor:**

Fluke designs use large fluke surfaces to develop very large resistance to loads once they dig into the seabed. They have less ability to penetrate and are designed to reset rather than turn.

Hook designs use a relatively small fluke surface on a heavy, narrow arm to penetrate deeply into problematic bottoms such as rocky, heavy kelp or eel grass, coral, or hard sand.

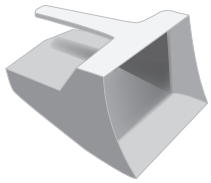


Plough designs are designed to bury themselves in the bottom as force is applied to them, and are considered good in most bottom conditions from soft mud to rock.

While minimum combined lengths of anchor chain, cable and line are defined above, the operator should be aware of the likely places and depths where he might have to anchor and have sufficient anchor line on board for those situations. See **Chapter 12, Anchoring** for more information.

Bailers, Water Pumps and Bilge Pumping Arrangements

A bailer, manual bilge pump, or bilge pumping arrangement is required on all vessels. A bailer must have an opening greater than 65 sq.cm.



Bailers, Water Pumps and Bilge Pumping Arrangements (continued)

The discharge hose on the manual bilge pump must be able to reach over the side from the deepest part of the boat. Try yours to make sure it can do this.

Vessels greater than 12 metres in length must be fitted with effective bilge pumping arrangements.

Fire Extinguishers

There are different types of fire extinguishers depending upon the fuel of the fire that may occur. **The most common materials on pleasure craft are:**

A – Materials such as wood, paper, cloth and plastic
B – Flammable liquids such as gas, oil and grease
C – Electrical fires

The fire extinguisher size and type should match the fire risk that you have, must be the size defined for your vessel or exceed it, and must be readily available.

The fire extinguisher must be certified by the US Coast Guard, Underwriters Laboratories (UL), or Underwriters Laboratories of Canada (ULC).

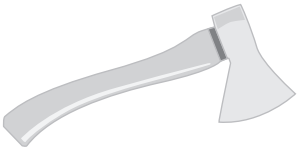
Most extinguishers use the PASS system to operate. **P**oint, **A**im, **S**queeze, **S**weep. Know how your extinguisher works, by reading the manufacturer's instructions.

Keep the extinguishers accessible at all times. A 10 BC fire extinguisher is a ten pound charge, and is suitable for type B or C fires. It will last around ten seconds in use.

Fire extinguishers must be checked annually by an appropriate fire extinguisher maintenance technician.

It is also worthwhile to occasionally invert and vigorously shake dry chemical extinguishers to de-compact the powder inside.

Axe



An axe can be used in emergencies, such as to help cut away rigging and sails when the mast has broken, or to cut away a towline if the tow goes wrong.

A small hand axe with a spike and light blade protection cover to keep the blade from rusting is best.

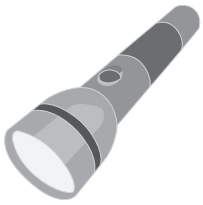
Bucket

A sturdy 10 litre bucket (some vessels require two) is useful if your boat gets a leak, you will be able to bail the water out.

The bucket should be fitted with a piece of line, so that it can be lowered into the deepest part of the boat and lift water out.

"There is no better pump than a frightened man and a two gallon bucket."

Flashlight



A watertight flashlight can be used for signaling if in distress, and for illumination on board during an emergency.

On human-powered and sailing vessels less than seven metres in length, a flashlight can be used as a navigation light to warn other vessels of your presence.

Make sure you have fresh batteries in your flashlight, and ideally have spare batteries as well as a spare flashlight bulb available.

Sound Signaling Devices

Sound signaling equipment must be carried by all vessels, specifically either a pealess whistle, aerosol gas horn, or electric horn.

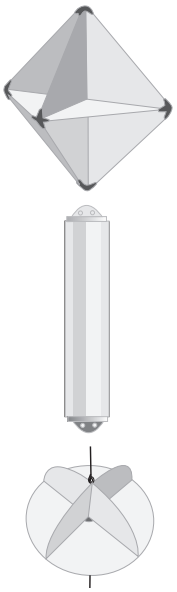
All boats over 12 metres in length must have a sound signaling appliance, while vessels over 20 metres must also carry a bell.

Sound Signaling Devices (continued)

The purpose of this equipment is to be able to make sound signals as required by the Collision Regulations when you are:

- Issuing a maneuver signal in clear visibility;
- Signalling to let other vessel know of your presence in restricted visibility;
- Attracting attention in case of distress.

Radar Reflectors



Radar reflectors are designed to make your vessel as visible as possible on other vessels' radars.

Radar reflectors should be fitted on all boats less than 20 metres, where they are not constructed of steel or aluminum, to allow large vessels to see your vessel on their radar.

Reflectors should be as big and mounted at least four metres above the water, clear of the cabin or superstructure.

Radar reflectors are especially important if visibility become reduced or restricted, so that you know you can be seen by other vessels on radar.

VHF Radios

Fixed and portable marine VHF radios are available, and all operators are strongly urged to have a VHF marine radio fitted on your boat. If your radio is permanently wired in, it is preferable to wire it so that the radio always has power, even when the main breakers are turned off.

If the VHF radio is to be used for more than distress calls, the operator must have his Restricted Operator Certificate (Maritime). The operator must follow the procedures described in the VHF Radiotelephone Practices and Procedures Regulations.

VHF Radios (continued)

The VHF radio should be set on VHF Channel 16 when in normal operation. This channel is used for operations such as one vessel calling another, and distress communications.

If you find yourself in immediate danger, you should use the VHF on Channel 16 and broadcast a distress message, which will be transmitted to all vessels and shore radio stations in the area. This is better than using your cellphone where only the recipient will hear the distress call.

Rescue authorities in Canada can also be contacted by dialing *16 on your cellphone. Check with your local cellphone provider for more details on this service in your area.

Most new VHF radios have a digital selective calling (DSC) feature on Channel 70, which provides automatic digital distress alerts. VHF Channel 70 should be used only for digital selective calling communication and not for voice communications.

A nine-digit Maritime Mobile Service Identity (MMSI) number should be obtained for your radio to get maximum benefits from this automated system. Your owner's manual will explain this feature and how to make a DSC call to another vessel or to a shore station that has DSC capability.

5.3 SUMMARY

As a pleasure craft operator, you are required to carry, use and maintain certain equipment. Everyone on board should know where it is kept and how to use it.

You are encouraged to take advantage of Transport Canada's Pleasure Craft Courtesy Check Program, or the Canadian Coast Guard Auxiliary's Pleasure Craft Safety Check program. Both are free, and will ensure that your boat's equipment is up-to-date and ready for use.

Notes

6. Canadian Aids to Navigation (CANS) Knowledge Required

As a pleasure craft operator, you need to familiarize yourself with various rules and signs on the water in order to operate your vessel safely. These include:

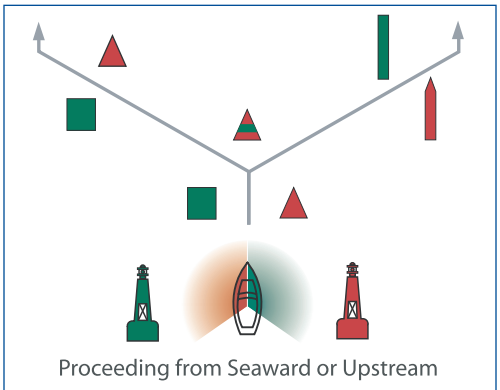
- CANS Lateral and Cardinal Buoy Systems
- Collision Regulations and Avoidance (see Chapter 7)

6.1 CANS LATERAL BUOY SYSTEM

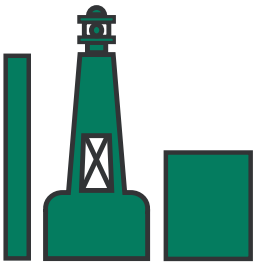
Upstream Direction

In Canada the lateral buoyage system used is red – right – returning. This means when returning to port, leave the red conical buoys to your right (or "starboard") side.

The rectangular green buoys must be kept to your left (or "port") side. An illustration of this buoy system is shown at right.



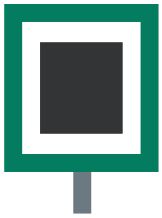
Lateral System Navigation



Port Hand

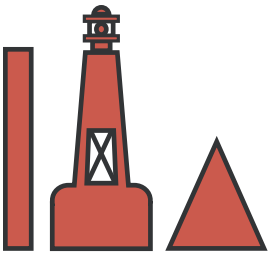
A “port hand buoy” (green) is the buoy to the left of a pleasure craft proceeding upriver. It marks the side of a channel or hazard and displays identification letter(s) and odd number(s).

It has a green topmark and reflector. If this buoy carries a light, it either has a green flashing (Fl) (four-second), or quick flashing (Q) light. It has a flat top if it does not carry a light.



Port Hand Beacon

A “port hand day beacon” marks the port (left) side of a channel or the location of a danger during daylight hours and must be kept on the port (left) side of a pleasure craft when proceeding upstream. It has a black or green square centered on a white background with a green reflecting border.



Starboard Hand

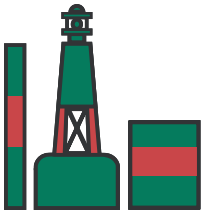
A “starboard hand buoy” (red) is the buoy to the right of a pleasure craft proceeding upstream. It marks the side of a channel or hazard and displays identification letter(s) and even number(s).

It has a red topmark and reflector. If it carries a light, it has a red flashing Fl. (four-second), or quick-flashing (Q) one-second light. It has a pointed top if it does not carry a light.

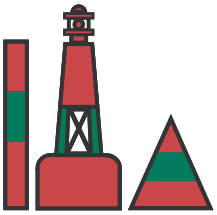
Starboard Hand Beacon

A “starboard hand day beacon” marks the starboard (right) side of a channel or the location of a danger during daylight hours and must be kept on the starboard (right) side of a pleasure craft when proceeding upstream. It has a red triangle centered on a white background with a red reflecting border.

Bifurcation



Port Bifurcation Buoy



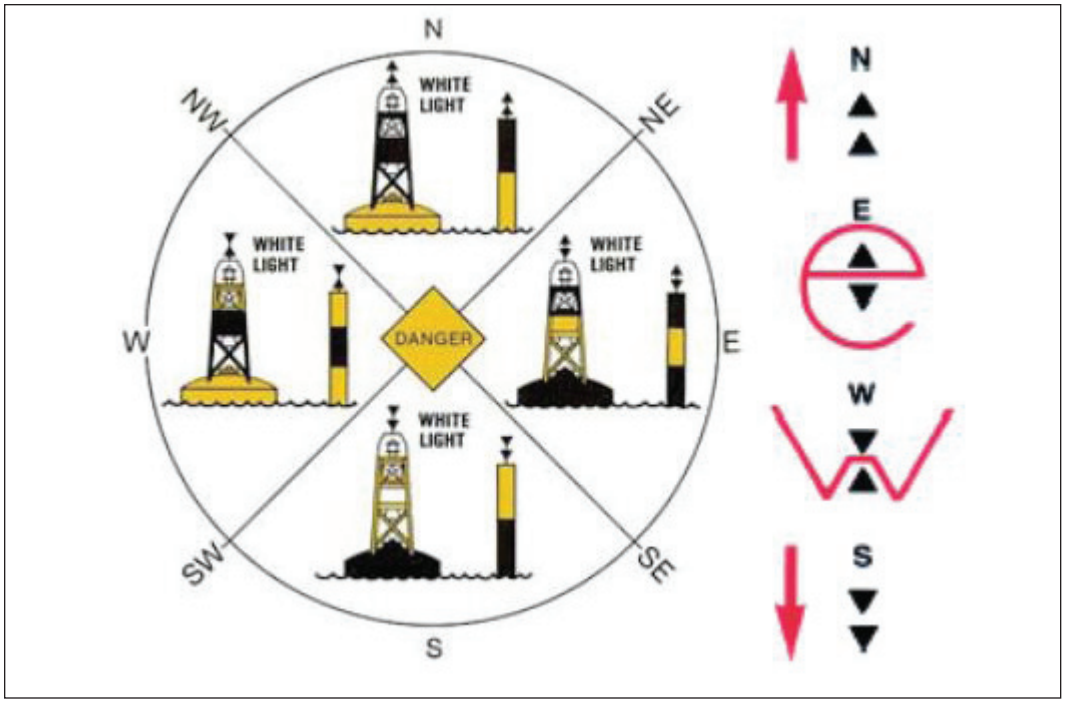
Starboard Bifurcation Buoy

The "bifurcation" or "junction" buoy marks the dividing of a channel, and is marked with three horizontal bands which are either red, green, red for a starboard hand bifurcation buoy, or green, red, green for a port hand bifurcation buoy.

These buoys may be passed on either side in the upstream direction. The main or preferred channel is shown by the colour of the top band. For example, you should keep the buoys pictured here on your port (left) side.

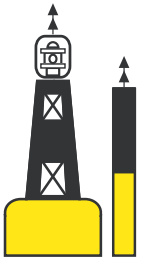
You may pass buoys with red and green bands on either side in the upstream direction. The main or preferred channel is shown by the colour of the top band. For example, you should keep the buoys pictured on the left on your starboard (right) side.

Examples of Port hand, bifurcation (or "junction"), and Starboard Hand buoys.



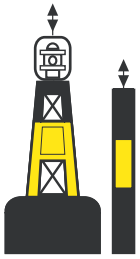
6.2 CANS CARDINAL BUOY SYSTEM

Cardinal buoys are a special system of buoys that indicate a hazard by referring to the four cardinal directions/points of the compass: north, east, west, and south. A cardinal buoy indicates that the safest water exists in the direction indicated by the cardinal direction represented by the buoy. Cardinal buoys and lateral buoys are the two main systems of navigational aids used in Canadian waters.



North

A "north cardinal buoy" is a yellow and black buoy and is located north of a hazard. Its top half is black and lower half yellow. If it carries a topmark, the topmark is black cones, one above the other, that point upwards. If it carries a light, the light is white and is a quick-flashing (Q) one second or very quick flashing (VQ) 0.5 second. If it does not carry a light, it is normally spar-shaped.



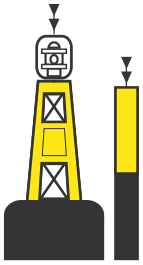
East

An"east cardinal buoy" is black-yellow-black and is located to the east of a hazard. Its topmark is two black cones, one above the other, base to base. If it carries a light, the light is white and is a group of quick-flashing three (Q3) ten-second lights or a group of very quick-flashing

East (continued)

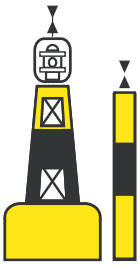
three VQ (3) five-second lights. If it does not carry a light, it is normally spar-shaped.

South



A "south cardinal buoy" is black and yellow and is located south of a hazard. Its topmark is two black cones, one above the other, and points downward. If it carries a light, the light is white and is a group of quick-flashing (six plus long flash) (Q (6)+LF1) 15-second lights or a group very quick-flashing (six plus long flash) (VQ 6)+LF1) ten-second lights. If it does not carry a light, it is normally spar-shaped.

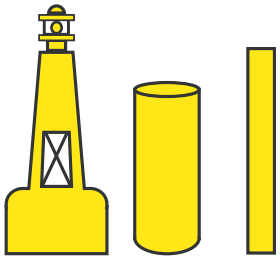
West



A "west cardinal buoy" is yellow-black-yellow and is located west of a hazard. It is yellow with one broad black horizontal band. Its topmark is two black cones, one above the other, point to point. If the buoy carries a light, the light is white and is a group of quick-flashing nine (Q(9) 15-second lights or a group of very quick-flashing nine (VQ(9) ten-second lights. If it does not carry a light, it is normally spar-shaped.

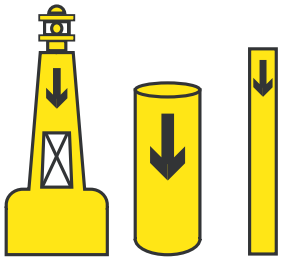
6.3 OTHER BUOYS

Cautionary

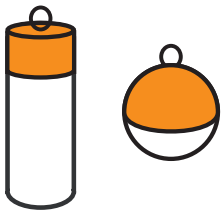


A "cautionary buoy" is a buoy that marks areas of danger, such as racing courses, firing ranges, seaplane bases, underwater structures or areas where no safe through-channel exists. It also marks areas of traffic separations. It is yellow and displays identification letter(s). It has a topmark that is a single yellow "X". If it carries a light, the light is yellow and is a flashing (F1) four-second light.

Anchorage

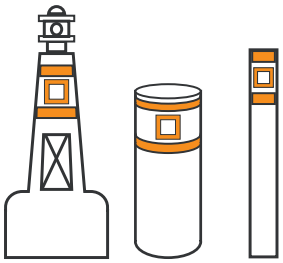


An "anchorage" buoy is used to indicate suitable areas for anchoring, for reasons such as being clear of channels, obstructions, etc. These buoys are yellow, and usually have an anchor symbol clearly visible. If it carries a light, the light is yellow and it will flash once every four seconds.



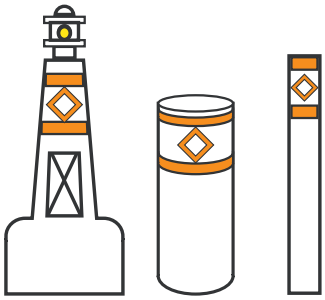
Mooring

A “mooring” buoy can be used to moor or secure vessels. It is the only buoy to which you may legally tie your vessel, and is usually found in designated anchorage areas. When approaching or tied up in reduced visibility, be aware that other vessels may be tied up as well.



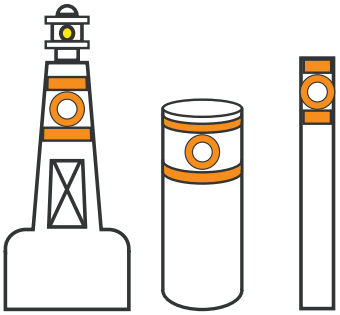
Information

An “information buoy” displays information of interest to mariners. It is white and has two orange bands suoorunding orange diamonds on opposite sides. If it carries a light, the light is yellow and is a flashing (Fl) four-second light.



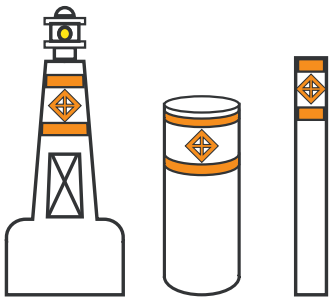
Hazard

A “hazard buoy” marks random hazards such as rocks or shoals. It is white and has an orange diamond on two opposite sides and two orange horizontal bands, one above and one below the diamonds. If it carries a light, the light is yellow and is a flashing (Fl) four-second light.



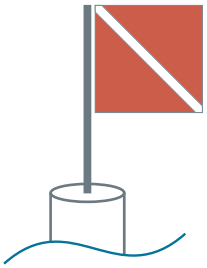
Control

A “control buoy” marks an area where boating is restricted. It is white and has an orange, open-faced circle on two opposite sides and two horizontal orange bands, one above and below the circles. A black figure or symbol inside the orange circles indicates the nature of the restriction in effect. If it carries a light, the light is yellow and is a flashing (Fl) four-second light.



Keep Out

A "keep out buoy" is a buoy that marks an area where boats are prohibited. It is white and has an orange diamond containing an orange cross on two opposite sides and two orange horizontal bands, one above and one below the diamond. If it carries a light, the light is yellow and is a flashing (Fl) four second light.



Diving

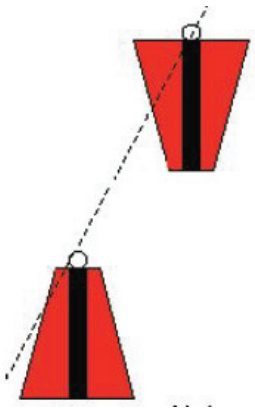
A "diving buoy" marks an area where scuba diving is in progress. It is white and carries a red flag with a white diagonal stripe extending from the tip of the hoist to the opposite corner. If it carries a light, the light is yellow and is a flashing (F1) four-second light.

Swimming

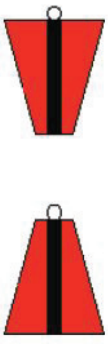
A "swimming buoy" marks the perimeter of a zone reserved for swimming. It is white. If it carries a light, the light is yellow and is a flashing (F1) four-second light.

Day Beacons

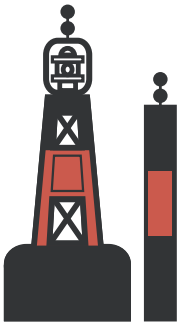
"Ranges day beacons" are beacons that provide a recommended track for navigators when both marks are in line. They normally consists of two or more fixed navigation marks situated some distance apart and at different elevations.



Not on best course
(markers misaligned)

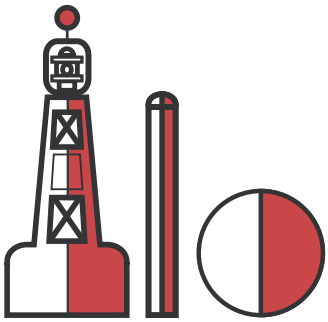


On best course
(markers aligned)



Isolated Danger Buoy

The “isolated danger” buoy is used to mark an isolated hazard in waters which are otherwise navigable. It is usually moored directly to or above the danger, such as a large rock, shoal or sunken ship. It usually carries a Group Flash 2 w
hite light every four seconds.



Fairway Buoy

A fairway buoy marks safe water and is usually used to mark a channel entrance, the centre of a shipping channel, or a landfall. This buoy indicates that there is safe water to pass on either side but it should be kept to the port (left) side of your vessel when proceeding upstream or downstream.

It is painted half in red and half in white. If it is equipped with a light, it is white and operates on a flash cycle (flashing Morse Code A, which is a short, then long flash, repeated ten times per minute).

Command Or Warning Signs

“Posted command" signs or "warning" signs include:

- No wake zone
- No anchorage area
- Speed limit zone
- Low head dam hazard
- Power line hazard
- Pipeline hazard

6.4 SUMMARY

Part of maneuvering safely through marine environments requires the understanding of navigational aids. **You must be able to identify different buoys, as well as their meanings.**

Notes

7. Collision Regulations and Avoidance Knowledge Required

The Collision Regulations with the Canadian Modifications are the rules under which all vessels on Canadian waters must operate. Known as the "Rules of the Road", they are available for purchase or can be viewed online.

Operators must have a working knowledge of these regulations. They define the factors that must be taken into account when navigating waters, how vessels of different types interact when there is a risk of collision, and the responsibility of each vessel in the collision.

The regulations define how vessels will interact in fog or restricted visibility. They lay down the all the different navigation light layouts for different types of vessels to be seen on the water, as well as all the sound signals that should be used for maneuvering or when in restricted visibility. Finally, the regulations list all the distress signals which may be used, and technical data on navigation light layouts.

7.1 Safe Speed

The Collision Regulations specify the requirement for vessels to proceed at a safe speed, giving operators enough time to take proper and effective action

to avoid collision. The definition of safe speed is loose, and varies depending on factors such as:

- Visibility: Your vessel must be able to stop within half the distance you can see.
- Amount of traffic: Your travelling speed needs to be appropriate to the amount and type of traffic, so that you can make a proper assessment of the risk of collision, and take action to prevent a collision, as outlined in the Collision Regulations.
- The performance of your vessel's navigational equipment
- How close your vessel is to land, as well as above and below the water.
- Swimmers in the water.
- Weather: You must be aware of the weather conditions, and how its deterioration can adversely affect your surrounding waters.
- Tide and current conditions: The waters will be rougher if the current and or tide is flowing opposite of the direction of the wind.
- The maneuverability of your vessel: A slow power boat will have different considerations than a sailing boat, a kayak or a speed boat, when maneuvering to avoid collision, entering docks or locks.
- The depth of water available: Water depth must always be a consideration; wave height increasing as water gets shallower, and the change in depth in tidal waters.

With respect to speed limits, you should know that Boating Restrictions and local regulations govern:

- Prohibited types of vessels;
- Speed limits;
- Maximum engine power limits;
- Use of certain bodies of water in Canada.

You are "responsible for your waves." You must at all times proceed with caution and travel at a speed at which "wash and wake" will not adversely affect any other vessel, including:

- Vessels underway;
- Docked vessels;
- Anchored vessels;
- Grounded vessels;
- Wrecks.

7.2 Lookout

The Collision Regulations require that you keep proper lookout on all craft. This means that you will look, listen, and use all other means appropriate in the conditions, such as radar, if available.

The purpose of the lookout is to gain early warning of collision risk or passing too close to another vessel. It can also give warning of other dangers in the water such as debris or deadheads, or even people or other vessels in

distress displaying appropriate distress signals as defined in the Collision Regulations.

In restricted visibility this lookout will include using the radar, where fitted, and having other people on board help as well to look, listen, and report anything they see or hear.

A good, alert lookout also can warn of approaching shore or shallow waters, as well as keep an eye on approaching bad weather.

7.3 Vessels at Risk of Collision in Sight of one Another

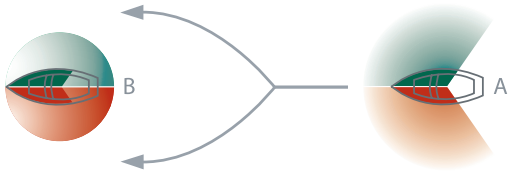
The Collision Regulations define exactly how different types of vessels (e.g., power, sail or commercial vessels) are supposed to act in relation to one another, when there is a risk of collision. As a boat operator, you must be aware of these requirements.

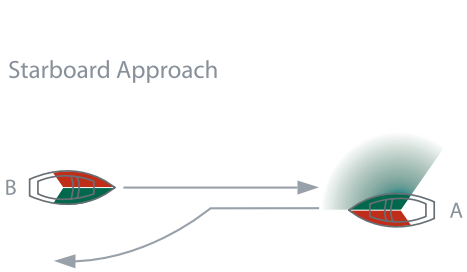
If you have to alter course to avoid hitting another vessel or passing too closely, alter in good time and substantially so that the people on the other vessel are very clear about your intentions.

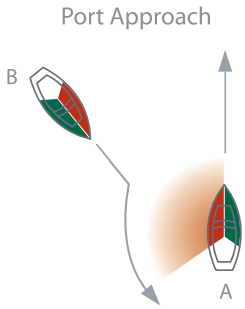
This is even more important when keeping clear of ships, as they will be expecting action from you when you are approximately 1.5 nautical miles apart. A substantial reduction in speed or stop can serve the same purpose.

Overtaking

Any vessel overtaking another must keep out of the way of the vessel being overtaken. It makes no difference if a sailing vessel is overtaking a ship – the sailing vessel keeps clear. This continues to apply after the other vessel has been overtaken (i.e., the overtaking vessel can't then cut across the bow of the vessel being overtaken, and expect the rules to have changed). Sound signals may also be used.

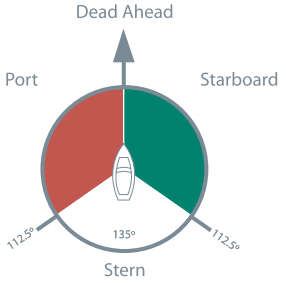






Crossing
A crossing situation is where there is a risk of collision between two power driven vessels, when their courses cross.

The Collision Regulations require that the vessel which has the other on her starboard side, gives way. The correct action is for her to alter course to starboard, or reduce speed or stop, to allow the other vessel to pass ahead. Altering course to port is strongly discouraged.



End on
In a situation in which two power-driven vessels are at risk of collision when meeting end on, both vessels shall alter course to starboard to avoid each other. Sound signals may be used.

Give way/stand on vessel
In most collision risk situations, there will be give way vessels and/or stand on vessels.

The give-way vessel is that vessel which is required by the Collision Regulations to stay out of the way of the other (the stand on vessel). As described, give way vessels should make substantial alterations of course and/or reduce their speed or stop, and make sure the action is having the desired result.

The expression “stand on” in a risk of collision situation does not mean that a vessel can just keep going, and when involved in a collision expect the other vessel to take the blame. In all cases where there is a risk of collision, there is a “give way” vessel and a “stand on” vessel.

The Collision Regulations lay down the requirement for the ”stand on” vessel to monitor the risk, and what action it should take to best avoid collision, and ultimately the action it must take to mitigate the collision. Generally this will be an substantial alteration to starboard, and / or slow down or stop.

7.4 Types of Vessels

Vessels not under command

"Not under command" vessels are those which, due to extraordinary circumstances, are not able to maneuver. Examples include a dismasted sailing vessel, a power boat with a malfunctioning engine, or a boat with a broken rudder. It does not include a power boat with its engine turned off.

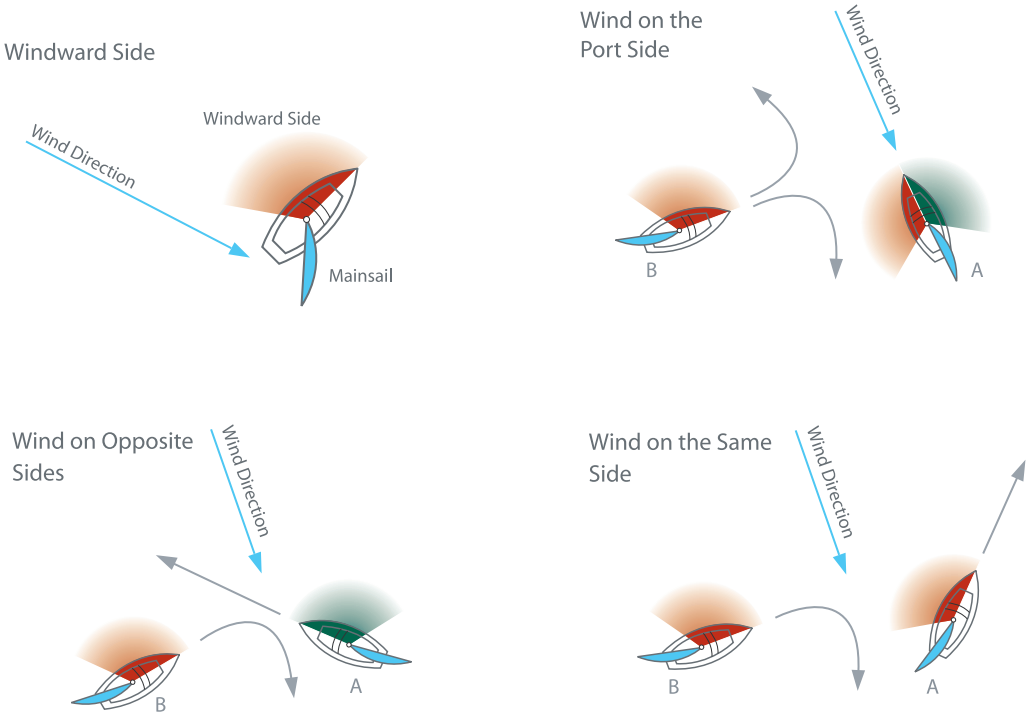
Small vessels in such a situation should keep a good lookout, and warn other vessels in the vicinity.

Larger vessels are to display two black balls in a vertical line, or two red lights in a vertical line at night, with steaming lights or on their own.

Vessels restricted in their ability to maneuver

The term restricted in ability to manoeuvre is applied to those ships whose work does not allow them to manoeuvre as required by the Collision Regulations. These vessels include: survey vessels, diving vessels, dredgers, mine sweepers. They are indicated by showing black ball, black diamond, and another black ball in a vertical line. At night they show a red light/white light/red light in a vertical line.

In general power vessels should keep clear of all of all the above, and show consideration in passing them.



Fishing boats, sailboats, paddle craft, canoes, kayaks

Other types of special vessels which the Collision Regulations give priority to over power driven vessels, include fishing boats, sailing vessels, and handpowered vessels.

Fishing boats are those vessels whose maneuverability is restricted due to having their nets/trawls in the water. They are sometimes called trawlers or draggers. Vessels with just lines in the water, or recreational fishermen on a boat with rods are not hampered by their nets and are not in this category.

Powerboats and sailboats should avoid fishing vessels using nets, as the nets can severely hamper the mother boat. Sailing vessels have to stay clear of fishing vessels, as well as others listed in the Collision Regulations. With sailing vessels, the vessel on the starboard tack (wind coming from the starboard side) stands on while the sailing vessel on the port tack (wind coming from the port side) gives way.

Hand-powered vessels (e.g., kayaks, canoes, and paddle craft) should be aware of their own limitations with regard to speed, and avoid getting in the way of large vessels.

Stay clear of shipping lanes
Shipping lanes are designed for the convenience of ships and vessels of larger draft.

If in a small vessel, avoid navigating in shipping lanes. If you must cross, use extreme caution, and cross at as close to 90 degrees as possible. Large ships may not be able to see long distances ahead of their bows, and small vessels in this area could be in danger, and should navigate with extreme caution.

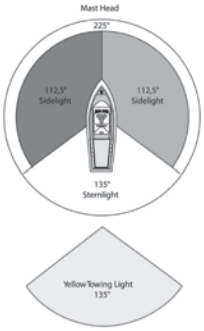
Navigating in a narrow channel
When navigating in a narrow channel, remember to stay out of the way of larger vessels which can only navigate in the middle. If possible stay over to the side of the channel on your starboard side.

Yield to large vessels
In a small vessel with a small draft, keep out of the way of large vessels or ships, whose maneuverability and ability to alter course and speed may be hampered by their size and draft.

Use of a VHF radio in a collision situation
Be very careful using a VHF radio to agree on a course of action when there is a risk of collision. Be certain the vessel you are talking with is the vessel with which there is a risk of collision. You may be talking to another vessel in a similar situation. A misunderstanding will waste valuable time, and may lead you into danger.

Navigation lights
Navigation lights allow operators on other vessels at night or in restricted visibility to recognize the vessel type and that vessel's approximate course. If a vessel is operated between sunset and sunrise, or is out in any form of restricted visibility, it must have its navigation lights turned on. It is illegal to operate without these lights being on.

7.5 Types of Navigation Lights



Masthead Light – a white light that shows around the horizon 112.5° on both sides of the bow.

Side Light – a red light on the port side and a green light on the starboard side showing from right ahead of the bow to 112° on each side on its respective side of the bow.

Stern Light – a white light showing astern with 67.5° on each side.

Towing Light – a yellow light showing the same as the sternlight.

All Round Light – a light that shows a light around 360° of the horizon.

Flashing Light – a light that flashes at approximately 120 or more flashes per minute.

Special Flashing Light – a yellow light that flashes at approximately 60 flashes per minute. It is exhibited shining between 90 and 112.5° from the bow on both sides.

Blue Flashing Light – a blue light that flashes at approximately 60 flashes or more per minute.

Installation of navigation lights
Navigation lights must be installed that meet the requirements in the Collision Regulations which specify the minimum range of visibility and positioning of all the lights, depending upon the size and type of vessel.

All vessels greater than nine metres in length must be fitted with the requisite navigation lights for that size and type of vessel, and the lights must work. **Generally this will consist of:**
• A starboard hand light (green);
• A port hand light (red);
• A stern light (white);
• A mast head light (white).

A light of some sort can be seen all around the boat. You should be able to recognize the most common light configurations of vessels found in the waters in which they are likely to operate. This must include the light configuration all around another vessel, whether it is port or starboard side open to you or whether you are seeing it from astern. **The most common lights you should be able to recognize are:**

- Power driven vessel of all sizes (including ships);
- Sailing vessels of all sizes;
- Hand-propelled vessels;
- Personal water craft (PWC);
- Vessels at anchor;
- Tugs and tows, where they operate in local waters.

There are other, more complex light layouts for naval vessels, hovercrafts, dredgers, etc.

Vessels of nine metres or less must have navigation lights fitted if they are going out between sunset and sunrise, or are likely to be out in fog.

Sailing vessels with an engine must comply with both the navigation light requirements of a sailing vessel and a power-driven vessel.

Human-powered vessels can be fitted with port and starboard lights and a stern light, but if not, a flashlight with a white light may be turned if there is risk of a collision.

Power-driven vessels of 12 metres or more, will show all four lights listed above.

On small power driven vessels less than 12 metres, the port and starboard lights may be combined into one light. The stern and masthead lights may be combined into one all round white light.

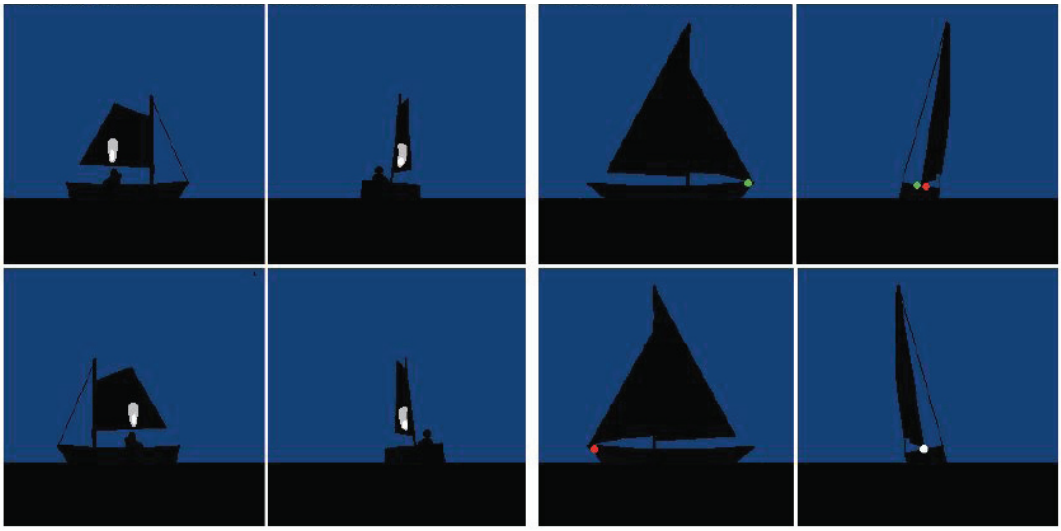
Sailing vessels

A sailboat is a vessel propelled by the wind in its sails only. A sailboat with its engine on is defined as a power-driven vessel. All sailing vessels will show the port and starboard side light and the stern light when they are sailing. In addition they may show the optional lights of an all round red light over an all round green light towards the top of the mast.

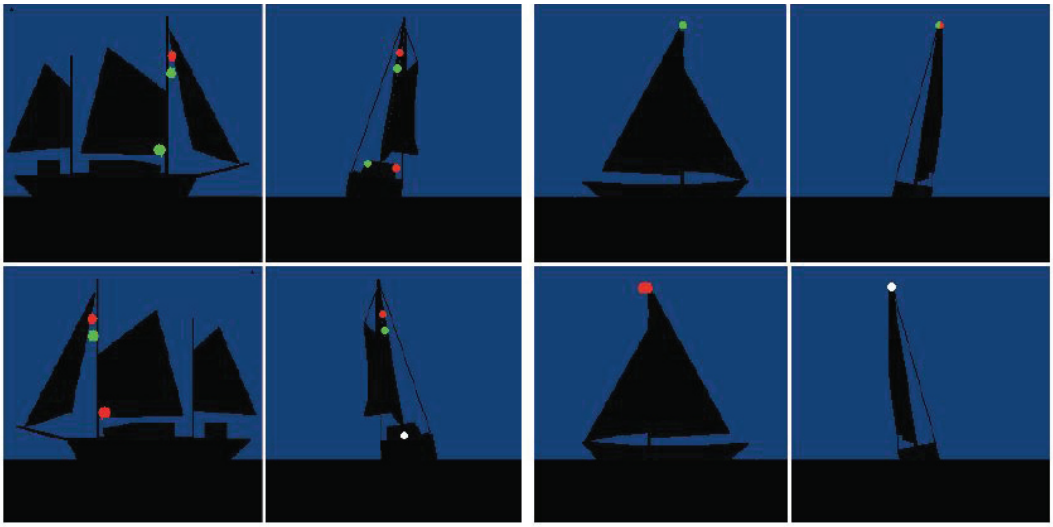
Sailing vessels less than 20 metres in length may combine the port, starboard and stern lights in one light at the top of the mast, but the optional all round red over all round green cannot be used.

Sailing vessels under seven metres only need a white light (a flash light will do) to be shown in good time before a potential risk of collision.

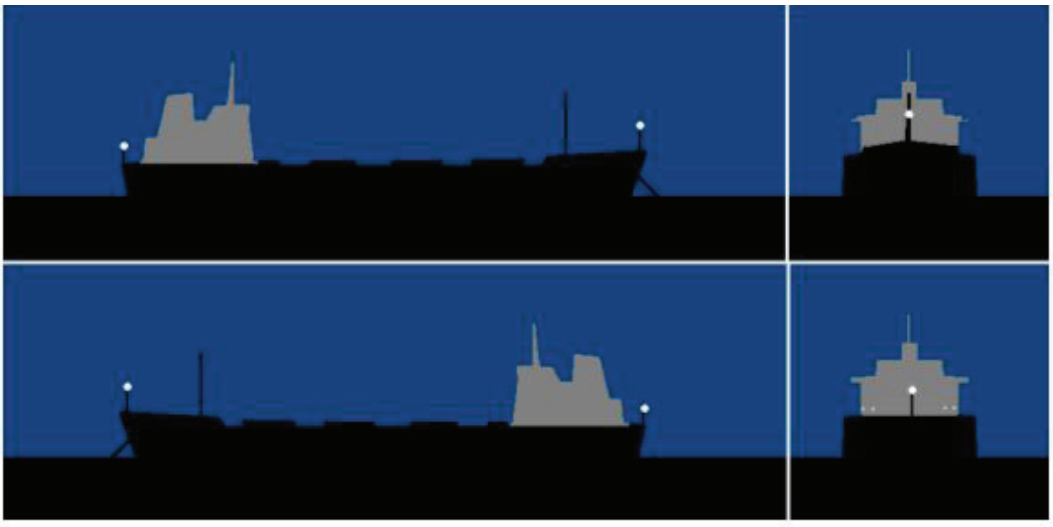
Sailing Vessel less than 7 metres Navigation Light Configuration



Sailing Vessel less than 20 metres Optional Light Configuration



Anchored Vessel Navigational Light Configuration



Anchored vessels
Vessels at anchor must show a black ball or (at night) all-around white lights that are appropriate for its size. Larger vessels show two all-round white lights.

When around big vessels at anchor, do not make the mistake of trying to go between the forward and aft anchor lights.

Towboats
Vessels engaged in towing have special lights to show their status, by showing two white masthead lights in a vertical line. Where the tug and tow together exceed 200 metres they will show three white masthead lights in a vertical line.

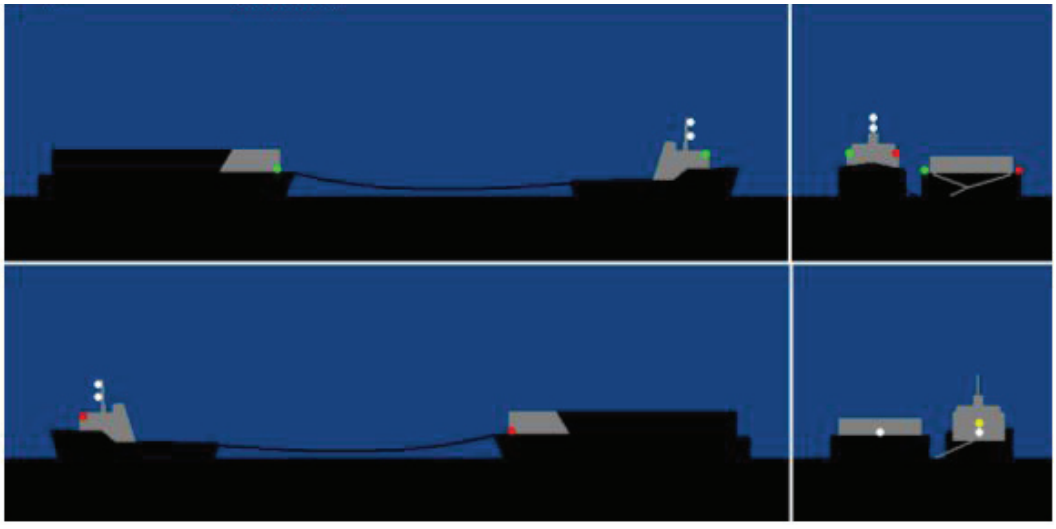
The tow may include another vessel, barges or a log boom.

When you come upon a vessel towing, look at the masthead lights for an indication of the length of the tow, then identify what it is actually towing. A barge or ship will be showing its sidelights and stern light. A log boom will be low lying and have fixed white lights around the perimeter of the boom.

A vessel pushing barges which are connected together as a rigid unit, are lit as if they were one power-driven vessel.

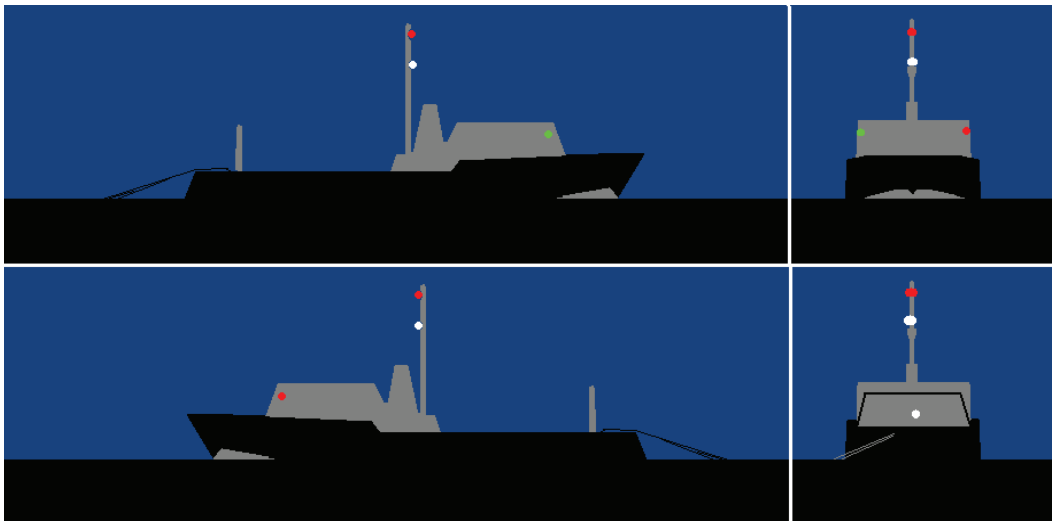
Fishing boats
The maneuverability of fishing boats is restricted due to their nets in the water. Vessels with just lines in the water, or recreational fishermen on a boat with rods are not hampered by their nets and are not in this category. Power boats and sail boat operators should avoid fishing vessels using nets, as the nets can severely hamper their boats.

Tug and Tow 200m or less Navigational Light Configuration

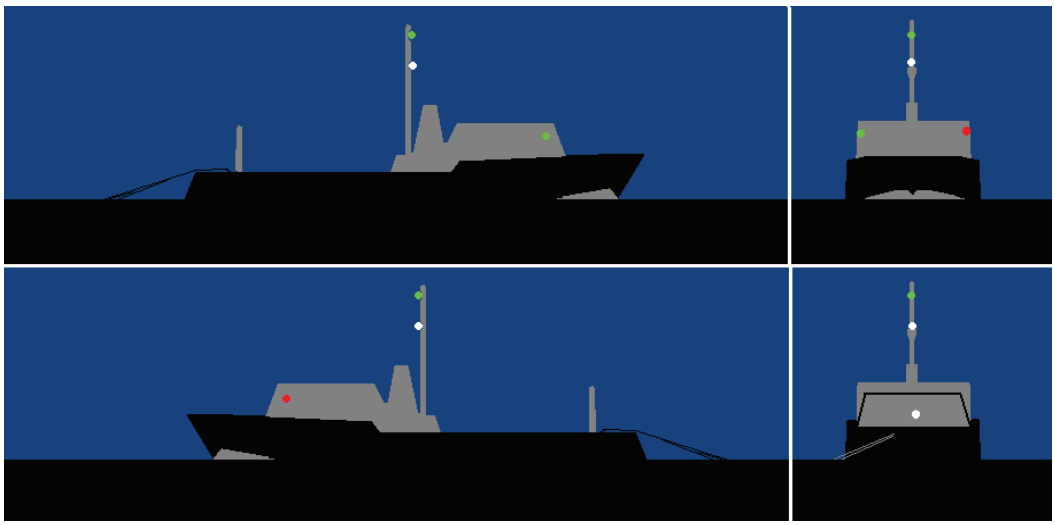


Tug and Tow over 200m Navigational Light Configuration

Fishing Vessel Other Than Trawling Navigational Light Configuration



Fishing Vessel Trawling Navigational Light Configuration



Tug and Log Boom Navigational Light Configuration

Rowboats
A boat propelled by oars alone underway at night must exhibit a white light such as a flashlight, in time to give ample warning of risk of collision. It may also carry sidelights and a sternlight.

Canoes and kayaks
These boats underway at night must exhibit a white light such as a flashlight, in time to give ample warning of risk of collision.

Small vessels such as canoes or kayaks are strongly urged to travel in organized groups. This allows mutual supervision, a concentration of vessels being more easily seen by other vessels, as well as mutual help should the situation worsen due to deteriorating weather and sea conditions, or in the event of distress. Reduce your speed when passing these vessels, to prevent them from capsizing.

Government vessels
Government or police vessels may exhibit a blue flashing light when on an official operation.

Visibility of navigation lights
The brightness of navigation lamps must comply with the minimum ranges defined in the Collision Regulations. For small vessels, this is generally two nautical miles for white lights and one nautical mile for sidelights.

7.6 Sound Signals

There are sound signals prescribed in Rules 34 and 35 of the Collision Regulations which are defined for use in the following situations:

1. In clear weather, when advising what your vessel is about to do (alter course or operate astern propulsion), including:

Sound Signals in Collision Regulations (continued)

a) One short blast – "I am altering course to starboard;"
b) Two short blasts – "I am altering course to port;"
c) Three short blasts – "I am operating astern propulsion;"
d) Five or more short blasts - "I am in doubt of your intentions;"
e) One long blast – "I am about to leave my berth."

2. In clear weather in a narrow channel to warn other ship out of sight and coming the other way of your presence: one long blast.

3. In restricted visibility, such as fog, snow or heavy rain, to warn other vessels of your presence and at the same time tell others what type of vessel you are operating. Some of these, sounded at intervals no greater than two minutes, are:
   a) One prolonged blast – power driven vessel underway and making way;
   b) two prolonged blasts – power driven vessel underway and stopped;
   c) one prolonged and two short blasts – a vessel hampered, including a sailing vessel, a fishing vessel, a tow, a vessel restricted in her ability to maneuver;
   d) larger vessel at anchor may sound a bell forward for 5 seconds, and in addition sound a gong aft for five seconds.

4. As a distress signal: continuous sounding of the equipment.

You should recognize these signals, and have the approved means to make these signals for a vessel of your size.

7.7 SUMMARY

Knowing the Collision Regulations will help you to safely interact with other vessels when:

- There's a risk of collision
- In poor weather conditions
- Relying on navigation lights and sound signals, such as at night or in poor visibility

These regulations also help to determine a safe operating speed as described in a variety of situations and environments.

You should also be able to recognize common navigational light configurations.

Notes

8. Safety Awareness and Restrictions

8.1 Boat Maneuverability

The maneuverability of an individual vessel will depend on many factors. These include:

- Power/displacement ratio of the vessel (the greater the power available for a given size of vessel);
- Underwater hull shape in comparison to topside and whether current and wind will affect it more;
- The position of cabins and masts, including their position along the length of the vessel, which will affect turning ability in the wind;
- The shape of the hull with regards to handling waves;
- One or two propellers;
- The skill of the helm.

Get used to how your vessel turns, stops, is affected by wind and tide, and weather. It will be invaluable when things don't go as planned.

8.2 Awareness

Ferries

Ferries at docks often keep their propulsion operating to hold themselves in the dock. Small boats such as sailing boats, kayaks and canoes should stay clear of the wash from these propellers, as well as avoid the currents

generated by the propulsion. Some ferries guide themselves on short runs across a river using a cable or chain stretched from one shore to another. Do not get too close to these cables.

In addition the ferry may arrive or depart at an inconvenient moment for a boat operator in its vicinity – low powered vessels should keep clear of such docked ferries, and keep a lookout for arriving ferries. A ferry should sound one long blast on its whistle before leaving.

Tows

Vessels towing or being towed are hampered and may be restricted in their ability to manoeuvre where indicated. Keep well clear of them. Ensure that you know the navigation lights for a vessel engaged in towing (two or three masthead lights in a row). If you see these lights especially at night always look for the lights on the object or objects being towed, which may be a ship, barges, or log boom.

Never try to pass between the tug and the tow, due to the danger of the tow line, which may be submerged. Getting caught between a tug and its tow is extremely dangerous and may even be fatal.

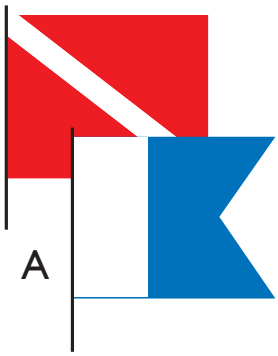
When a log boom is being towed, take care to identify the rear end of the log boom, so that your vessel does not contact or ground on any floating logs.

Engine noise

Keep engine noise down, by slowing down, especially at night. This is considerate of people living near the shore.

Divers

Recreational and archeological diving sites are plentiful in Canada. Divers may be operating in large numbers in marked dive sites, or in small groups almost anywhere. In all cases they should have the **diving flag** or **code flag A** displayed (see right). They also may have a float on the surface to which their down line is attached.



Keep well clear, navigate with caution in the vicinity, and reduce your speed to lessen noise transmission through the water.

Avoiding damage

When operating at speed, and especially at night, contact with a log, shallows or floating debris can severely damage your propulsion or rudder. This can make a hole in the hull and flood it. You also need to be aware of the water depth to avoid damaging the propeller.

Man overboard
Always have the engine in neutral when picking someone out of the water. If possible stop the engine where conditions allow.

Weight distribution
Position passengers and gear on board to evenly distribute the weight around the vessel so it is not listing to one side, or the bow or stern is at an awkward angle.

The craft's centre of gravity must be lowered by keeping the load as low as possible on board the craft. Tie down the equipment or stow it in lockers designed specifically for this purpose. This will prevent uncontrolled movement of the gear, which can result in injuries or even loss of life.

8.3 Fuel Systems

Fuel tanks and systems must be properly maintained to ensure safety.

Fuelling your vessel can be risky. To maximize safety, follow these steps:

Use extreme caution when refueling your boat.

- Tie up the craft alongside securely;
- Turn off all electronics on board;
- Turn off electrical breakers;
- Turn off personal radios or telephones;
- Turn off engines;
- Disembark all passengers except the person filling the tanks;
- Do not overfill the tanks;
- Upon completion of filling, cap the filling lines;
- Turn on the bilge blower.

8.4 Restrictions Related to Speed, Horsepower and Operator Age

The table below indicates these factors.

Speed limits

AGE	HORSEPOWER RESTRICTIONS
Under 12 years of age under no direct supervision	May operate a boat with up to 10 hp (7.5 kW)
Ages 12 to 16 under no direct supervision	May operate a boat with up to 40hp (30kW)
Under 16 years of age regardless of supervision	May not operate a personal watercraft
16 years of age or older	No horsepower restrictions

Vessel operators are legally obliged to comply with any and all speed restrictions in force. This may be a local area, or a province-wide speed limit. Standardized speed limits are used, and generally posted on signage or buoys at the start of such areas (normally 5, 10, 25, 40 or 55 km/hour).

Certain waters will impose speed restrictions or a “no wake’ requirement to prevent damage to shore facilities, marinas, or to protect the coastline. Shoreline speed zones are zones where reduced speed applies within specified distances from shore, and will be found on charts.

It is up to the operator to be familiar with the speed restrictions in the area. Please refer to the Vessel Operator Restriction Regulations for more information about this topic.

Noise restrictions

It is required that the exhausts of all boats be expelled underwater, to minimize the noise. The exception might be where a muffler is fitted. Some municipalities have rules about boat engine noise which must be heeded.

Boat prohibition and restrictions compliance

Boat restrictions are put in place for specific reasons, and are enforceable by all peace officers. Vessel Operation Restriction Regulations provide more information about these rules. You need to be aware of local regulations related to boating and any restrictions that may apply in areas you wish to navigate. These may be shown by signage or special buoys. Some signs may combine restrictions. **Examples of these might include:**

- No power-driven vessels;
- No internal combustion or steam engine permitted;
- No vessels;
- No power driven vessels in direction of arrow;
- Power limit;
- No skiing north of the sign;
- No power driven vessels on the hours and days shown in red;
- No skiing;
- No regattas.

8.5 Signage Related to Boating Restrictions

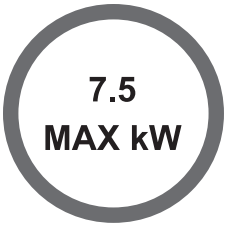
There are five types of shapes for restriction signs. The frame colour is international orange with the type of restriction shown in the middle.

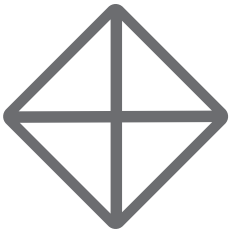
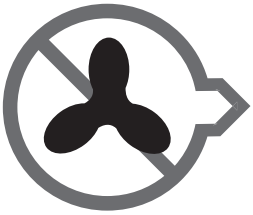
Green bordered areas indicate that a special condition applies to the restriction (for example, the day/time an activity is allowed). If the sign is arrow-shaped, the restriction applies in the direction pointed by the arrow.

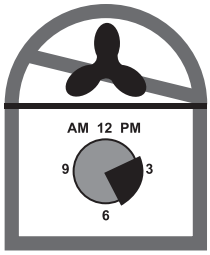
Note: Certain provinces have adopted a universal speed restriction to limit speed to 10 km/hour within 30 metres of the shore on all waters within their boundaries, **except for**:

1. Recreational towing where the vessel follows a trajectory perpendicular to the shore; or
2. Rivers less than 100 m wide; or
3. Waters where another speed limit is prescribed under the Regulations.

This limit is in effect whether it is posted or not. As of May 2011, this restriction is applicable in Alberta, Manitoba, Saskatchewan, Ontario and the inland waters of British Columbia and Nova Scotia.

EXAMPLES OF MARINE RESTRICTION SIGNS	
No power vessels	
No internal combustion or steam engines are permitted	
Power limit	

EXAMPLES OF MARINE RESTRICTION SIGNS (CONTINUED)	
Standardized speed limit (normally 5, 10, 25, 40, 55)	
No skiing	
No regatta	
No boats	
No power vessels in the direction indicated by the arrow	

No skiing north of the sign	
Combined sign (speed limit and no skiing)	
No power vessels between the hours and days in red	

Restricted areas may be for reasons of safety and/or security.

8.6 SUMMARY

Expect the unexpected.

Awareness is a key factor in avoiding potential dangers. Be familiar with **how your boat handles** in a variety of situations so that you'll know how to react quickly to unexpected obstacles.

Fueling is a particularly risky activity that requires your full attention and awareness.

Know the restrictions to boat engine noise, speed, minimum operator age, and other local boating regulations as they apply to you and your boat.

Notes

9. Environmental Protection

It is everyone's responsibility to not pollute the natural environment of our coasts, harbours, rivers and lakes.

You can personally contribute by taking your garbage home, fitting holding tanks, keeping your vessel maintained, and operating your vessel in a responsible manner.

9.1 Methods to Avoid Polluting

All boat owners and operators should bear in mind the need to keep our Canadian waters clean. Responsible practices include:

- Service your engines regularly to minimize exhaust emissions;
- Keep noise to a minimum- noise is pollution too;
- Take great care not to spill any fuel or oil in the water, especially when fuelling;
- Check that your bilge water is clean before pumping it over the side;
- Sewage should be pumped ashore;
- Take garbage ashore and dispose of it properly;
- Certain substances such as fuels, oils, antifreeze as well as certain cleaners are prohibited from being dumped into the waters; always use safe cleaning substances such as baking soda and vinegar;

Responsible practices (continued)

- Bottom paints and some cleaners may contain toxic substances – where these are being used, wear mouth and nose protection, and thoroughly clean up all material removed;
- If your boat is large enough to carry ballast, and you are travelling in the boat abroad or in different waters, flush your tanks on your outward journey and your return, to prevent moving invasive marine species into different waters;
- Avoid marine mammals – stop a good distance away and let them pass.

9.2 Sewage

Discharging sewage close to beaches is unpleasant and illegal in some areas. New boats with toilet facilities are being built with holding tanks, so that the black water is retained on board until such time as it can be pumped ashore at approved facilities on dry land. Pumping instructions must be followed closely.

A marine sanitation device is designed to treat sewage on board, and only the clean discharge from an approved device may be pumped out in inland or into waters close to the coast. Include in your trip plan, ports where there are facilities to pump out holding tanks.

NOTE: All boats with toilets require holding tanks as of May 3, 2012.

Prohibition of dumping pollutants

There are regulations that address the problem of polluting waterways with sewage, hydrocarbons (i.e. oil, dirty bilge water, human/animal waste, plastics and other garbage), and toxic materials like cleaning products.

Keep materials on board to clean up spills such as this one.

All of these pollutants should be held on board until they can be properly disposed. This will protect the aquatic and land wildlife, and assist with preserving the environment. Automatic bilge pumps should only be engaged when the bilges are clean.

9.3 Pollution Incident

If you accidentally pollute the water, it is your responsibility to clean it up. Most marine fuelling facilities sell absorbent cloths which are very useful for absorbing many of the chemicals found floating in the bilges of boats – having a stock of these on board is recommended. The used cloths can then be properly disposed of when you next reach port.

You are obliged to report a pollution incident to a pollution prevention officer in the province where it occurs. If you witness someone else polluting you are also required to immediately report it.

To Report a Polution Incident, please call:

British Columbia and Yukon
1-800-889-8852

Alberta, Saskatchewan, Manitoba, Ontario, Northwest Territories and Nunavut
1-800-265-0237

Quebec
1-800-363-4735

New Brunswick, Prince Edward Island and Nova Scotia
1-800-565-1633

Newfoundland and Labrador
1-800-563-9089

Reporting pollution incidents is critical to mitigate the damage to the waters and marine life.

9.4 SUMMARY

Be responsible when disposing of your trash, pumping holding tanks and servicing engine fluids. Our environment is not a dumping ground, and regulations exist to protect it.

Make sure that you have the capacity to store waste items on board until reaching designated facilities ashore (or use a sanitation device for treating sewage on board).

Know the procedures for reporting and dealing with accidental spills, and carry the proper materials to quickly absorb them.

Notes

10. Trip Planning

It is a good idea to do some planning and preparation for each of your boat trips. This will help ensure that your trip is as enjoyable and stress-free as possible, reduce the risk of something going wrong, and prepare you if an emergency does arise.

Think about your upcoming trip. Do you or someone travelling with you have the skills and experience necessary to safely make the trip, and cope with anything that may go wrong?

Is your vessel fit for the voyage?
The hull needs to be in good condition and all side fittings, especially underwater fittings, must be sound. The bilges should be clean and dry, and the bilge pumps need to be in working order.

Freshly launched wooden hulls should be given a chance to take up water.

The engines and propellers/jets should have been recently maintained and tested. The fuel tanks need to be full of fresh fuel, the oil recently changed, and control systems checked before the vessel leaves the dock.

The rudder should be free turning and its gudgeon and pintles firmly attached.

A sailing vessel should have its standing and running rigging checked, including the standing rigging's attachment to the deck and hull, sheet fairleads and winches well secured to the deck. The sails should in good condition, and not damaged by exposure to the sun.

The outside deck should be properly fenced, as appropriate, to reduce the danger of falling over board.

Navigation lights should all work, as should all navigation aids.

You should check all your gear on board to ensure all the safety and emergency equipment required for your vessel is working.

10.1 Preparations

Current navigation chart and electronic plotters with the latest updates will indicate all the navigational aids and hazards in your area.

Familiarize yourself with the navigational aids you are likely to see on your trip, and the position of any dangerous or restricted areas that you want to avoid. The charts and plotters also will indicate all the defined traffic lanes designated for commercial shipping in the area.

Remember to take the time to familiarize yourself with the waters you intend to travel before you depart on your voyage.

Before you go, make sure you are aware of the different traffic you may encounter. This may include tugs pulling log booms, main shipping lanes to which commercial ships will be restricted, pilot stations, naval exercise areas, or yacht racing.

Prior knowledge of the above will allow you to possibly revise your route and avoid the stress and risk of being in the wrong place at the wrong time.

Natural conditions
Before you go out on the water make sure you know the current and foecast conditions. You need to take into account:

- Tide times, and whether it is spring tides or neap tides;
- How sea currents in your area will affect the flow of water;
- That sea conditions will deteriorate as wind strength increases. If the wind direction is opposite to that of the tidal current or sea current in the area, the sea condition will deteriorate further, especially in the vicinity of headlands or narrow channels;
- In certain areas of Canada ice can be a major factor in the winter. This may be either sea ice, or ice building up on the superstructure of the vessel. Pleasure craft operators should seriously consider not going out in such conditions, or where such conditions are forecast.

Fuel and oil
You must make sure that you have sufficient fuel and oil on board for your trip. You should have some idea of the fuel consumption for your propulsion, depending on the speeds at which you run. You also need to know the total capacity of your fuel tanks.

Knowing the above, you then can calculate approximately how much fuel you need to have on board for your trip.

Make sure that where your propulsion uses an oil/ gas mix, the oil tanks/ containers are also filled up. Check that there is not an unusual consumption of oil. A good rule of thumb is to have 1/3 of your fuel for the outward trip, 1/3 for the return trip and the remainder as a contingency.

If you don't use your boat year round, make sure that you start a new season with fresh fuel in the tanks and engine. Breakdowns are common in the spring due to stale fuel.

Travel to the United States
If you are intending to travel in United States waters or into the United States, you must be mindful of the necessary procedures that you must go through to notify the US authorities of your travel. Check into the latest Homeland Security Requirements before leaving.

Avoid passing close or at speed near U.S. warships. Use your navigation charts or electronic plotter to familiarize yourself with local hazards to navigation, or restrictions, especially in unfamiliar waters.

Tides/water levels

The Canadian Hydrographic Service publishes Tide Tables for all coasts of Canada, that detail times and heights of high and low waters, as well as online tidal programs that forecast tidal information. Tide times and heights may also be obtained online at www.tides.gc.ca or by calling 1-877-775-0790.

Tide heights are measured above lowest low water, and close attention should to be paid to this when in a vessel of any substantial draft. Spring tides are recognized by the highest high waters and lowest low water, and therefore have the greatest tidal currents associated with them. Neap tides have the least rise and fall and therefore the least tidal currents.

There are tidal current tables available also, as well as special symbols on charts to give an idea of which way the currents are generally expected to flow.

Low-powered vessels may need to pay attention to these currents when navigating certain passes between islands at certain stages of the tide. Make sure you know what the tides are prior to departure.

If you are not familiar with tides, take some time to research them before going out on tidal waters. On lakes it will be a matter of making yourself familiar with water levels at different seasons.

TYPE OF WEATHER	ACTION TO TAKE
Restricted visibility	Slow down, keep lookout, use radar, and take action for risk of collision.
Squall (make note of compass heading)	As above, and watch the small craft warnings; be aware of water accumulation and changes to distribution of weight and in the boat.
Thunderstorm	(As above)
Sudden wind	(As above)
Rapid build-up of high wave conditions	If this happens, take a different course or find a safe harbour.

Safe havens

When planning your trip, work out contingency plans in the event that the weather (e.g., wind, rain, or fog) and/or sea conditions change for the worse, or if something goes wrong on the boat. Have an idea of where anchorages or sheltered waters are en route by using the Sailing Directions and Cruising Guides available from the Canadian Hydrographic Service.

Weather forecasts
Environment Canada posts weather forecasts and warnings on the internet. Television channels also give weather forecasts, some all day.

Always obtain a current weather forecast when planning your trip, and take notice of any strong wind or gale warnings. Remember that local conditions such as a strong wind against a strong tidal or current flow can make conditions on the water much worse, even in a moderate sized pleasure craft.

Once you have started your trip, periodically (at least daily) continue to check the weather forecast. Also get used to looking at the sky, and sea and identify any adverse changes to the weather and/or water conditions (e.g., small craft warnings) such as:

There will be added debris in the water from the shoreline after heavy rains. Streams, rivers and creeks may rise, and there will be an increased danger of debris damaging your craft, especially at night. Slow down if necessary.

By taking the time to plan your voyage you may avoid be caught in a storm or at least know which areas to head to in order to wait out the adverse conditions.

Taking shelter
In all cases where the weather or waves conditions are likely to exceed the capability of the operator or the boat, do not proceed. If you are already en route, take shelter in one of your planned contingency safe havens, before conditions worsen.

10.2 Upon Departure

Engine start-up

Prior to starting the engines, check the following:

- Inspect bilges to ensure that they do not contain any leaking fuel or excessive water;
- Check fuel tank levels to ensure they match the fuel gauges;
- If your vessel has outboard engines, check that they are lowered and clear of any garbage or debris before starting;
- If your vessel has inboard engines, check that any cooling water valves are open, and that the propellers are clear of any garbage or debris before starting;
- Visually check the running engines to confirm that everything is in order;
- Listen to the engines and confirm that they sound correct.

Rapids or currents

Places where water flow is restricted, around islands, headlands, in rivers, narrow channels, especially at certain states of tide, or after periods of heavy rain or certain states of the tide can be especially dangerous for pleasure craft. This may be due to the turbulence, eddies, and strength of water flow which may exceed the power of your engine, the speed available from the wind, or the strength of the people on board to cope with natural forces.

The water flow may also obscure rock or other sub surface dangers. Avoid getting into these waters. Within tidal waters it may be possible to await slack water and then proceed. It may be a matter of waiting for the wind to die down. Exercise caution, stop, and assess the situation, and ideally avoid getting yourself into a situation that you and your vessel can't handle. If necessary take an alternate route, or anchor.

10.3 Trip Plan Forms

"Trip plans", "sail plans", or "float plans" are a written description on a form that indicates where you are travelling on that trip. You are encouraged to make a written plan every time you go on a trip, and leave it with a relative or friend who is responsible and reliable. If that person cannot contact you at the time specified, he or she will call the Rescue Centre to raise the alarm.

On a longer trip, file a daily report. To minimize the number of false alarms, you must contact (upon arrival) the person holding the sail plan, to inform them that you have successfully made your destination. If your plans have altered unexpectedly, warn them that arrival or destination has been changed, and give a new estimated time of arrival and/or new destination.

You must also confirm arrival at the new time or destination.

TRIP PLAN FORM

Owner's name and address _____

Telephone number _____ Emergency contact number _____

Satellite or cellular telephone number _____

Boat's name and license number _____

☐ Sail ☐ Power Size and type _____

Colour _____ Hull _____ Deck _____ Cabin _____

Type of engine _____

Other distinguishing features _____

Radio channels monitored ☐ HF ☐ VHF ☐ MF

MMSI (Maritime Mobile Service Identity) _____

Safety equipment on board:

Liferafts _____

Dinghy or small boat (include colour) _____

Flares (include number or type) _____

Lifejackets or PFDs (include number) _____

Other safety equipment _____

Search and Rescue telephone number _____

Trip details (include these details for every trip):

Date of departure _____ Time of departure _____

Leaving from _____ Heading to _____

Proposed route _____

_____

Estimated date and time of arrival _____

Stop over point _____

Number of people on board _____

10.4 SUMMARY

You can make your outings as trouble-free as possible by checking these before you go:

- Your vessel's mechanical condition
- Changes to navigational aids such as charts and GPS
- The type of marine traffic that you may encounter on your intended route (e.g., tugs with barges)
- Weather and tides
- Personal documents that may be needed for any cross-border travel

Have a back-up plan for any unexpected changes to the weather by pre-determining a **safe haven**.

File a **trip plan** to let others know of your itinerary, and let them know when you've arrived.

Notes

11. Emergency Actions

Emergencies do happen – be prepared for them. Before leaving the dock, you should brief all passengers on **the following safety points:**

- The location of personal flotation devices or lifejackets;
- The correct techniques for donning personal flotation devices or lifejackets, and the importance of wearing them at all times;
- Making sure personal flotation devices or lifejackets are on securely if conditions deteriorate or in an emergency;
- The location of the emergency kit;
- The importance of keeping yourself low, on the centre line, and holding onto a rigid part of the pleasure craft while moving around on board;
- The importance of keeping your hands, arms and legs inside the pleasure craft when approaching or leaving a dock;
- The effects that the motion of the pleasure craft, sunlight, waves, wind, sound may have on passengers;
- The adverse effects of alcohol;
- The passengers' roles in the event of an emergency.

11.1 Types of Emergencies

Person overboard

If someone falls overboard, keep looking at them, and maneuver back to

them, stopping the engine before you get there. Coast up to them – you don't want to get them in the propeller. If you don't see them fall overboard or don't see them in the water, issue a distress message and get assistance to find them.

Grounding

Grounding occurs when the boat ends up water that is too shallow for it to float. If it happens in good weather at slow speed on a rising tide, this is probably not serious. Going aground on a falling tide can be serious if you can't refloat quickly, as, depending upon the design of your vessel, it may adopt a large list when it is left high and dry. This creates the danger of it being swamped as the tide rises again.

In bad weather with rough seas, at high speed, or near a rocky shore, going aground can be catastrophic and put peoples' lives in danger. Exercise great caution, know where you are, understand how tides work, stay a good distance off land and reduce your speed to reduce these risks.

Collision

A collision can seriously damage one or both vessels involved in a collision, as well as cause injury, trap people below, and cause flooding. **In the event of a collision:**

- Check for injuries on board, and account for everyone;
- Check for damage, and stop any ingress of water;
- Use the radio or exhibit signals to indicate distress and need of assistance, if necessary.

Understanding the Collision Regulations will help you avoid collision.

Hull leaks or flooding

When an abnormal accumulation of water is detected in the boat, it most often means that the hull has been damaged, due to the failure of a hull fitting because of poor maintenance, collision with a log or excess water getting on board, weather or a list. The situation must be corrected immediately as there is a danger of sinking. **You must, at all times, have the equipment and tools required to temporarily stop any leaks which may occur in the hull.**

Here are a few recommendations to follow in response to a hull leak or flooding:

- Locate the source of the hull leak or the flooding;
- Stop or slow the leakage or the source of flooding, if possible;
- Remove accumulations of water in the hold or other compartments of the pleasure craft by incorporating either hand-held bailers or buckets, manual pumps or bilge pumping systems as appropriate to the circumstances and to the craft;
- Use the radio or exhibit signals to indicate distress and need of assistance, if necessary.

Hull leaks or flooding can prevented by good maintenance, proceeding at a safe speed, not overloading your vessel, and avoiding travel in conditions which may be taxing for your vessel.

Fire
In the event of a fire on board:
- Use the radio or exhibit distress signals;
- Turn off the electricity;
- Use the fire extinguisher

If there is danger of explosion from propane, or the fire is getting out of control, make sure everyone is wearing lifejackets or PFDs. Enter the water ONLY if no assistance has arrived.

Fire is best prevented by good maintenance of electrical and cooking systems, clean bilges, careful fuelling, an awareness of what causes fire, and meticulous handling of initiators such as matches and cigarettes. Maintain your fire extinguishers (e.g., shake them regularly), and know how to use them properly.

Fuel, oxygen, heat and a chain reaction are needed for fire to start.

For a fire to start there must be fuel, oxygen, heat and a chain reaction. Remove any of these factors and the fire either can't happen, or will be extinguished.

Mechanical breakdown
In the event of a breakdown, the you must, above all, act quickly and in a safe manner. **The actions to take in response to on-board breakdowns include:**
- Altering the craft's speed and direction away from danger, as appropriate to the circumstances;
- Anchoring the craft, as appropriate to the circumstances;
- Investigating the problem;
- Correcting the problem, if possible, using the appropriate tool kit for your craft;
- Using the radio or exhibiting signals to indicate distress and the need for assistance, where necessary.

Prevention and maintenance make it possible to avoid many problems.

Capsizing, swamping or sinking

An emergency situation can arise at any time, regardless of the location, time of day or prevailing weather conditions.

The role of a good pleasure craft operator is to safely and rapidly correct emergency situations because human lives may be at stake. **It is thus very important for you to take the following actions if your boat capsizes, becomes swamped, is sinking or grounded:**

- Don personal flotation devices or lifejackets;
- Stay with the craft, when appropriate;
- Account for passengers previously on board;
- Use or exhibit signals to indicate distress and need of assistance, if necessary.

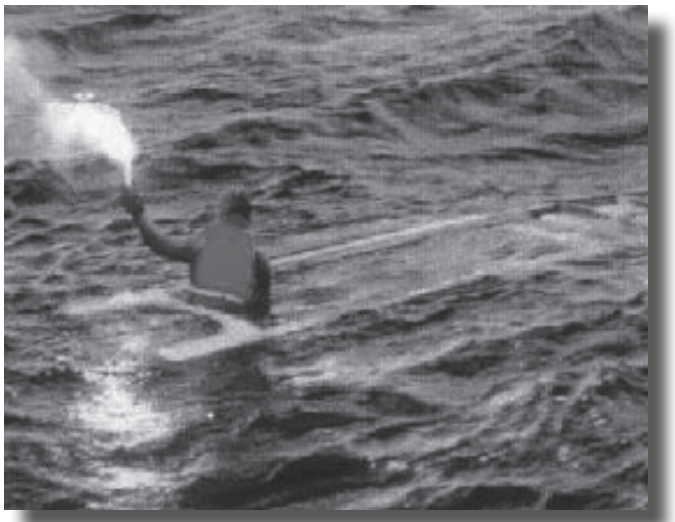
You must use all means possible to obtain assistance, using either the radio or other sound or visual signals. A craft operator who observes or is informed of such a need must render assistance.

11.2 Cold Immersion Survival

Accidental immersion due to a boating accident, such as falling overboard, or capsizing can happen at any time, and for this reason a lifejacket or personal flotation device should be worn at all times when on the water.

If accidental immersion takes place, follow the **1-10-1 Rule**. This is a simple way to remember the first three phases of cold water immersion and the approximate time each phase takes.

1 - Cold Shock. An initial deep and sudden gasp followed by hyperventilation that can be as much as 600-1000% greater than normal breathing. You must keep your airway clear or you run the risk of drowning. Cold Shock will pass in about one minute. During this time concentrate on avoiding panic and getting control of your breathing. Wearing a lifejacket or personal flotation



Use your personal flotation device or lifejackets and distress signals if you find yourself immersed in the water.

device during this phase is critically important to keep you afloat and breathing.

10 - Cold Incapacitation. Over approximately the next 10 minutes you will lose the effective use of your fingers, arms and legs. Concentrate on self rescue initially, and if that isn't possible, keep your airway clear as you await rescue. Swim failure will occur within these critical minutes and if you are in the water without a lifejacket or personal flotation device, drowning will likely occur.

1 - Hypothermia. This is when your core body temperature of the body drops below 35°C. Even in ice water, it could take approximately one hour before you become unconscious due to hypothermia. If you understand the symptoms of hypothermia, the techniques of how to delay it, practise self rescue and call for help, your chances of survival increase dramatically.

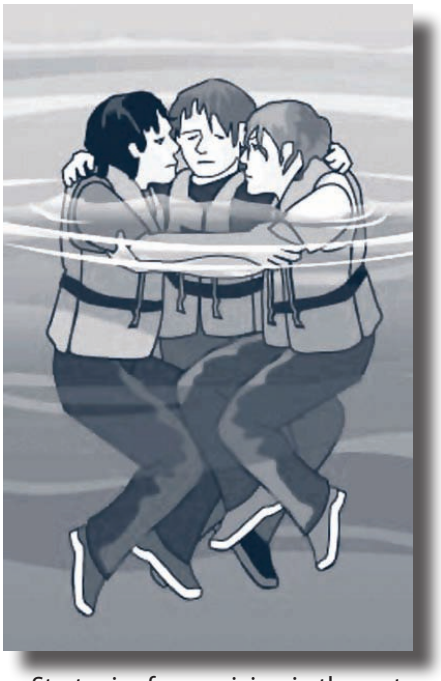
Survival in the water

If there is a chance, always get out of the water onto land or the capsized boat. Heat loss is less in the air than in the water. A single person wearing a flotation device should assume the fetal position to conserve body heat.

Cold water shock causes involuntary gasping.

Cold water shock
This occurs from the initial entry to the water, and will cause the person overboard to gasp. It is necessary to control this gasping to survive. Shock may occur in water temperatures as high as 15°C. Cold water shock also will cause an increase in heart rate and blood pressure.

When rescuing someone who has fallen overboard gentle handling and as near to horizontal removal from the water as possible is suggested, along with treatment for hypothermia.



Strategies for surviving in the water.

Hypothermia
Hypothermia most frequently develops when a person is exposed to abnormally low temperatures. This can include immersion in cold water, exposure to cool air in water-soaked clothing, or prolonged exposure to low air temperatures. In air the main heat loss areas for a normally dressed person are the chest, neck, and head.

In cold water the main heat loss areas are any part of the body not insulated by clothing. In early stages of hypothermia, the person shivers, has slurred speech, shivers lightly, and is withdrawn.

In moderate hypothermia, low body temperature results in violent shivering. Lack of muscle coordination becomes apparent. Movements are slow and laboured, accompanied by a stumbling pace and mild confusion, even though the victim may appear alert. The victim turns pale, while his lips, ears, fingers and toes may become blue.

Advanced hypothermia results in sluggish thinking, and amnesia, as well as the inability to use your hands and stumbling. Below 30˚C, the exposed skin becomes blue and puffy, muscle coordination becomes very poor, walking becomes almost impossible, and the victim exhibits incoherent/irrational behavior including stupor. Pulse and respiration rates decrease significantly, but rapid heart rate may also occur. Major organs fail and death can occur.

When recovering a possibly hypothermic person from the water, try to lift him out as near to horizontal and as gently as possible. This approach is meant to prevent cold water from returning to the heart which causes cardiac arrest.

The best treatment is to warm the person's body gradually.

STEPS FOR TREATING HYPOTHERMIC PASSENGERS
1. Take the patient to a warm, dry location.
2. Remove wet clothing and replace it with dry clothing and/or blankets, and cover the head. *Never rub the patient's body or extremities in an effort to warm them up.*
3. The introduction of another body with normal body temperatures can help.
4. Cover the patient with an insulating layer, and protect him from getting wet.
5. Apply warm dry objects (40°to 45°C) onto the patient. Professional treatment may include introducing warmed damp air into the lungs to warm the patient from the core.
6. Offer the patient warm but not hot liquids. Do not give alcohol or hot stimulants. Alcohol may assist in feeling warm, but actually increases bodily heat loss.
7. Call for help or exhibit signals to indicate distress and need of assistance, if necessary.

The following garments may provide additional protection against hypothermia:

- Dry suit
- Wet suit
- Immersion suit
- Survival suit
- Exposure coveralls
- Multiple light layers of dry clothing
- Water- or wind-proof outer layer

11.3 Carbon Monoxide Poisoning

Carbon monoxide is a toxic gas that is colourless, odourless, tasteless, and non-irritating. For these reasons, it is almost impossible to detect.

Carbon monoxide is heavier than air and therefore accumulates in the bottom of compartments, or in poorly ventilated spaces. There is a particular danger of carbon monoxide accumulating between the hulls in multi-hulled or pontoon vessels and between the hulls of rafted vessels, where swimmers may be affected. There is also a danger of the exhaust fumes from one vessel being drawn into an adjacent vessel.

It is strongly recommended that your vessel be outfitted with a marine-certified carbon monoxide detector, especially if you are going to stay on board overnight.

Poisoning occurs after prolonged inhalation of carbon monoxide. The gas can be generated from a wood stove, propane heater or a leaky exhaust manifold on a generator or engine. Keep these items maintained.

Symptoms of mild acute carbon monoxide poisoning include headaches and dizziness in low concentrations, similar to sea sickness. In larger doses, symptoms can be continuous frontal headaches, vertigo and flu-like symptoms. Large doses can lead to death in minutes.

If you see someone passed out in a boat cabin, always think of carbon monoxide poisoning, and ventilate the area well before entry. Move the patient to fresh air, and get medical attention. Treatment of carbon monoxide poisoning usually involves administering 100% oxygen.

11.4 SUMMARY

Discuss with your passengers the safety points listed in this chapter. This will help to prepare them as much as possible for potential emergencies such as:

- Grounding, collision, capsizing or sinking
- Fire
- Person overboard
- Carbon monoxide poisoning

You or your passengers may be required to administer basic treatment for hypothermia or carbon monoxide poisoning until medical assistance arrives, so knowing the symptoms and what to do can help save a life.

Alcohol, boat motion, and winds can also have unexpected physical effects.

Notes

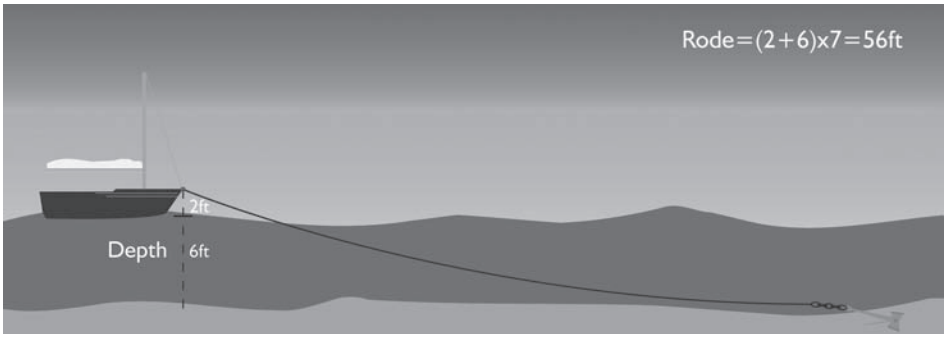
12. Anchoring

When at many remote locations, it is likely that you will be required to anchor. **There are various factors to consider when anchoring:**

- The weather forecast. Deteriorating weather from the wrong direction may make your potential anchoring location untenable or even dangerous.
- How long you are likely to be staying at the anchorage location? Is it just for a short break, or will it be for an extended length of time?
- What sort of bottom is below the selected anchorage? A muddy bottom will provide better holding for the anchor and chain than a rocky bottom. Your anchor is less likely to get stuck in a muddy bottom.
- Are there any rivers or creeks flowing into the anchorage which may cause a strong current if it has rained inland?
- Do the local regulations permit you to anchor at this location?

12.1 How To Anchor

1) Approach the position selected slowly, heading into the wind or current.
2) Stop at the selected position, lower the anchor and put out the appropriate amount of chain and line depending upon your length of stay, and water depth.
3) Fasten the line to the bow and then allow the wind or current to lead the boat until weight comes on the line.



Calculation for determining anchor line length.

For a short stay, the length of the line should be three times the depth of water. For longer stays or a poorer bottom, you may need the line out seven times and in poor conditions, ten times the depth of water. Make sure you know the length of your anchor line.

Once anchored, check your bearings from the beam so that you know you are in the correct position and not dragging.

Remember that you can use your anchor if you suffer a mechanical breakdown or other emergency, especially if your vessel drifts into shallow water. If the vessel drifts into shallower water, the anchor will possibly stop the drift.

At night you will need to show an all-round white light.

The anchor must be of a suitable size for your vessel, the anchor chain (four metres will do) fastened to the anchor, anchor line must be fastened to the anchor chain, and the other end of the line fastened to the boat.

The anchor should be readily available in case of an emergency.

12.2 SUMMARY

Successfully anchoring your boat requires you to take several factors into consideration.

Familiarize yourself with these factors, the steps involved and the calculations for determining the length of anchor line needed for different situations.

Notes

13. Locks

A lock is a device for raising and lowering boats between stretches of water of different levels.

13.1 How to Lock Up

1) The water in the lock chamber is at the same elevation as the downstream navigation channel. The lower lock gate is cranked open using hand winches, known as crabs.
2) The boat proceeds into the lock and the operator holds onto the drop cables along the lock wall.
3) The lower gates are then cranked shut and the valves in the lower gates are cranked closed (the lock chamber is now watertight).
4) The lock staff moves to the upstream end of the lock and slowly open the upper sluice valves. These valves allow water to enter the top of the lock through tunnel sluices. As the valves are open, water from the upstream side flows into the lock, filling the chamber to the upstream water level. (Note that the sluice valves open slowly to prevent excessive turbulence in the lock.) As the water depth in the lock chamber increases, the lock staff fully opens the valves.
5) When the water in the lock chamber reaches the upstream water level, the upper gates can be cranked open, allowing the boat to leave.

13.2 How to Lock Down

1) The water in the lock chamber is at the same elevation as the upper navigation channel. The upper lock gates are cranked open using hand winches (crabs).
2) The boat proceeds into the lock and the operator holds onto the drop cables along the lock wall.
3) The upper gates are closed and the lock staff ensures the upper sluice valves are closed.
4) The lock staff moves to the lower gates which have valves built into them. These valves open slowly and water drains from the chamber, lowering the boat to the downstream water level.
5) When the water in the lock chamber reaches the downstream water level, the lower gates can be opened and the boat floats out.

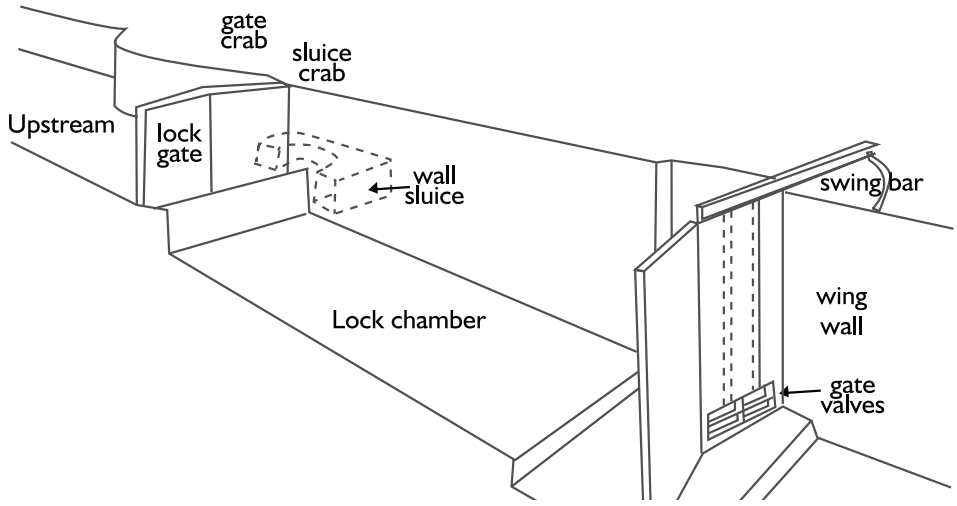


Illustration of a lock and its terminology.

13.3 SUMMARY

Using a lock requires knowing the related terminology and steps involved. This chapter describes the procedures for locking up and down, and explains the mechanical process for moving your boat through a Rideau lock.

Notes

14. Trailering

Before towing a boat behind a vehicle on an excursion, make sure that you practice maneuvering a trailer. Building this skill involves a lot of practice with an empty and loaded trailer towed behind your vehicle.

14.1 Size of Trailer

Your trailer must be suitable for the boat you are towing. It is recommended that the boat's weight is no more than 80 per cent of the trailer capacity.

The boat should be balanced on the trailer so that approximately ten per cent of the weight is carried by the tongue.

Before you drive away, always adjust your rear view mirrors for optimal road views. Do not wait until you're on the road to make these adjustments.

Remember that backing up with a trailer can be difficult. When backing up, place one hand on your vehicle's steering wheel at the six o'clock position. If you want to move the trailer's rear end to the right, turn the steering wheel to the right (and vice versa). Avoid any sharp turns once the trailer is moving in the proper direction. Remember to take turns wide as your trailer will cut the corner otherwise.

14.2 Checks

Before you depart:

1) Check the air pressure and tread on your tires. Most tire failures are caused by overload or tire under-inflation. Make sure that your tires are inflated in accordance with the proper inflation pressures for the load you are carrying. Overloaded tires are prone to blow out and under-inflated tires can cause swaying.
2) Inspect your trailer for any abnormalities.
3) Connect crossed hitch safety chains to support the hitch should the ball fail.
4) Lash the boat to the trailer from the tow hitch to the winch, and also with tie-downs.
5) Ensure that the electrical hookups work for the trailer wiring as well as the brakes, and that the vehicle and trailer lights work properly and are synchronized.
6) Ensure the right sized ball is being used with the trailer hitch, and that the lock is engaged on the ball.
7) Ensure the front wheel of the trailer is fully retracted or turned so it cannot contact the road during driving.
8) Ensure the trailer is licensed.
9) Ensure all loose gear is properly tied down. This includes covers, PFDs, and cushions. Leaving gear unlashed in the boat is asking for it to fly onto the road, and possibly cause an accident.

Boat trailer wheel bearings and the wheels themselves are particularly prone to failure when the trailer is used for launching and pulling out a boat. Make sure the axle and wheel bearings are well greased before use, and washed off after use.

Make sure that your trailer is properly hitched to your vehicle.

14.3 SUMMARY

Practice maneuvering your boat's trailer prior to loading, especially in reverse; this can be particularly challenging.

Conduct a thorough pre-trip inspection, using the points listed in this chapter, to alert you to potential mechanical issues.

Make sure that the trailer's license is up-to-date.

Notes

15. Enforcement

Law enforcement agencies, such as the RCMP, provincial and municipal police forces and other authorized agencies enforce the laws under which all vessels operate.

All of these agencies can check that you, the operator, hold a Pleasure Craft Operator Card, as well as check safety equipment, and cite you for careless operation. If you are boating in the territorial seas of Canada or on inland waters, you are subject to the Criminal Code of Canada.

An operator may be prosecuted under the Criminal Code or fined if he operates a pleasure craft in a reckless manner that may compromise the safety of others, without taking into consideration the weather, visibility, vessel traffic or the number of persons and vessels in the immediate vicinity of his craft, the maneuverability of his craft, navigation hazards and conditions.

15.1 Criminal Offences

- Operating a vessel in a dangerous manner may result in a prison term of up to five years, ten years if bodily injury is caused, or 14 years if death is caused.
- Consumption of alcohol/drugs while operating a vessel.
- Operating a vessel while impaired (alcohol/drugs); where impaired operation causes death, the maximum penalty can be 14 years imprisonment. Impaired operation causing injury carries a maximum sentence of ten years.

Criminal Offences (continued)

- Towing water-skiers without a person on watch or after dark (one hour after sunset to sunrise) or during restricted times.
- Sending false distress signals.
- Operating an unseaworthy boat, and endangering the lives of others.
- Tying up to a navigational buoy.
- Sailing an unseaworthy vessel.
- Operating vessel while disqualified/ prohibited.

When towing someone behind your powerboat, follow these tips:

- A person aboard who communicates to the operator watching the person(s) being towed.
- There must be enough seating space on the towing vessel for every person being towed.
- Everyone being towed should wear approved flotation aid.
- Do not tow in darkness from one hour after sunset until sunrise, or in reduced visibility (see Small Vessel Regulations s.1005).
- Failure to stop at the scene of a collision is an offence. Pleasure craft operators are required to stop and offer assistance when involved in a collision or accident. Operators must comply with any demand to stop from an enforcement officer.

Enforcement officers on the water work to ensure the waterways remain safe just like officers on the road.

Enforcement officers may:

- Ask for identification and proof of competency.
- Ask any pertinent questions.
- Go on board the pleasure craft.

15.2 Actions to Avoid

When operating a pleasure craft, it is important to avoid:

- Standing up or changing seats in a small boat, especially if it is loaded. If a person must absolutely change places, he or she should stay low, on the centre line, and hold on to the boat's gunwales.
- Standing up to start an outboard motor.
- Using a boat propelled by mechanical power within five miles of the shoreline, unless it is equipped with a noise muffling mechanism.
- Needlessly setting off a sound signalling device or using a searchlight.
- Waiting until the last minute to comply with the Collision Regulations.
- Operating too close to beaches, as swimmers are difficult to spot in the water.
- Having only outdated charts and documents on board.
- Overloading a boat.
- Dropping anchor too close to boats that are already at anchor.
- Proceeding at a high speed in or near an anchorage area.
- Showing off in a reckless manner.

15.3 SUMMARY

When you are out on the territorial waters in Canada, you are subject to certain laws.

Law enforcement officers may board your boat at any time, ask for identification, and issue tickets when violations take place.

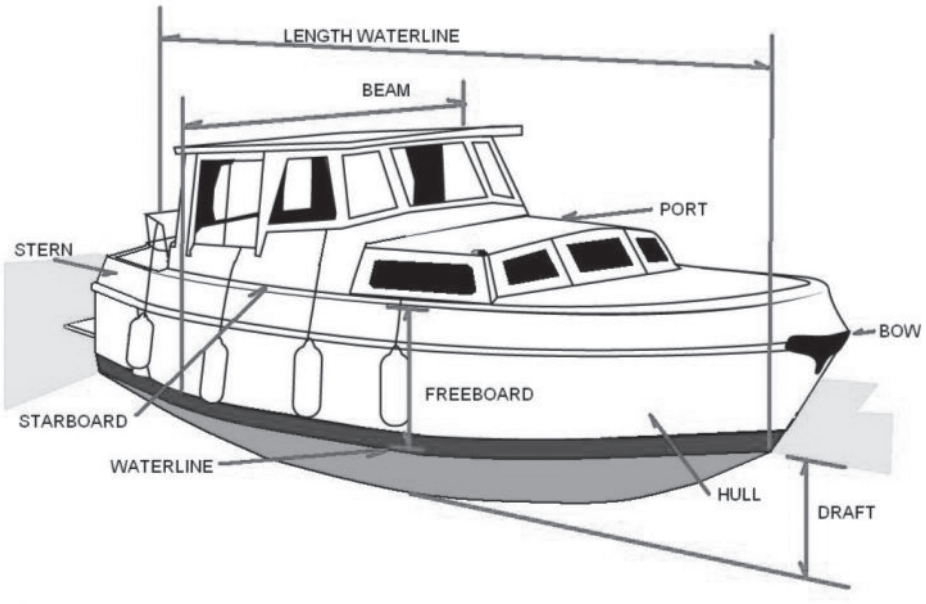
These regulations are established to limit behaviour that is careless and potentially dangerous.

Knowing and abiding by them will make your boating activities safer and more enjoyable.

Notes

16. Glossary of Navigation and Seamanship Terms

The following chapter contains a table of valuable terminology. This can be of assistance in a variety of applications.



It is important to know the correct boat terminology.

Abaft	Toward the rear (stern) of the boat.
Abeam	At 90º angles to the fore and aft line of the boat.
Aboard	To be on the vessel.
Afloat	Vessel is in the water and is not touching the sea floor.
Aft	The stern (rear)of the boat.
Ahead	To be directly in front of the vessel's bow.
Ahead	Direction or position pointing toward the forward part of the boat.
Aid to navigation	Artificial or natural objects intended to facilitate navigation.
Air draft	The height of a boat (needed where there are overhead power lines)
All-round light	A light showing an unbroken light over an arc of the horizon of 360 degrees.
Anchor	Fabricated object used to effectively and temporarily hold a craft in position. The object is attached to a cable or line which is secured to the craft.
Anchoring	Action of dropping anchor.
Astern	Direction or position pointing toward the rear (stern) of a vessel.
Ballast	Weight placed in vessel's hold or in its keel to enhance stability.
Beacon	Poles mounted on ashore used to indicate to boaters hazards to be avoided or the route to follow.
Beam	The greatest width of the vessel.
Bearing	The angle of an object ashore relative to true, magnetic or compass north, found by using a compass.
Bifurcation	Channel that divides into two branches.
Bitt	Iron post on vessels used in docking.
Boat	Vessel, craft, etc.
Boater	Person for whom boating is a leisure activity.
Boating	All water sports, including recreational boating.
Boat hook	A short shaft with a fitting at one end used to extend a person reach on a boat.
Bow	The forward part of a vessel.
Buoy	A steel float used for marking a route on the water or a hazard or used for rescue.
Capsize (to)	To turn over.
Cardinal buoy	One of four buoys that indicate the direction of the safest water around a danger.
Cardinal points	The four principal directions on a compass: north, east, south and west.

Cast off	To let go the lines holding a boat alongside.
Catamaran	A boat with two parallel hulls.
Chart	A special map designed for use by boats.
Chock	A fitting through which lines are fed.
Cleat	A T-shaped fitting used on the deck to which lines are made fast or to which lines are belayed.
Cockpit	An opening in the deck that can usually accommodate the crew as well as the helmsman.
Collision	A involuntary meeting between two vessels.
Compass	Device used to determine geographical direction.
Crutch	Iron stem fixed to the side of an oar used as a support point for it, to allow it to pivot for rowing.
Current	The horizontal movement of water.
Damage	Damage sustained by a vessel.
Daymark	Fixed land mark that can be seen from the sea by day, used as a guide for a ship's course.
Deck	The floor of a boat, e.g outside deck
Dinghy	Craft equipped with paddles or motor: lifeboat. Its stern is either tapered, square or "transom."
Discharge current	Jet of water projected by a propeller.
Docking	To manoeuvre a vessel into or next to a dock.
Docking line	Cord used to hold a vessel fast to a dock.
Draft/ draught	The depth of water a boat needs to float. Increasing the draft decreases the freeboard.
Fairlead	A fitting through which lines are fed, normally to tie the boat alongside.
Fathom	A unit of length equal to six feet, used to specify marine depths – superceded by metres on Canadian charts.
Fenders	A cushion used to absorb shocks and protect the side of a vessel.
Fittings	Various small devices, such as cleats, fairleads, bollards and bitts.
Flair	The amount the bow widens as it comes out of the water.
Flare	Pyrotechnic signals of different types used to indicate distress.
Freeboard	The minimum vertical distance from the surface of the water/ waterline to the upper part of the deck.
Galley	The kitchen area of a vessel.
Give Way Vessel	Vessel having the onus to take action to avoid collision and keep out of the way of the “stand on” vessel, as required by the Collision Regulations.

Gunwale	The upper edge of a vessel's sides.
Heading	The direction in which a vessel's bow points at any given time.
Helm	The wheel or tiller controlling the rudder.
Horsepower (HP)	A unit of power used to indicate an engine's power.
Hull	The main body of a vessel, including the frame and outer cladding. Does not include masts, sails, rigging, engine or equipment.
Hypothermia	Below-normal body temperature.
Ketch	A two-masted fore- and aft-rigged sailing vessel, with a mizzen mast stepped aft of a taller mainmast but forward of the rudder.
Knot	Unit of speed equal to 1 nautical mile or 1,852 metres per hour.
Launch	Small craft made of wood, fibreglass or aluminum that can be used as tenders on large yachts.
Lifejacket	Device worn, so when a person is in the water, it will supply flotation, and turn them on their back.
List	An inclination to one side of a ship due to wind, sea or poorly distributed load.
Maintenance	Work and inspection of the machinery, electrics, hull and equipment of a craft to ensure that it is capable of functioning properly.
Masthead light	A white light placed over the fore aft centreline of the vessel showing an unbroken light over an arc of the horizon of 225 degrees and so fixed as to show the light from right ahead to 22.5 degrees abaft the beam on either side of the vessel.
Mayday	International radio-telephone distress call used by ships/ persons, where lives are at risk and require immediate assistance, from “M’aidez” Help me in French.
Mizzen	The aft mast.
Mooring buoy	A permanently anchored buoy to which a vessel can make fast.
Mushroom anchor	A type of anchor having a metal saucer which is mushroom-shaped at one end. Often found in sports fishing boats.
Nautical mile	1852 metres; 1.15 statute miles.
Operator	Person in charge of, and responsible for, handling and controlling a pleasure craft.
Outboard	A externally mounted and sometimes detachable engine mounted on a craft's stern.
Overall length	Full length of vessel.

PFD	Personal flotation device which provide flotation when a person is in the water.
Personal watercraft – PWC	Small craft driven by a water jet rather than by a propeller.
Pleasure craft	Boat, vessel, ship or any other water craft that is used exclusively for pleasure and does not carry passengers or goods for hire, reward, remuneration or any object of profit.
Pontoon	A boat made with a platform. Also can refer to a dock of the same construction.
Port	The left side of a vessel looking forward.
Power driven vessel	Designates all vessels equipped with an engine.
PWC Operator	person operating a personal watercraft.
Restricted Visibility	Any condition such as sand, snow, rain, fog, which does not allow one vessel to be seen from another. It does not include darkness of night.
Roll	The pivotal transverse motion of a vessel.
Rowlock	A cut out in the gunwale, to allow and oar to used.
Rudder	A in water structure used to direct the course of a vessel. It includes the rudder blade, the rudder stock or axle.
Rudder blade	Principal part of a rudder that protrudes and is immersed in the water.
Sail boat	Vessel under sail and not propelled by machinery.
Sailing plan	Document describing the craft, the planned route, the itinerary, etc.
Sailing vessel	Designates any vessel under sail, even if it is equipped with a propulsion engine or motor, provided that this engine or motor is not used.
Schooner	A sailing vessel with two or more masts, whose mainmast is abaft of and generally taller than the foremast.
Shackle	A U-shaped piece of metal with a threaded shackle pin through the end.
Shaft	Shaft that transmits the movement of the engine to a propeller.
Sidelight	A green light of the starboard side and a red light on the port side each showing an unbroken light over an arc of the horizon of 112.5 degrees and so fixed as to show the light from right ahead to 22.5 degrees abaft the beam on its respective side.
Sloop	A single-masted sailing vessel.
Small Vessel Lifejacket	A lifejacket approved for use on Canadian vessels less than 15 gross tons and small passenger vessels.

SOLAS Lifejacket	A lifejacket as approved by a national government as complying with International Maritime Organisation requirements, used on foreign going commercial ships
Squall	A sudden, violent wind often accompanied by rain or hail.
Standard Lifejacket	A lifejacket approved for use on all Canadian vessels.
Stand-on Vessel	Vessel having the right to keep its heading and speed as opposed to a "give-way vessel" which must keep out of the way of another vessel, as required by the Collision Regulations.
Starboard	The right side of a vessel when looking forward.
Steer (to)	To guide or direct a vessel in a set course.
Stern	The rear of a vessel.
Sternlight	A white light placed as nearly as practicable at the stern showing an unbroken light of over an arc of the horizon of 135 degrees and so fixed as to show the light 67.5 degrees from right aft on each side of the vessel.
Stow (to)	To store and securely attach articles on board a vessel.
Strong Wind Warning	These are when winds are forecast to be 20 knots and upwards to 33 knots (37 – 61 km/h). This forecast will come from Environment Canada.
Tender	A small craft towed by or carried by a larger craft.
Tidal current	The periodic horizontal movement of ocean water: rising tide, falling tide.
Tide	Sea-level oscillation; the periodic movement is caused by the earths rotation and gravitational attraction of the sun and moon.
Tongue	A long piece of metal in front of a trailer which is used to attach the trailer to the vehicle.
Transom	The aftermost part of a vessel (the vessel's vertical flat stern).
Underway	Vessel that is neither anchored, aground nor docked.
Vessel	Any contrivance that can travel on the surface of the water.
VHF Radio	Apparatus used to establish high-frequency radio communications on board a vessel.
Wake	The V shaped visible track of waves left by a vessel passing through water.
Wash	The turbulence caused by the motion of a vessel passing through water; includes the water displaced by a propeller.

Waterline	When the vessel is floating normally in calm water, the line along the hull to which the water will reach. The design waterline is the waterline at which the vessel was designed to operate.
Winch	A small mechanical device located on the deck which helps adjust sails using their sheets. A winch can also be used to raise sails or to carry out any other action that requires great force.
Yawl	A two-masted sailboat having a smaller jigger mast stepped abaft the rudder.

About The Canadian Coast Guard Auxiliary - Pacific

The Canadian Coast Guard Auxiliary - Pacific (CCGA-P) is a volunteer not-for-profit organization dedicated to saving lives on the water. Comprised of over 1,100 volunteers in 46 community-based stations throughout the province, the CCGA-P provides world-class marine search and rescue services and boating safety education. The Canadian Coast Guard Auxiliary-Pacific's area of operations includes more than 29,500 square kilometres of coastline, 6,500 islands, and approximately 450,000 square kilometres of internal and offshore waters. On average, the CCGA-P responds to over 1,000 marine rescue calls per year, which amounts to approximately one-third of all marine distress calls in the province. In many cases, CCGA-P volunteers are the first and/or only responder. On an annual basis, CCGA-P volunteers typically assist over 1,000 people and save over 200 lives. The CCGA-P relies entirely on its volunteers to crew its vessels and carry out marine SAR missions, and educate the public about SAR prevention and risk assessment.

The CCGA-P believes the best way to reduce the number of SAR incidents is by educating the public on water safety. The Pleasure Craft Safety Check program is one major way that CCGA-P volunteers help prevent SAR incidents in their communities. These checks are free and vouch that the pleasure craft operator has all the required safety equipment. Theses checks also serve as a great opportunity for pleasure craft operators to obtain practical advice on boating.

For more information on the Canadian Coast Guard Auxiliary –Pacific or to inquire about Pleasure Craft Safety Checks please email: info@ccga-p.ca or call: 250.480.2798.

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