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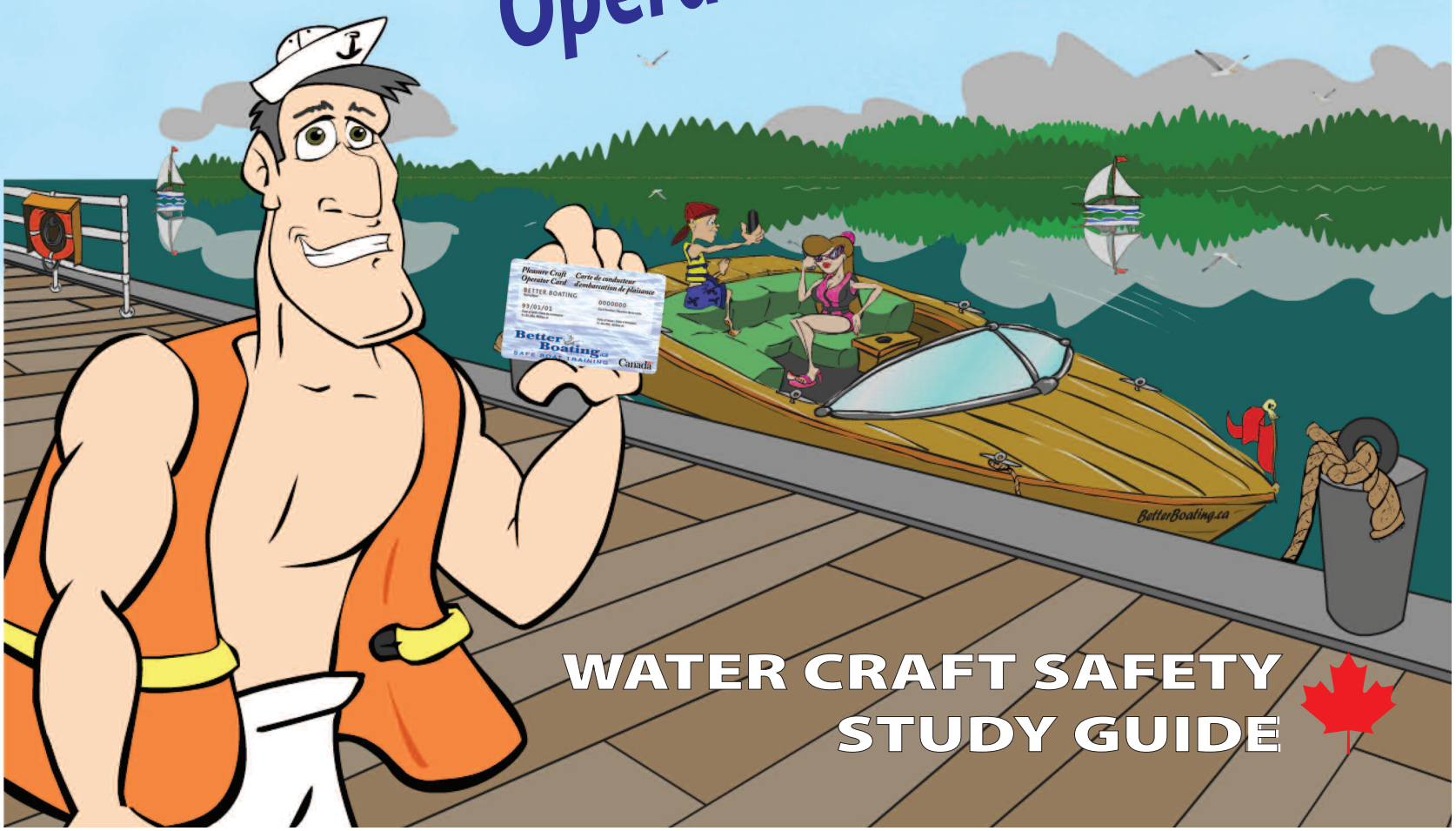
Get your Pleasure Craft Operator Card today!



WATER CRAFT SAFETY STUDY GUIDE

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). This approval does not represent confirmation of authorship by the course provider.

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For more information please visit www.betterboating.ca

Rev. 08.2015

We at Better Boating would like to take this opportunity to thank you for taking the time to become an educated boater.

Canada has more than 244,106 square kilometres of water excluding the Atlantic and Pacific Oceans, and more than 35,000 islands. This amount of water surface area provides more than enough water for all to enjoy and enjoy it you should.

Our course was written with the novice boater in mind and is not intended for a person who intends to pursue an ocean going voyage.

It is Better Boating's intention to provide you with the basics in navigation and boat handling skills, so you may confidently and safely enjoy countless hours on the water. After reading our course you will be more than prepared to pass the Pleasure Craft Operator Test.

I would like to take this opportunity to personally thank family members, friends, Transport Canada Staff and the corporate companies who took the time from their busy schedules to contribute to this venture.

Sincerely,

Todd Powis
President
Better Boating Ltd.

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Since September 15, 2009, everyone who operates a motorized pleasure craft must carry proof of competency onboard at all times (excluding the Northwest Territories and Nunavut). Proof of competency is not required for pleasure crafts without motors.

Proof of competency can take one of four different forms:

- A Pleasure Craft Operator Card;
- A certificate that states you have successfully completed a boating safety course in Canada prior to April 1, 1999;
- A completed and signed boat rental safety checklist. Marine certificates such as Master Mariner also qualify as proof of competency.
- Marine certificates such as Master Mariner or Chief Mate Certificate also qualify as proof of competency.

For a complete list of certificates that qualify as proof of competency contact Transport Canada.

Youth less than 16 years of age may not operate boats with motors over certain horsepower limits unless someone 16 years of age or older and certified is in the boat and directly supervising them.

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

Remember that these restrictions are separate from the requirement for proof of competency and both must be followed.

Visitors to Canada

All boaters (both residents and visitors) on Canadian waters are expected to know and obey the rules that apply in Canada. However, if you are a non-resident of Canada and are operating a boat in Canadian waters, the exceptions below apply to you.

If you are a non-resident visiting Canada with your boat, you are not required to carry proof of competency on board as long as your boat is in Canada for less than 45 consecutive days.

If you are a non-resident visiting Canada and will be operating your boat in Canadian waters for more than 45 consecutive days, you may use an operator card or similar proof of competency issued by your home state or country. Either way, you must also keep proof of residence on board with you at all times. The above does not apply to the Northwest Territories or Nunavut.

When operating a boat in Canadian waters all persons must obey the following acts, codes and regulations. The law applies whether you own your boat, loan your boat to someone or if you rent a boat. It is your responsibility to keep up to date on the following laws and regulations; disregard for any one them may lead to fines and or penalties.

Acts, Codes and Regulations

- The *Canada Shipping Act 2001*
- The *Collision Regulations* (as described in *Canada Shipping Act 2001*)
- The *Small Vessel Regulations* (as described in *Canada Shipping Act 2001*)
- The *Charts and Nautical Publications Regulations*
- The *Contravention's Act*
- *Vessel Operation Restriction Regulations*
- The *Criminal Code of Canada*

Under the *Criminal Code of Canada*:

It is illegal to operate a vessel in a manner that is dangerous to the public.

It is illegal to operate a vessel while impaired by alcohol (excess of eighty milligrams of alcohol in one hundred millilitres of blood) or drugs.

It is illegal to refuse a breathalyzer, fail to stop for enforcement officers or fail to remain at the scene of a collision.

It is illegal to tow a person(s) without a spotter on board keeping watch of a person(s) being towed.

It is illegal to tow a person(s) after dark.

It is illegal to send false messages or false distress signals.

It is illegal to operate an unseaworthy vessel.

It is illegal to interfere with a marine signal.

It is illegal to operate a vessel while disqualified or prohibited.

Pleasure craft operator card

Applicable Fines:

- Not carrying enough approved lifejackets on board-$200
- Not carrying proof of competency on board-$250
- Not carrying a Pleasure Craft License on board-$250
- Careless operation-$200
- Speeding-$100
- Allowing someone under age to operate a boat-$250
- Operating a boat under age-$100
- Operating a boat without a muffler in good working condition-$100
- Towing a person without a spotter-$100

Please note:

- The above do not include victim surcharge fees
- You should also know that some boating offences can result in fines to both the operator of the boat as well as to the person who allowed the operation of the boat. An example of this would be allowing someone under the age of 16 to operate your PWC.

Enforcement on the water

The Royal Canadian Mounted Police (RCMP), Provincial and Municipal Police Force and local authorities enforce the law. They may inspect your boat and monitor your boating activities to make sure that requirements are being met. This may include checking for safety equipment, structural integrity of your boat or your Pleasure Craft Operator Card (PCOC).

Enforcement Officers may:

- Ask for ID
- Ask for proof of competency
- Ask any pertinent questions
- Or board your vessel

Entering U.S. waters

Since September 11, 2001 anyone entering U.S. waterways is required to follow some strict immigration rules. Before heading to the U.S. by water, it is a good idea to contact the U.S. immigration office or visit www.uscgboating.org for the latest updates regarding U.S. Homeland Security procedures.

When in U.S. waters

Always carry identification such as a passport or other document that shows your identity and citizenship. Do not approach within 91.44 m (100 yards) of any naval vessel. Slow down to idle speed when within 457.20 m (500 yards) of any U.S. naval vessel, follow the commanding officers directions.

Before you pass within 91.44 m (100 yards) of a U.S. naval vessel, contact must be made first with naval vessel or its U.S. Coast Guard escort vessel on very high frequency (VHF) channel 16. Follow their directions precisely or face severe consequences, such as penitentiary time or worse, being fired upon. Stay well clear of commercial shipping ports, cruise liners, oil refineries, hydro plants, hydro dams and all other infrastructure buildings or ports. Do not stop or anchor beneath bridges. If you do, expect to be boarded by law enforcement officials who will treat you as a national threat.

Operators of pleasure vessels arriving in the United States from a foreign port or place and who wish to go ashore are required to report their arrival to Customs and Border Patrol (CBP) immediately. Pleasure boats from foreign countries must obtain clearance before leaving a port or place in the U.S. and proceeding either to a foreign port or place or going to another port or place in the U.S. Disregard of the above mentioned will result in immediate boarding, fines and or imprisonment! For the latest updates, contact the U.S. Coast Guard or visit www.uscgboating.org
You must report all suspicious activity to the CBP or local authorities.

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Hull types

There are two types of hull designs, planing and displacement.

Planing hull *

Displacement hull **

While you are operating a boat, you will notice that it creates a bow wave. The wave is created by the initial pushing of water by the boat. All boats create a bow wave, the difference is a planing hull will climb up and overtop of this wave and skip along the surface once sufficient power has been applied. Planing hulls can achieve great speeds but are not suitable for big rolling waves (swells) or rough waters, as they tend to bounce and skip off course, resulting in injuries to the spine and falls overboard! An example of a planing vessel is a PWC.

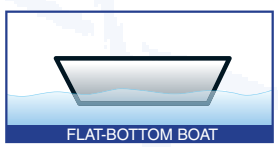
Displacement hulls will not ride on top of the bow wave. Their design relies on the hull's "v" shaped bow to push the water out of the way, resulting in a smoother more stable ride than a planing hull but at slower speeds than planing hulls.

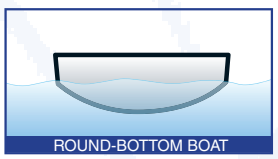
Both hull designs create a wake (the wave created by a passing boat) as they move along and it is the wake that you must control so as not to rock docks, other boaters and to protect the shoreline from erosion.

Flat bottom (planing) hulls require little draft (water depth required to safely float a boat) Examples, include ski and bass boats.

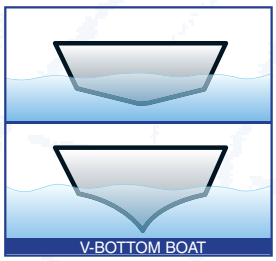
Round-bottom (planing and displacement) boats are fast but tip easily unless stabilized by a keel, they have very little draft. Examples include sailboats, and canoes.

TYPES OF HULLS

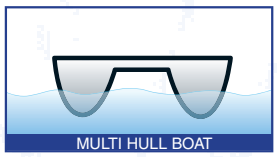




V-bottom (can be planing and displacement) rides smooth and comfortable in rough water, requires more water depth than a flat bottom boat, and is found on a variety of boats.



Multi hulls (planing and displacement) are one of the most stable hull designs. Examples; pontoon boats, and catamarans.



Types of motors

Outboard motors

Outboard motors are a popular method of propelling many types of boats such as bow riders and aluminium boats. They come in many different power ranges and can be two or four stroke. Four stroke outboards are extremely quiet and fuel efficient. This type of motor is completely external to the boat. In addition, they are available in a wide variety of models. Smaller models such as 9.9 hp (7.5kw) motors (kickers or tillers) are a favourite on small utility boats and are used on other types of boats for fishing. Propulsion is achieved from the **discharge current.** Discharge current is the water pushed by the screw (propeller); steering is achieved by turning entire motor via a handle or steering wheel, which in turn controls the discharge current. Water passing over the lower unit can provide limited steering when power is cut.

Inboard/Outboard motors (I/O)

Inboard/outboard (I/O) motors, are usually on vessels 6m (19.69ft) or more in length. They are available in many different power ranges. The engine is mounted inside the vessel and the propulsion unit, called the stern drive/outdrive (similar to an outboard) is mounted outside the vessel. Propulsion is achieved from the **discharge current** of the water being pushed by the screw (propeller). Steering is achieved by turning the stern drive (out drive) via the steering wheel. Water passing over the lower unit can provide limited steering if power is cut.

Inboard motors

Inboard motors come in many power ranges. They can be diesel or gas engines, and are mounted inside the vessel toward the centre of the vessel. **This provides good**

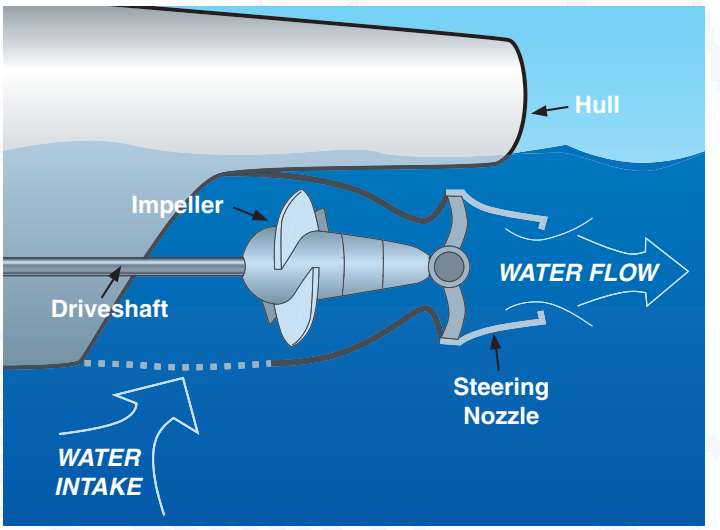
weight distribution and helps with the centre of gravity. The motor is connected to the propeller shaft that passes through the hull of the vessel. Propulsion is achieved from **discharge current** of the water being pushed by the screw (propeller). Steering is achieved by **water passing over a rudder.** Water passing over the rudder can provide limited steering when power is cut.

Note: when going astern (reverse) the screw may walk (pull) the boat to one side or the other.

Electric motors

Electric motors are available in many different models. Power is measured in thrust not horse power. Their very quiet operation makes them popular for fishing and sight seeing.

Jet drive motors



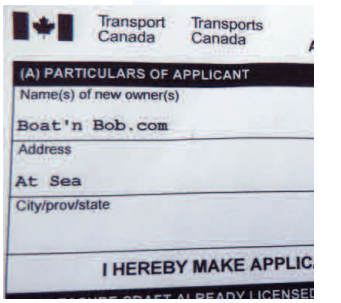
Jet drive motors are found in PWC and jet boats. They are either two or four stroke inboard engines that suck in vast amounts of water through an opening under the vessel. The water then flows through a pump impeller, powered by the engine. The water is then discharged at very high pressure through a nozzle at the rear of the vessel. This moves the boat ahead. The nozzle is swivelled via handlebars or a steering wheel. The advantage this propulsion system has over other types is that there is no external propeller to injure a person. **You should be aware that while operating a jet drive propelled vessel at low speeds (i.e. docking) the steering will not be as responsive as when operating at higher speeds.** Reverse (going astern) is achieved utilizing a cowling that redirects the flow of water exiting the nozzle.

Choosing the right type of motor for your boat is very important. Both its weight and horsepower will have an impact on the performance of your boat. If your boat is underpowered, the engine will be over taxed, resulting in inefficient gas consumption. Additionally, if your boat is overpowered, it may exceed the safe operating speed that the boat was rated for based on its design and construction. Regardless of type, always read and follow the manufacturer's operating instructions especially with regards to break-in periods, oil types, oil levels and oil mixtures.

Licensing a boat

Whether buying a new or pre-owned boat, vessels fitted with a motor or more than two motors that add up to more than 10 hp (7.5 KW) horsepower must be licensed.

The vessel license is issued free of charge and is valid for 10 years. **A change in ownership or address must be registered with the pleasure craft licensing centre within 90 days**. The license is valid for 10 years. To update or obtain a vessel license contact the Pleasure Craft Licensing Centre.



A copy of your license must be carried **on board at all times**.

For safety, keep it in a watertight container or sealed bag.

The license numbers must be **BLOCK LETTERS, not less than 3 inches (7.5 cm)** high and in a colour that contrasts to the boat's hull. Further, they must be permanently attached to the vessel, as close as possible to the bow so it is visible from each side of the vessel.

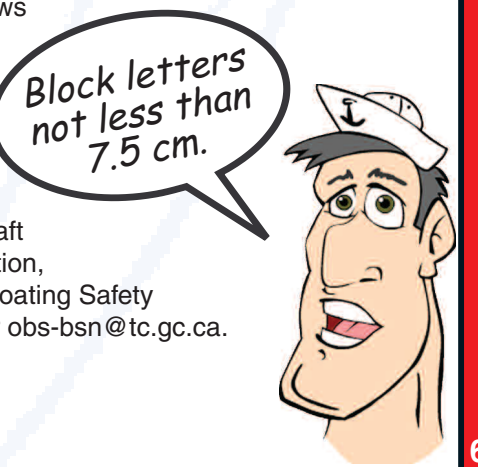
Registration

Ever wondered how a boat gets a name like "THIRSTY FISHERMAN, VANCOUVER" or "LIVIN LARGE, ALBERTA?"

A Pleasure Craft of any size can be voluntarily registered and given a name of your choice. Before submitting your application to the Canadian Register of Vessels, you will be required to have your boat measured and surveyed. A small service fee will apply.

Once registered, the name of the boat will be placed on the bow and your homeport on the stern. Sometimes both are placed on the stern.

A few advantages of registering your boat are proof of ownership for your boat, a unique name, and official number for your boat; this allows a boat to be used to obtain a marine mortgage.



For more information regarding pleasure craft licensing and registration, contact the office of Boating Safety at 1-800-267-6687, or obs-bsn@tc.gc.ca.

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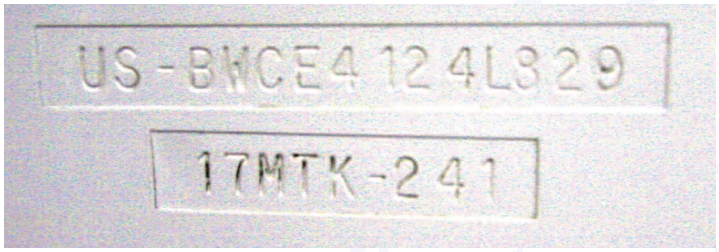
Hull Serial Number (HIN)



U.S. Hull Serial Number (HIN)

Every vessel built or imported for sale in Canada must be marked with a **Hull Serial Number (HIN)** in accordance with the ***Small Vessel Regulations*** (Part 9).

The Hull Serial Number (HIN) provides a uniform method for identifying:

- any specific vessel
- the construction standards that apply to that specific vessel
- vessels subject to a manufacturer's defect recall; and
- a lost or stolen vessel

The HIN is 6 millimetres (1/4 inch) high, consists of 12 letters and or numbers and may begin with the manufacturer's identification code.

The HIN can be found on the outside starboard side of the transom above the waterline. If the vessel does not have a transom the HIN can be found on the uppermost starboard side at the aft end of the hull or as close to the that location as possible. A duplicate number may be found hidden on the interior of a boat or under a fitting or some item of hardware.

If a HIN is not present try contacting the manufacturer of the boat to obtain the HIN. In a case where the manufacturer has gone out of business or you are unable to obtain a HIN for your vessel you need not take any other action provided you can reasonably demonstrate to the authorities that you tried to obtain the HIN.

- No person shall remove, alter or otherwise tamper with a HIN.

You should record this number; in case of theft it may help identify your boat.

Compliance notice

With few exceptions all pleasure craft of less than 24 metres, propelled or designed to be propelled by an engine must have a compliance notice formerly known as a capacity plate or capacity label.

A compliance notice is a statement from the manufacturer or importer that a vessel is built according to the construction requirements of the *Small Vessel Regulations*.

This includes home built boats. Labels from other countries are not valid for Canadian registered or licensed vessels. If your vessel has this notice, it will be permanently attached, in plain sight, as close as possible to the helm.

The notice indicates the gross load capacity in kilograms/pounds that can safely be carried in the hull as per the construction standards in fair weather conditions. Gross load capacity includes equipment, supplies, fuel, people, complete motor and steering control assembly.

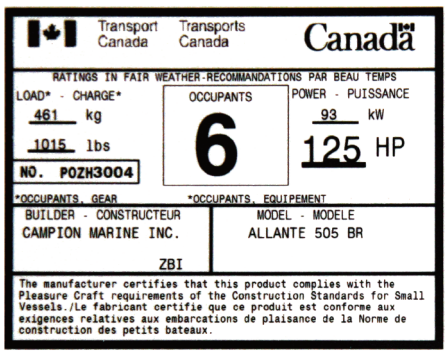
There are three types of compliance notices:

- Pleasure craft vessels up to 6 m in length
- Pleasure craft vessels more than 6 m
- Vessels other than pleasure craft that are more than 6 m in length.

No person shall remove, deface or alter a compliance notice.

Overloading your boat, may result in grounding capsizing, swamping or sinking!

Should you decide to build a boat it must meet Transport Canada's *Construction Standards for Small Vessels*. For more information please contact Transport Canada.


Transport Canada Transports Canada Canada

RATINGS IN FAIR WEATHER-RECOMMANDATIONS PAR BEAU TEMPS

LOAD* - CHARGE* 461 kg 1015 lbs

OCCUPANTS 6

POWER - PUISSANCE 93 kW 125 HP

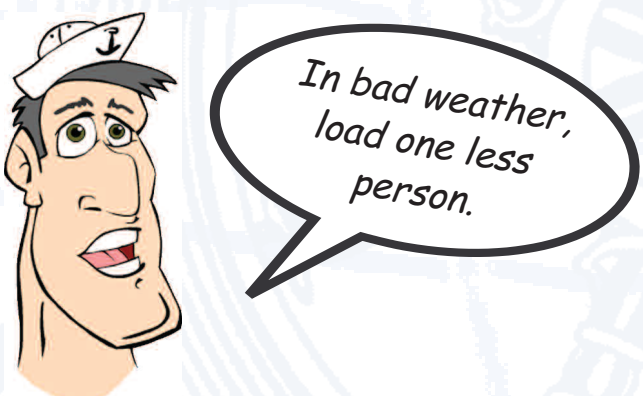
NO. POZH3004

*OCCUPANTS, GEAR *OCCUPANTS, EQUIPEMENT

BUILDER - CONSTRUCTEUR CAMPION MARINE INC. ZBI

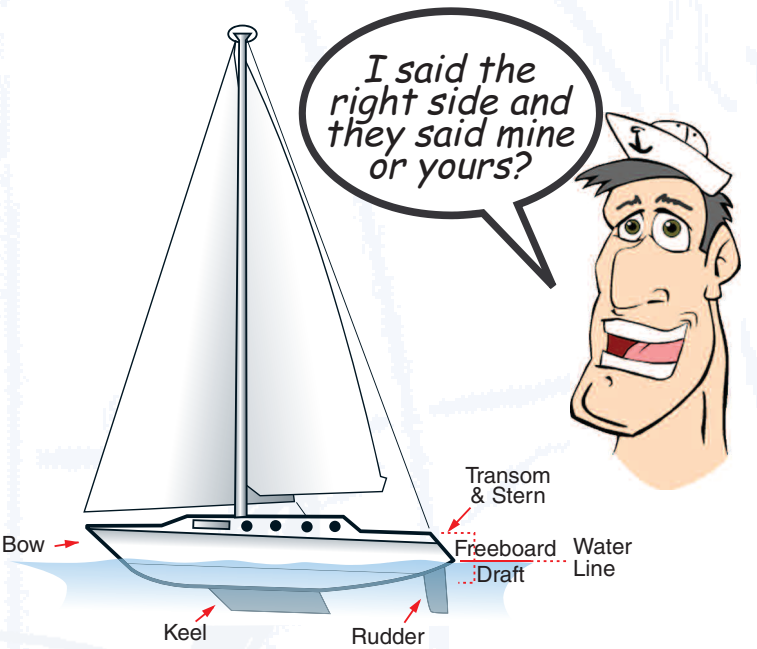
MODEL - MODELE ALLANTE 505 BR

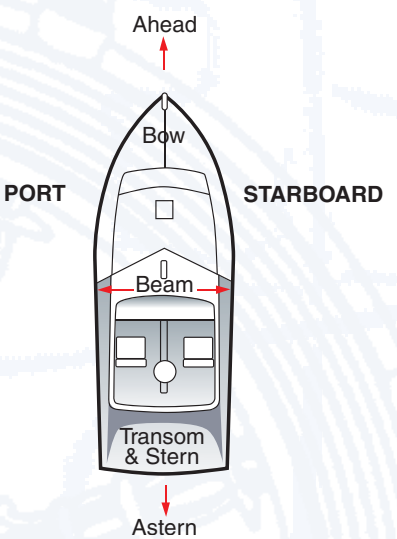
The manufacturer certifies that this product complies with the Pleasure Craft requirements of the Construction Standards for Small Vessels./Le fabricant certifie que ce produit est conforme aux exigences relatives aux embarcations de plaisance de la Norme de construction des petits bateaux.



Boating terminology

While on the water or just hanging on the dock enjoying the sun, you may need to give orders to your guest or crew, such as where to stow gear, or in the case of an emergency, which way to steer the boat.





COMMON BOATING TERMS

Give-way Vessel	- A vessel that is required to keep out of the way of another vessel
Gunwale	- The upper edge of a boat's sides
Hull	- The boats shell
Leeward	- The direction away from the wind
Operate	- The action of controlling the speed and course of a pleasure craft
Operator	- The person in effective charge and control of a pleasure craft and who is responsible for the pleasure craft
Pleasure Craft	- A vessel that is used exclusively for pleasure, and does not carry passengers or goods for hire, reward, remuneration or any object of profit
Power-Driven Vessel	- Any vessel propelled by machinery
Sailing Vessel	- Any vessel under sail provided that propelling machinery, if fitted, is not being used
Stand-on Vessel	- A vessel that should maintain course and speed
Underway	- Not at anchor or made fast to the shore
Vessel	- Includes every description of water craft, used or capable of being used as a means of transportation on water
Wake	- The V shaped wave created by a vessel in motion
Wash	- The water thrown aft by the propeller
Windward	- The opposite side of the main sail/ the direction the wind is blowing from

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VOYAGE 1 REVIEW

Question #1
What part of the boat is referred to as the bow?

A. The back of the boat
B. The left side of the boat
C. The front of the boat
D. The right side of the boat

Question #2
How old must a person be to operate a PWC?

A. 16 years of age
B. 20 years of age
C. 10 years of age
D. 13 years of age

Question #3
When approaching a U.S. naval vessel you must?

A. Slow to idle when closer than 500 yards
B. Approach as fast as possible
C. Approach from the rear (stern)
D. Approach from the front (bow)

Question #4
Excluding the victim surcharge fee, how much is the fine for not carrying enough PFDs onboard?

A. $50.00
B. $300.00
C. $200.00
D. $500.00

Question #5
What is the purpose of a compliance notice?

A. To indicate the boat's maximum load capacity
B. To indicate the placement of persons
C. To indicate the placement of equipment
D. None of the above

Answers review 1
1. C
2. A
3. A
4. C
5. A

Mandatory equipment requirements

Whether you rent, own, borrow a boat, or operate any other water vessel you are required to carry a minimum amount of safety equipment. The **safety equipment** is just that, and must be carried on board at all times, must be in good working order, readily accessible and available for immediate use, **maintained and replaced in accordance with the manufacturer's instruction** so it **will function properly** and portable fire extinguishers shall be fully charged.

Under the *Small Vessel Regulations*, you are required to carry the following equipment:

Boat Type and Length	Personal Lifesaving Appliances	Vessel Safety Equipment (See Note 1)	Visual Signals (See Note 2)	Navigation Equipment	Fire Fighting Equipment
Human-Powered Pleasure Craft (including Canoes, Kayaks, Rowboats, and Rowing Shells)	One appropriately sized approved lifejacket or PFD for each person on board. If being used during white-water paddling, it must be of the inherently buoyant type. One buoyant heaving line at least 15 m (49'3") long *One re-boarding device	One bailer or manual bilge pump OR Bilge-pumping arrangements	***If boat is over 6 m:*** One water tight flashlight 6. Six (6) Canadian-approved flares of Type A, B or C A-Rocket Parachute B-Multi Star or C-Hand Flare	One sound-signalling device or appliance **Navigation lights ***One magnetic compass One radar reflector (See Note 3)	None
Paddleboats, Water Cycles and Sealed Hull, Sit-On-Top Kayaks	If everyone on board is wearing a approved lifejacket or personal flotation device of appropriate size, only the listed equipment is required on board. Under all other circumstances, the requirements for human-powered craft must be followed. Note: A personal flotation device or lifejacket carried on board a human-powered pleasure craft operated in white-water must be of the inherently buoyant type.			A sound- signalling device; and a watertight flashlight, (to be used as navigation lights) if the paddleboat, watercycle or kayak is operated after sunset or before sunrise or in periods of restricted visibility, such as fog or falling snow.	None
Personal Watercraft (PWC)	If everyone onboard the PWC is wearing an approved lifejacket or personal flotation device (PFD) of appropriate size, only the listed equipment is needed. Under all other circumstances, the safety equipment requirements for sail and powered pleasure craft up to 6 m (19'8") must be followed.		A watertight flashlight or three flares other than type D (smoke signals)	A sound-signalling device a magnetic compass, if the PWC is navigated outside of seamarks; and Navigation lights that meet the requirements set out in the *Collision Regulations*, if the pleasure craft is operated after sunset, before sunrise, or in periods of restricted such as fog or falling snow.	None
Sailboards and Kiteboards	If the operator of a sailboard or kiteboard is wearing an approved personal flotation device of an appropriate size, the sailboard or kiteboard is required to carry listed equipment on board. Under all other circumstances, the safety equipment requirements for sail and powered pleasure craft up to 6 m (19'8") must be followed.			A sound-signalling device A watertight flashlight if operated after sunset or before sunrise or in periods of restricted visibility (to be used as navigation lights)	None
Sail and Power Boats up to 6 m (19'8")	One appropriately sized lifejacket or PFD for each person on board One buoyant heaving line at least 15 m (49'3") long *One re-boarding device	One manual propelling device OR One anchor and at least 15 m (49'3") of cable, rope or chain in any combination One bailer or manual bilge pump with sufficient hose to discharge water over the side of the boat	If boat is equipped with a motor One watertight flashlight OR Three flares of Type A, B or C A-Rocket Parachute B-Multi Star or C-Hand Flare	One sound-signalling device or appliance **Navigation lights ***One magnetic compass One radar reflector (See Note 3)	One class 5BC fire extinguisher if equipped with an inboard engine, a fixed fuel tank or any type of fuel-burning appliance

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Under the *Small Vessel Regulations*, you are required to carry the following equipment:

Boat Type and Length	Personal Lifesaving Appliances	Vessel Safety Equipment (See Note 1)	Visual Signals (See Note 2)	Navigation Equipment	Fire Fighting Equipment
Sail and Power Boats over 6 m and up to 9 m (19'8" - 29'6")	One appropriately sized lifejacket or PFD for each person on board One buoyant heaving line at least 15 m (49'3") long OR One lifebuoy attached to a buoyant line at least 15 m (49'3") long *One re-boarding device	One manual propelling device OR One anchor and at least 15 m (49'3") of cable, rope or chain in any combination One bailer or manual bilge pump with sufficient hose to discharge water over the side of the boat	One watertight flashlight 7. Six flares of Type A, B or C A-Rocket Parachute B-Multi Star or C-Hand Flare	One sound-signalling device or appliance **Navigation lights ***One (1) magnetic compass One radar reflector (See Note 3)	One class 5BC fire extinguisher if equipped with a motor Plus One class 5BC fire extinguisher if equipped with any type of fuel-burning appliance
Sail and Power Boats over 9 m and up to 12 m (29'6" – 39'4")	One appropriately sized lifejacket or PFD for each person on board One buoyant heaving line at least 15 m (49'3") long One lifebuoy attached to a buoyant line at least 15 m (49'3") long *One re-boarding device	One anchor and at least 30 m (98'5") of cable, rope or chain in any combination One manual bilge pump with sufficient hose to discharge water over the side of the boat OR Bilge-pumping arrangements	One watertight flashlight Twelve flares of Type A, B, C or D, not more than six (6) of which are of Type D A-Rocket Parachute B-Multi Star C-Hand Flare or D-Buoyant or Hand Smoke Signal	One sound-signalling device or appliance Navigation lights One magnetic compass One radar reflector (See Note 3)	One class 10BC fire extinguisher if equipped with a motor Plus one class 10BC fire extinguisher if equipped with any type of fuel-burning appliance
Sail and Power Boats over 12 m and up to 24 m (39'4" – 78'9")	One appropriately sized lifejacket or PFD for each person on board One buoyant heaving line at least 15 m (49 '3") long One lifebuoy equipped with a self-igniting light or attached to a buoyant line at least 15 m (49'3") long *One re boarding device	One anchor and at least 50 m (164'1") of cable, rope or chain in any combination Bilge-pumping arrangements	One watertight flashlight Twelve flares of Type A, B, C or D, not more than six (6) of which are of Type D A-Rocket Parachute B-Multi Star C-Hand Flare or D-Buoyant or Hand Smoke signal	One sound-signalling appliance (whistle & bell) that meets the applicable standards set out in the *Collision Regulations* (See note 4) Navigation lights One magnetic compass that meets the requirement set out in the Navigation Safety regulations One radar reflector (See Note 3)	One class 10BC fire extinguisher at all of the following locations: each access to any space where any type fuel-burning appliance is fitted, and at the entrance to any accommodation space, and at the entrance to the machinery space. One axe Two buckets of at least 10 L each
Sail and Power Boats over 24 m (78'9")	One lifejacket or PFD for each person on board One buoyant heaving line at least 30 m (98'5") long Two SOLAS lifebuoys, of which: one is attached to a buoyant line at least 30 m (98 '5") long; and one is equipped with a self-igniting light Lifting harness with appropriate rigging *One (1) re boarding device	One anchor and at least 50 m (164'1") of cable, rope or chain in any combination Bilge-pumping arrangements	One watertight flashlight Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D A-Rocket Parachute B-Multi Star C-Hand Flare or D-Buoyant or Hand Smoke signal	One sound-signalling appliance (whistle & bell) that meets the applicable standards set out in the *Collision Regulations* (See note 4) Navigation lights One magnetic compass that meets the requirement set out in the Navigation Safety regulations One radar reflector (See Note 3)	One 10BC fire extinguisher at all of the following locations: each access to any space where any type of fuel-burning appliance is fitted; and the entrance to any accommodation space; and at the entrance to the machinery space. One power-driven fire pump located outside the machinery space, with one fire hose and nozzle that can direct water into any part of the boat Two axes Four buckets of at least 10 L each

Always carry spare batteries

Manual water pumps must have a hose attached that is long enough to pump water over the gunwale (top edge) of the boat.

*Only required when the vessel has more than 0.5 m (1'8") of free board. Cannot be part of the propulsion unit.
**Only required if the boat is operated after sunset, before sunrise or in periods of restricted visibility (fog, snow, etc.)
***Not required if the boat is 8 m (26'3") or less and operated within sight of navigation marks.

Note 1 – Exception for Bailers and Manual Bilge Pumps
A bailer or manual bilge pump is not required for a boat that cannot hold enough water to make it capsize or a boat that has watertight compartments that are sealed and not readily accessible.

Note 2 – Exception for Flares
Flares are not required for a boat that can never be more than one nautical mile (1.852 km) from shore; or has no sleeping quarters or is engaged in an official competition or in final preparation for an official competition.

Note 3 – Radar Reflectors
Radar reflectors are required for boats under 20 m (65'7") and boats that are built of mostly non-metallic materials such as wood or fibreglass. Unless using one will jeopardize the safety of the vessel, they must be used in poor weather conditions or when operating in or around shipping lanes, the great lakes or coastal waters.

A Radar reflector is not required when:

- The small size of the craft makes it unrealistic to use
- Using the device may jeopardize the boat's safety

Note 4 – Whistle & Bell as per Collision Regulation 33
Boats that are involved in official sanctioned sport may be exempt from carrying certain equipment mentioned above. For information and clarification, please consult Transport Canada 1 800 267 6687, the Safe Boating Guide or your local authorities.

Emergency kit

First aid kit, knife, flash light, candles, water proof matches or some other means of starting a fire on shore, thermal blankets, hand held VHF radio, whistle, change of clothes, sea sickness remedies, emergency food rations, water, survival suit, mirror, flares, lifejacket.

Knowing and using the equipment

The required mandatory safety equipment that needs to be carried on board depends on the type and length of the vessel, be sure to consult the mandatory list before heading out.

All equipment carried on board must be in good working order, readily accessible and available for immediate use, maintained and replaced in accordance with the manufacturer's instructions or recommendations and portable fire extinguishers shall be fully charged.

Lifejackets & Personal Floatation Devices PFDs

Lifejackets and PFDs only work when worn. Their purpose is simple, to help prevent drowning. Why would you not insist everyone onboard wear one? Would you rather risk the life of a child, a friend, or yourself? Before departing, place a PFD or lifejacket on each seat for everyone coming aboard. Lifejackets are available in Red, Orange or Yellow. This makes you much easier to see in the water. Currently there are **three types of Canadian-approved LIFEJACKETS** and many types of PFDs to choose from.

The *Small Vessel Regulations* require that there be a sufficient number of Canadian approved flotation devices of appropriate size for each person on board a pleasure craft

- Both lifejackets and PFDs are rated by their buoyancy, the ability to float a person or object in the water.

Example: a PFD or lifejacket with a buoyancy rating of 20 will float more weight than one with a rating of 15.

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Quick reference comparison chart for Lifejackets and PFD's

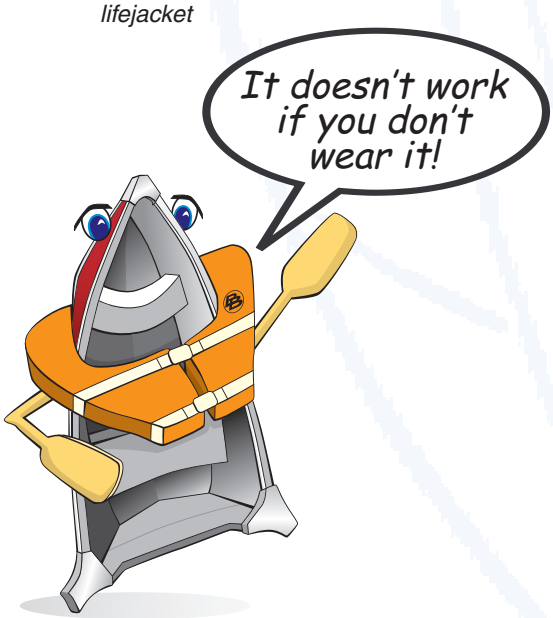
	SAFETY OF LIFE AT SEA (SOLAS) LIFEJACKETS	STANDARD TYPE LIFEJACKETS	SMALL VESSEL LIFEJACKETS	PERSON FLOATATION DEVICE (P.F.D.)
Performance in the Water	Best performance – will turn you on your back in seconds to keep your face out of the water, even if you are unconscious. Must be worn loose to allow the water to flow under the device in order to turn you face up.	Slower performance – will turn you on your back to keep your face out of the water, even if you are unconscious. Must be worn loose to allow the water to flow under the device in order to turn you face up.	Slowest performance – will turn you on your back to keep your face out of the water, even if you are unconscious, but may do so more slowly. Must be worn loose to allow the water to flow under the device in order to turn you face up.	Poorest performance – will not turn you on your back if you are unconscious. Must be worn snug but allow free movement of arms.
Sizes Adults or children	Available in 2 sizes: - Over 32 kg (70 lbs) - Less than 32 kg (70 lbs)	Available in 2 sizes: - Over 40 kg (88 lbs) - Less than 40 kg (88 lbs)	Available in 3 sizes: - Over 41 kg (90 lbs) - 18 kg (40 lbs) to 41 kg (90 lbs) - Less than 18 kg (40 lbs)	Chest size and weight or weight only.
Models Available	Keyhole	Keyhole	Keyhole or vest.	Vest, coveralls, or jacket.
Advantages	Simple to put on. Best in rough waters. Retroreflective tape and a whistle.	Simple to put on. Best in rough waters. Retroreflective tape and a whistle.	Simple to put on.	Many styles and colours to choose from.
Disadvantages	Bulky and uncomfortable	Bulky and uncomfortable.	Bulky and uncomfortable.	Will not turn you on your back if you are unconscious.
Type of boating	Commercial vessels, abandon ship use.	Commercial vessels, abandon ship use.	Commercial vessels, abandon ship use, sheltered waters and pleasure craft use.	Constant wear. Most types of boating activities.

Small vessel lifejacket

PFD Vest

Thermal Protective PFD

Floater Suit



Solas Lifejackets

Due to these requirements, foam filled SOLAS lifejackets are bulky and less comfortable than any other device. However, SOLAS inflatable lifejackets are a lot more comfortable and compact. They inflate automatically on immersion but can also be inflated manually or by mouth. In the event of loss of buoyancy in any compartment they still meet the performance criteria described above.

Standard and SOLAS lifejackets are commonly found on ferries and other commercial vessels. They will right an unconscious person face up in seconds.

Unlike a PFD, lifejackets are worn loose to allow water to flow under the device in order to turn you face up.

Commonly referred to as a keyhole lifejacket this type of PFD will right an unconscious person face up, but will do so more slowly than a standard or SOLAS lifejacket.

Inflatable PFDs and how they work!

Inflatable PFDs are **not inherently buoyant** and do not work unless they are inflated!

Fig 1
Fit the device properly

Fig 2
Pull the rip cord/lanyard

To work properly an inflatable PFD must be worn and the CO2 cartridge must be installed and charged. Manual vest and pouch type inflatable PFDs require the user to manually activate them.

Auto inflation type vests are inflated by water pressure (hydrostatic pressure).This means when they are submersed in 10.16 cm (4 inches) of water or more they will automatically inflate.

Fig 3
To a person in the water inflation may seem like an eternity.

Manual Inflatable pouch type PFD.

Courtesy of U.S. Coast Guard

Pouch type PFDs work in the same manner as vest types the main difference is that they must be pulled over your head once inflated. This can be a tricky task once in the water, especially if you are submerged in cold or rough seas!

In the event that the CO2 cartridge fails to operate an oral inflation tube is supplied to manually inflate the PFDs.

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To meet the regulations inflatable type PFDs, shall be worn by a person in an open vessel or, if the vessel is not open, shall be worn when the person is on deck or in the cockpit.

Inflatable PFDs are NOT approved for:

- anyone under 16 years old;
- anyone who weighs less than 36.3 kg (80 lbs);
- use on a personal watercraft; or
- white-water paddling activities

Due to the response time **inflatable PFDs SHOULD NOT be worn by weak swimmers!**

Properly fitted PFD should fit snug and allow free movement

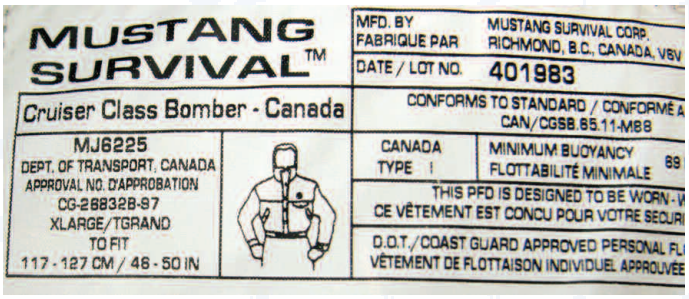
A properly fitted PFD will not rise above your ears and slip over your head.

Inherently Buoyant PFDs

Inherently Buoyant PFDs (foam filled panels)

- Approved for Recreational Boating only;
- **Has less flotation than standard SOLAS and *Small Vessel Regulations* lifejackets;**
- **Has very limited turning capability;**
- More comfortable than a lifejacket - designed for constant wear;
- **Must be worn snug;**
- Available in any colour; preference on bright colours;
- Some models help protect the wearer against hypothermia;
- When worn by children, they are not a substitute for parental supervision;
- Available in several sizes.

Approval



All Canadian PFDs and lifejackets must bare an approval label from:

- The Department of Transport Canada; or
- The Department of Fisheries and Oceans; or
- The Canadian Coast Guard

The approval status is lost once a PFD or lifejacket losses its label, or once the item itself becomes damaged.

A non Canadian resident may use a PFD or lifejacket from their homeland provided it is in good working order and meets that country's standards.

Use and care

DO:

- wear at all times
- clean using mild soap and running water
- test for buoyancy
- check for rips, tears and holes
- check for water logging, shrinkage or hardening of the foam material
- check that zippers and buckles function properly
- check for mould or mildew
- check for proper fit
- check for fading (weakens the material)
- check that the CO^2 cartridge is fitted and armed (if applicable)
- let it dry before stowing in a well-ventilated and readily accessible location

DO NOT:

- use strong detergents
- gasoline, or other chemicals
- dry-clean
- put in the dryer
- alter it any way
- hang in or near any direct heat sources such as the sun or radiators. The sun's uv rays will weaken the stitching and the material itself over time
- use as seat cushions or fenders, this may result in puncturing or compressing them

Purchasing a PFD

- When adjusted it should be snug fitting but allow free movement of arms and legs
- Appropriate for the waterway activity. This means using a HIGH IMPACT TYPE (4 straps) when riding a Personal watercraft, water-skiing or other towing activities
- Will you be fishing in the cold and rain? Then purchase a device that offers thermal protection
- Appropriately sized; "adult sizing" for adults and "child sizing" for children. A PFD is not something you grow into!
- Try it on in the store to ensure that it fits properly

Regardless which type of PFD or lifejacket you choose to wear, buy the most buoyant one available and always read the manufacturer's instructions before using them.

Note: that the Canadian Rating Standards of PFDs and lifejackets is the highest in the world.

Regardless which type of PFD you choose to wear always read the manufacture's instruction before using them.

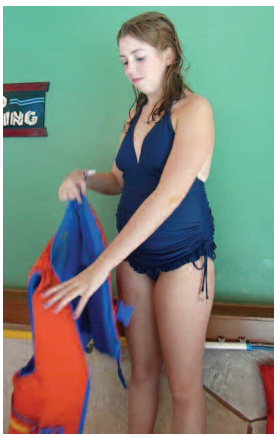
Testing a PFD or Lifejacket

You as the operator are responsible for demonstrating the use of all life saving equipment and providing safety instructions to your guests before you leave the dock. You must also ensure that guests know how to properly wear and use a PFD or lifejacket and that it is properly sized for the individual. Always read and follow the manufacturer's instructions regarding lifejackets, PFDs and all other safety equipment on board your boat. Pay special attention to the manufacturer's instructions when using an inflatable PFD.

The foam core in a PFD and lifejacket can lose its ability to float you safely, this can be due to effects of the sun's UV rays or simply old age. For this reason always test your equipment prior to the boating season.

Testing for buoyancy

Use the following procedure to test for buoyancy prior to each boating season



1. Put it on and fasten it properly
2. Walk into chest high water
3. Bend your knees
4. Then float on your back and make sure that the device keeps your chin above the water so that you are able to breathe easily. If the device does not float you, replace it!

How to put on a PFD when in the water

In the event of an emergency, knowing how to put on a PFD in the water could save your life! Practice the following procedure in a pool prior to the boating season:

THIS IS NOT AN EASY TASK!

1. Spread the device open with the inside facing up, out of the water
2. Turn the device so the neck opening is facing you
3. Extend both arms through arm openings
4. Lift your arms over your head
5. Position the device around your upper body
6. Roll over onto your back and fasten the device snugly

After trying the above procedure in a warm calm swimming pool you will conclude that it is better to wear a PFD or lifejacket rather than putting it on in the water.

Remember that you, as the operator, are responsible for the safety of the vessel, and persons onboard. You may hear the following excuses for not wearing a PFD *"They are uncomfortable", "I cannot move freely", "They are ugly".* In the past PFDs were uncomfortable. However, with today's technology PFDs are very comfortable and fashionable. They come in various types and colours; use one that is appropriate for the boating activity. Even a very strong swimmer, who falls into very cold water, will be faced with COLD WATER SHOCK and HYPOTHERMIA!

A Life Saving Society study conducted in 2001 concluded that 90% of drowning victims were not wearing a lifejacket or PFD. Lead by example, and always wear a PFD around children. Always don one if you encounter bad weather, dense boat traffic, rough seas, while being towed due to mechanical breakdown or operating at night. Children should wear a PFD or lifejacket at all times when around water.

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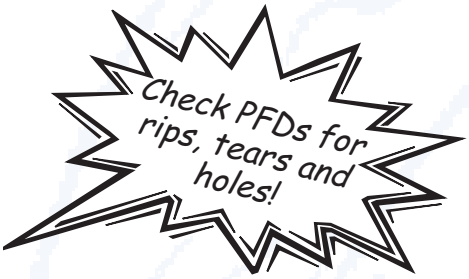
A diaper will affect the performance of a PFD or lifejacket. A PFD is no substitute for adult supervision. Wearing clothing such as jeans, hip waiters, winter jackets or hunting boots will affect the performance of a PFD or lifejacket

Everyone should know how to use them before they need them!



When purchasing a lifebuoy, look for a **Transport Canada approval stamp or label.** For vessels under 20 m in length lifebuoys must be at least 610 mm (24”) in diameter. Safety Of Life At Sea (SOLAS) lifebuoys are 762 mm (30”) in diameter. All must be marked with name of its manufacturer and department number. **Smaller lifebuoys and horseshoe-type devices are not approved.**

Lifebuoy with strobe light attached

Buoyant heaving lines and lifebuoys

Imagine this, you and a friend are out on the water, they lean over the side of the boat to rinse their sunglasses. Along comes a big wake from another boat and POOF your unsuspecting friend falls overboard into very cold water what do you do? Turn the boat around? Yes, but that is not the first thing you should do! The first thing is throw a lifebuoy or buoyant heaving line or any other object that will float. This will give your friend comfort that they will survive!

Heaving lines must be replaced when frayed or chafed. Buoyant heaving line is approved for use as long as it; floats, is in good condition; is made of one full length of rope (not many shorter ropes tied together), is long enough for the boat you will be using, and is used only as safety equipment. Heaving lines should be fitted with a ball or other floating object tied to the end to improve throwing accuracy when recovering someone from the water. Lifebuoys must be replaced when holes or cracks begin to appear or when the grab lines show signs of wear or damage.

A practice drill should be developed to assist you in the event of an emergency.

When throwing a heaving line be sure to hold onto one end! Throwing lines and lifebuoys past the victim allows you to pull the device towards the victim. Store heaving lines in an easily accessible location near the stern!

VOYAGE 2 REVIEW

Question #1
Who approves lifejackets and PFDs?

A. The Ministry of Recreational Products
B. Transport Canada
C. Safety Canada
D. The Ministry of Natural Resources

Question #2
How should you clean a PFD?

A. Use soap and water
B. Use javex
C. Use borax
D. Dry clean them

Question #3
What are the available colours for lifejackets?

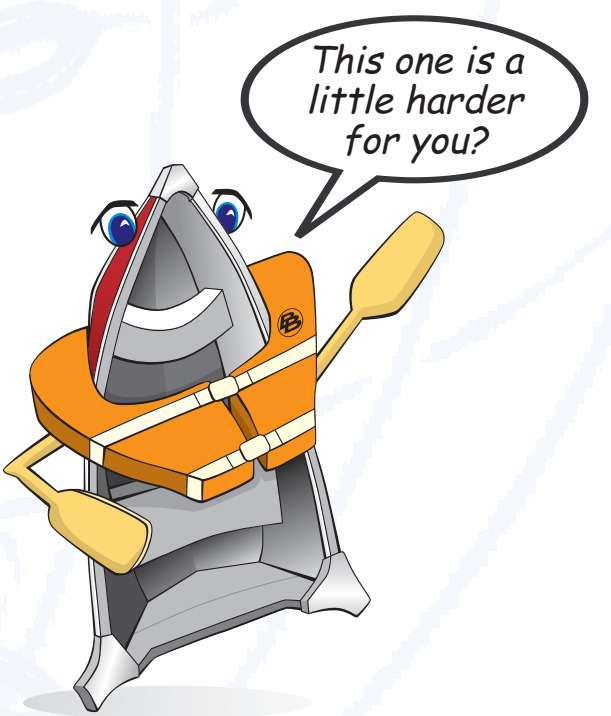
A. Blue, Red or White
B. Orange, Red or Yellow
C. Yellow, Brown or Red
D. Yellow, Red or White

Question #4
How may a PFD or lifejacket be repaired or altered?

A. Use of needle and thread
B. Use of duct tape
C. They can never be repaired or altered
D. The use of a patch kit

Question #5
How should a PFD fit a person?

A. Snug but allow free movement
B. Tight and firm
C. One size smaller
D. One size larger



Answers review 2
1. B
2. A
3. B
4. C
5. A

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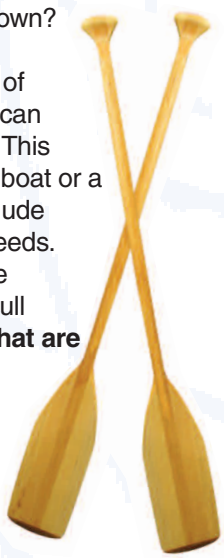
Re-Boarding Device

Swim platform with reboarding ladder

How do you get back onto the boat after a day of swimming or recover a person? A re-boarding device allows someone to get back on the boat who may have been swimming, water-skiing, tubing, or who has fallen overboard. A transom ladder or swim platform ladder meets this requirement. The lower end of the motor (propulsion system) does not meet the standards. Though a piece of rope or chain tied to opposite cleats on the transom will suffice, it is not very accommodating. For their purpose a re-boarding ladder is a relatively inexpensive item to purchase. When re-boarding TURN THE ENGINE OFF even a propeller that is not in gear may continue to spin!

Manual propelling devices

What do you do if the boat quits due to lack of fuel, an electrical problem or mechanical breakdown?



A manual propelling device can be a set of oars, paddles, or anything that a person can operate by hand or foot to propel a boat. This includes the rudder on a small open sail boat or a paddle wheel on a paddleboat. Uses include paddling, pushing off rocks and out of weeds. They can be used to knock weeds off the propeller and in an emergency; to help pull someone to the boat. **Paddles or oars that are dried out, cracked or split must be replaced**. To help preserve them, keep them dry and out of the sun when not in use.

Trying to paddle anything bigger than a tin boat or canoe is very difficult, always keep plenty of fuel in the tank and the boat well maintained!

Anchors

What do you do if a storm blows in or the boat breaks down unexpectedly?

Danforth anchor with chain and shackle

An anchor is a device used to prevent the boat from moving from a designated position. Any object can be used as an anchor such as a cement block, a large rock or a bucket full of concrete. What makes a good anchor is **design and weight.**

Anchors can be attached to the anchor rode directly or using a shackle and chain, put it all together and it is called ground tackle. Using a shackle and chain with the anchor does two things. One is it helps prevent the rode from chafing and second it adds weight.

There are many types of anchors on the market. The reason is simple; there are many different types of seabeds.

The **Danforth and Plough anchors have flukes** (pointy ends) that help them **dig into the seabed**, and when a chain is added to prevent the rode from chafing, they become a very effective anchor's.

Mushroom and Fisherman (navy) anchors are very **dependent on their weight** to be effective.

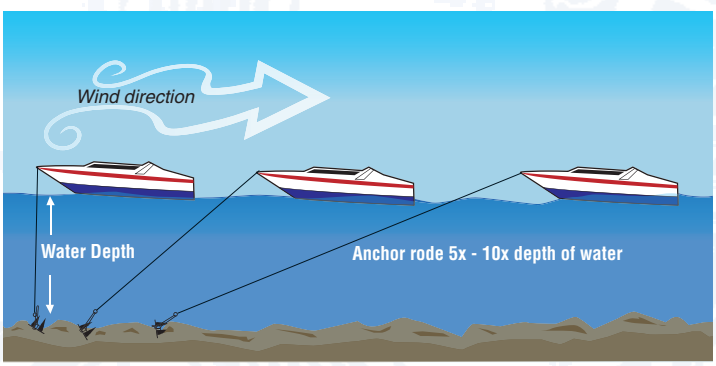
The main purpose of an anchor is to maintain a vessel's position. Dragging an anchor astern can slow a vessel down or help maintain a steady course during a storm. They can also be used to maneuver a vessel in tight quarters; or dislodge a vessel that has run aground (kedging).

Remember to carry at least 15 m of anchor rope on board and to check the chain, rope (rode) and shackles for wear and replace as necessary.

Anchoring

Awww Kurplunk! There it goes.

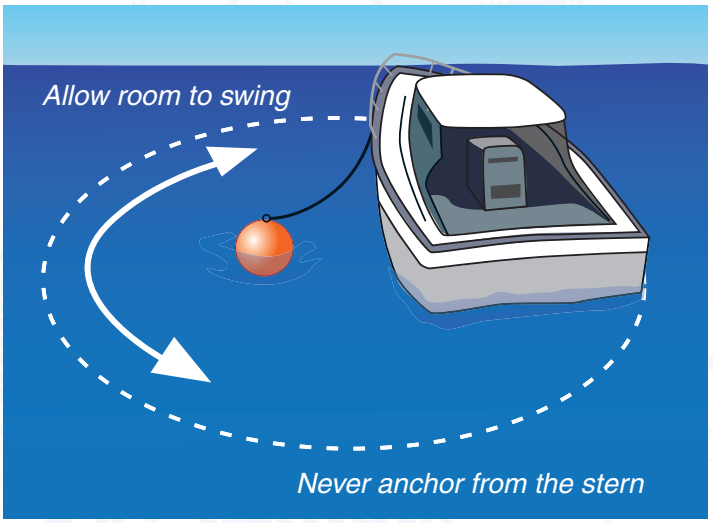
Before lowering the anchor securely **tie one end of the anchor line (rode) to the anchor and the other end of the rode to the boat.**



Dropping anchor is easy; getting it to hold can be a different story. The trick to setting anchor is choosing the right type of anchor for the seabed conditions and paying out enough rode. Choose a location where the wind and water currents are minimal. Keep in mind the boat may swing, so will other boats in the area. The right of swing is given to the first boat anchored.

When setting the anchor be sure to stand clear of the rode and slowly lower; never throw the anchor over the bow. Once it reaches bottom slowly go astern paying out the rode. Pay out between 5 and 10 times the water depth (scope). The more rode payed out the more holding power the anchor will have. Once sufficient rode has been payed out then tie it off to the bow, never the stern. Take two bearings. Periodically check your bearings to see if your position has changed.

Turn on the all round light when anchoring over night or in conditions of poor visibility.



The right of swing is given to the first boat anchored.

You may need to use a larger or sometimes even a second anchor tied to the bow when anchoring in poor weather conditions. When a shackle is used to attach an anchor to the rode, ensure the pin is secured.

When stowing an anchor always ensure that it is secured before getting under way.

Bailer and manual pump

It rained and you left the boat uncovered. How do you get the water out?

Bailers are used to remove water from boat. **Bailers must hold at least 750 ml, have an opening of at least 65 sq. cm (10 sq. inch) and be made of any type of plastic or metal container.**

Home made bailer

You can make a bailer out of a four-litre rigid plastic bottle by following these steps:

1. rinse thoroughly;
2. secure the lid;
3. cut off the bottom

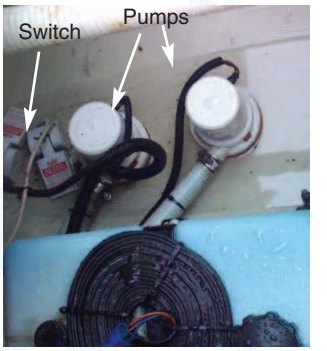
If you have a manual bilge pump, the pump and hose must be long enough to reach the bilge and discharge water over the side of the boat.

Make sure you have a bailer or pump on board and that it functions properly before leaving the dock!

Manual pump

Bilge pumping arrangements (electric)

Water in the bilge can be the result of rain, a loose fitting through the hull or a missing drain plug.



If not dealt with immediately, it will lead to flooding, capsizing, sinking or just plain wet feet! When water is found to be accumulating in the vessel, bail it out and determine the source!

Automatic bilge systems remove water that has collected in the bottom of the boat. They are no substitute for closing all hatches, ports and making the boat watertight. Pumps will burn out and batteries may run dead when too much water has accumulated in the bilge area.

Should the bilge pump motor hum but not pump water, check for blockages at the strainer located under the pump or the hose exiting the boat.

Returning to the vessel after a heavy rainfall the bilge pump may have run long enough to flatten the batteries, or burn out the pump motor. Always carry manual bailers!

Always check bilge pumping components for proper operation prior to and during the boating season!

Fire extinguishers

Although not all boats are required to carry a fire extinguisher, it is highly recommended that you do so.

If equipped with an automatic extinguishing system, you are still required to carry the appropriate number of portable fire extinguishers on board as per the regulations.

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All fire extinguishers **must be of the approved type** and bear an approval label:

In Canada, they are approved by Transport Canada,

Underwriters Laboratories of Canada (U.L.C.) and the United States Coast Guard.

In the U.K. they are approved by the British Department of Trade.

Fire Extinguishers are classified by letters and numbers according to the type and size of fire they can put out.

Type "A" - is for combustible solids like wood, paper, bedding, etc.

Type "B" - is for flammable liquids such as gasoline, oil or flammable cleaners

Type "C" - is for electrical fires

The number is a measure of the capacity of the extinguisher. The larger the number, the greater the capacity of extinguishing material contained in the extinguisher.

Remember P.A.S.S.

P. Pull pin
A. Aim at the base of the flames
S. Shoot
S. Sweep side to side

Depending on the class of the fire extinguisher it will be filled with Foam, Carbon Dioxide Gas or Dry Chemicals.

They should be inspected, replaced or recharged as needed. To prevent packing or caking, fire extinguishers containing dry chemicals should be shaken once a month.

Read and understand the instructions on your fire extinguisher(s). If a fire starts, you should be prepared and act swiftly.

Axes

Axes are used for firefighting purposes or cutting the tow rope when the vessel being towed is in danger of sinking.

Keep them sharp, handy, and sheathed.

Fire buckets

The name says it all but they must have a capacity of 10 L or more, be made of metal with a round bottom and a hole in the centre, be painted red and be fitted with a lanyard of sufficient length to reach the water from the location in which it is stored.

Marine VHF radio and GPS

How do you call for assistance when on the water? A VHF (very high frequency) marine radio is the best way of communicating between two or more vessels when on the water. It can be used to find the location of a marina, friend, fishing buddy, monitor the weather, revise a sail plan or in the case of an emergency, send out a distress signal.

CHANNEL 16 IS FOR EMERGENCY CALLING OR FIRST CONTACT AND IS NOT FOR ROUTINE CONVERSATION AND IS NOT TO BE USED AS A TELEPHONE!

The main purpose for a VHF radio is for sending, responding to, and relaying MAYDAY calls.

Always speak smoothly and calmly. Do not use profane or slang language. Remember it is open to the public. This means anyone with a VHF radio can hear your call for assistance.

ROC (Maritime)

Currently, all VHF marine radio operators must have a **Restricted Operator Certificate Maritime (ROC-M)** to obtain this license contact Industry Canada.

VHF Operation

The basic operation procedure is, tune to channel 16, squeeze the microphone button and speak. When you have finished talking, let go of the button.

Knowing the VHF language sets the standard for spelling words and pronouncing word phrases.

A - Alpha	K - Kilo	U - Uniform	0 - Zero
B - Bravo	L - Lima	V - Victor	1 - Wun (One)
C - Charlie	M - Mike	W - Whiskey	2 - Two
D - Delta	N - November	X - X-ray	3 - Tree (Three)
E - Echo	O - Oscar	Y - Yankee	4 - Fower (Four)
F - Foxtrot	P - Papa	Z - Zulu	5 - Fife (Five)
G - Golf	Q - Quebec		6 - Six
H - Hotel	R - Romeo	. - decimal	7 - Seven
I - India	S - Sierra	(point)	8 - Ait (Eight)
J - Juliet	T - Tango	. - (full) stop	9 - Niner (Nine)

Pleasure craft operator card

MAYDAY - I need help
Go ahead - Proceed with your message
Affirmative - Yes or permission granted
Over - I am done talking I am waiting for you to speak
Out - I am done talking and no response is expected

You should **conduct a radio check before heading out,** hail the Coast Guard on one of their working channels (26) or listen for a conversation on a working channel, wait for a break in the conversation. Then repeat the words, radio check 3 times and wait for the reply, "you are 5 by 5" meaning you are coming in loud and clear. A response of "1 by 1" means the signal is very weak and you are not coming in clear. Regardless of the response at least you know you can be heard. After concluding all conversation return to channel 16.

Non-emergencies

Running out of fuel is the number one reason for assistance. If you run out fuel or experienced a mechanical breakdown but are not in immediate danger, use channel 16 to make contact with the Coast Guard, state the name of your boat, its position, and the type of help you need.

If you hear the words "Pan Pan" it means:

Urgency: A condition concerning the safety of a vessel or of someone on board or within sight, but which does not require immediate assistance.

To make a non emergency call use channel 16 and repeat the name of station, boat, person being called, three times. The words "THIS IS", spoken once. Then say "OVER". Once answered suggest a working channel (any other channel except 70)

If you hear the words "Securite Securite" it means:

Safety: An indication that the station calling is about to transmit a message concerning the safety of navigation or important meteorological warnings. I.E a ship is leaving port or floating debris that may present a hazard to boaters or a rapid change in weather.

Emergency calling

A condition of being threatened by grave and or imminent danger and requiring immediate assistance. When you hear a mayday you must respond!

To make an emergency call use channel 16 and say "Mayday"—"Mayday"—"Mayday."
Then give the name of your boat, its position, the nature of your problem and the type of help you need. Before you report your position you must know your position, just one more reason to use charts, compass, GPS and local landmarks (dead reckoning). Entering *16 on a cell phone is also an option to call for help. Boaters should beware that cell phone coverage on the water is sporadic at the best of times and not all cell phone providers offer the (*16) service linking boaters directly with Marine Communication Traffic Service (MCTS) Centers. Boaters are wise to test the *16 option or contact their service provider to ensure that *16 service is available prior to heading out on the water.

Important VHF channels

- Coast Guard monitors channel 16
- Most marinas in Canada monitor channel 68 and will not respond to calls received on channel 16 unless it is an emergency!
- British Columbia marinas monitor channel 66

Weather channels

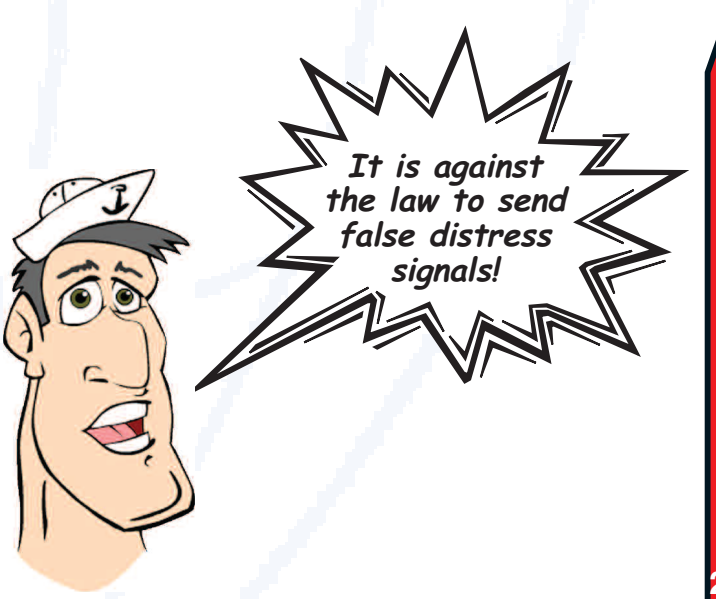
When operating in areas with commercial vessels, listen to the Vessel Traffic Services (VTS) channel 11 and 12. VTS provides information on commercial vessel movement.

For more information on VHF channels visit:
www.ccg-gcc.gc.ca

Digital Selective Calling (DSC)

Digital Selective Calling (DSC) is an internationally recognized standard that operates on channel 70 of the VHF maritime mobile band. The important safety feature of VHF radio equipped with DSC is that it allows a vessel in distress to transmit a rapid distress alert at the push of a button. When connected to a global positioning unit (GPS) receiver equipped with DSC, the distress alert will also send the coordinates of the vessel in distress. Channel 70 is only available on VHF-DCS equipped radios. DSC is part of the Global Maritime Distress and Safety System (GMDSS).

DSC radios must have a nine-digit Maritime Mobile Service Identity (MMSI) number. These numbers are assigned free of charge by Industry Canada www.ic.gc.ca
Always purchase the best VHF radio you can afford, your life may depend on it.



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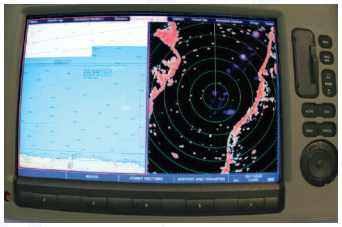
Global Positioning System (GPS)



You are out on the water puddle jumping from one lake to another, you make the turn to head back only to find that the second channel you came through has vanished! Try as you might you cannot see it for the pea soup like fog.
A GPS can help with this dilemma. **When you turn on a GPS, it begins tracking your course.** So all you have to do is follow that squiggly little line on the screen back to the dock.
Of course, plotting your position on charts does the same thing but who has a chart (see charts) for Lake SHARK BAIT WOO-HA HA?
Using a network of satellites, the GOPS can locate your position within a couple of metres anywhere on the earth. It can be used to return to your favourite fishing spot, find a friend on the water or in case of a person overboard mark the location where the person fell off the boat. The most important use for a GPS is plotting your position should you need assistance. Keep in mind that unless it is specifically designed for boating it will not show aids to navigation or navigational hazards such as waterfalls, low head dams, or shipping lanes. When connected to a VHF radio with DCS it will provide search and rescuers your position. In case of electronic failure it is a good idea to keep track of your surroundings using charts, compass and using landmarks such as islands, mountains, etc. (dead reckoning).

A GPS IS NO SUBSTITUE FOR USING A CHART

Always read and follow the manufacturer's instructions before using a GPS.

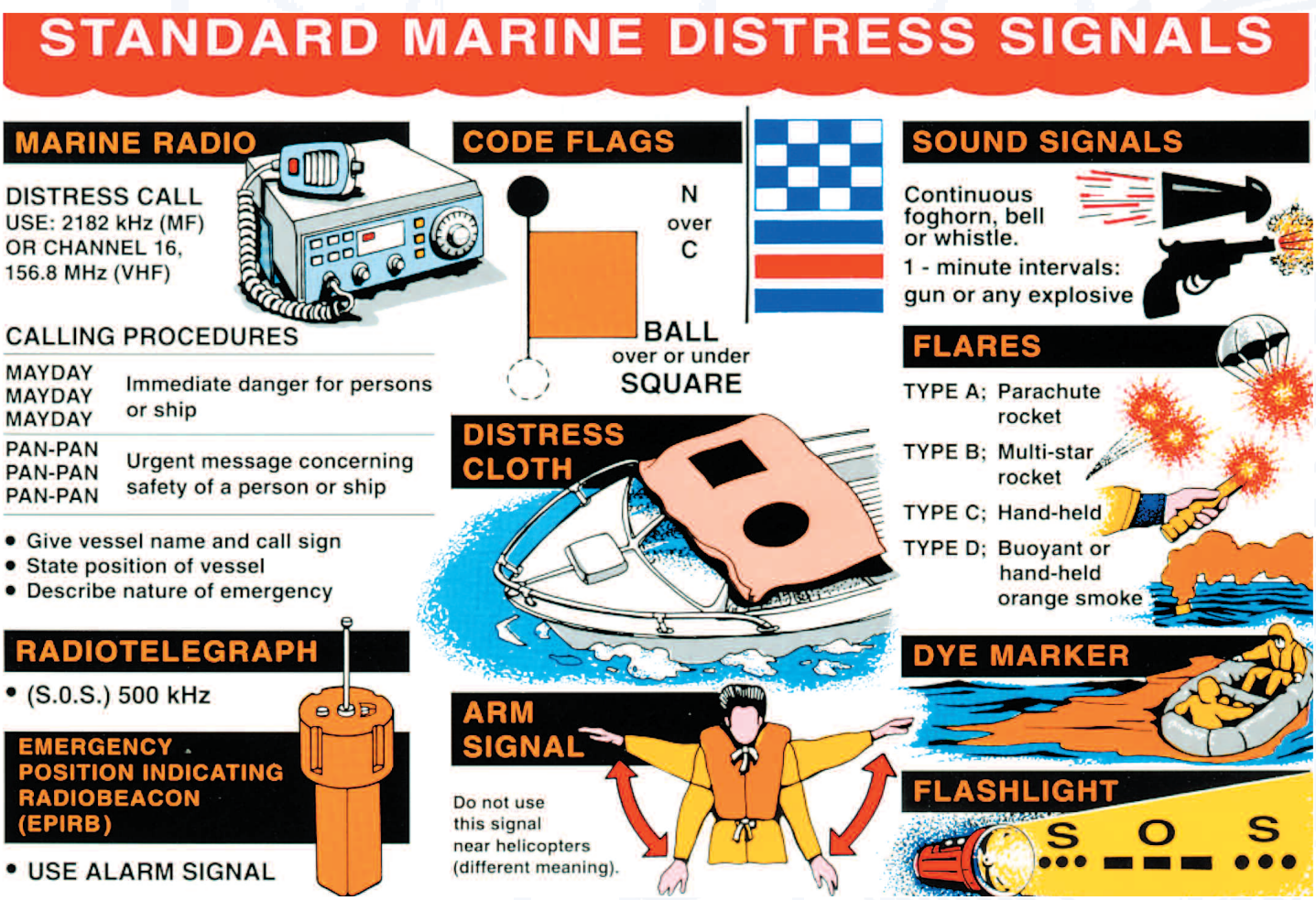
Distress signals

How would you signal your need for assistance?

There are many different ways to indicate the need of assistance such as flames on deck, a mirror, a flashlight, navigational lights, and the horn. Mirrors, lights and sound signalling devices can be used to indicate S.O.S. (MAYDAY) **There are four types of flares approved by the Department of Transport Canada.** They are stamped with a manufacturing date; and expire four years from that date. Do not rely on old flares to work properly.

TYPE A: Parachute flares

Creates a single red star, reaches a height of 300 m (984') and comes down slowly with a parachute, is easily seen from the ground or air and burns for at least 40 seconds.



Pleasure craft operator card

Type B: Multi-Star Flare:

Creates two or more red stars, reaches a height of 100 m (328'1") and each burns for four or five seconds, and is easily seen from the ground or air.

Handheld (Type B flares) notice the date of manufacture 2,10

Some Type B flares project only one star at a time. When using the single star type, two flares must be fired within 15 seconds of each other. This means that you will need double the number of cartridges to meet the requirements.

Type C: Hand-Held Flare:

Is a red flame torch you hold in your hand, provides limited visibility from the ground, is best used to help air searchers locate you, and burns for at least one minute.

Type D: Smoke Signal (Buoyant or Hand-Held):

Creates a dense orange smoke for three minutes, is to be used only in daylight and can be packaged with three flares that last one minute each. Position your smoke signal downwind and follow the directions carefully.

Always read the manufacturer's instructions before using flares. To dispose of out dated flares, contact your local retailer or manufacturer.

- **FLARES ARE NOT TOYS OR FIREWORKS THEY ARE ONLY TO BE USED IN EMERGENCIES**

Emergency Position Indicating Radio Beacons (EPIRBs)

EPIRBs are floating distress beacons. They can be activated manually or automatically in the event your vessel capsizes or is in danger of sinking.

EPIRB

Once activated, EPIRBs send out an electronic distress signal with your position, which can be tracked by satellite and aircraft. This signal is then relayed to rescue centres around the world. Not all vessels are required to carry an EPIRB, but you would be wise to carry one when operating on large open bodies of water. The cost of the EPIRB is off set by the fact that it could save your life!

Always check an EPIRB for cracks and the expiry date of the battery. EPIRB must be registered with the National Beacon Registry @1-877-406-7671 or cbr@sarnet.dnd.ca

Sound signalling devices and appliances

Electronic, electric and compressed air horns, pealess whistles, bells and gongs are all part of sound-signalling equipment that is used for communication when boating.

- A **sound-signalling device** can be a pealess whistle or a compressed gas horn.

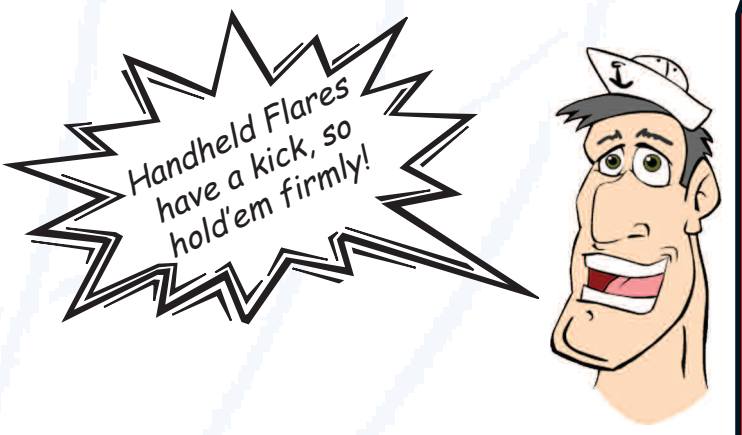
- A **sound-signalling appliances are affixed to the vessel.**

"Whistle" means any sound-signalling appliance capable of producing the prescribed blasts.

Kids are kids, so after a day at the beach check the whistle for sand, pebbles, or other obstructions. Replace them when damaged.

A vessel of less than 12 metres in length is not obliged to carry the sound-signalling appliances provided she carries a sound-signalling device.

Test sound-signalling devices and appliances before heading out on the water.



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Radar reflector

Radar is used to determine the proximity of objects on water, land and in the air.

What radar cannot do is detect objects that absorb or deflect the radar waves. This is why militaries build some modes of transportation using unconventional materials and designs.

Radar Dome

Building materials such as wood and fibreglass are two materials that can absorb radar waves. Steel and aluminium boats will return a radar image, however, if their design is low to the water line they may not return an image. It is for this reason that **vessels less than 20 m, or those made of mostly non-metallic material, must carry a radar reflector.**

Radar reflector

When possible the radar reflector must be mounted at least four metres above the water.

A Radar reflector is not required when:

- The small size of the craft makes it unrealistic to use
- Using the device may jeopardize the boat's safety
- Or is not operating near radar navigation

Keep them in a location where they won't become damaged and remember, bigger is better when it comes to radar reflectors.

Always inspect the reflector before leaving the dock.

Magnetic compass

A magnetic compass is perhaps the most important and reliable instrument on a boat. It provides direction for the helmsmen in all weather conditions and does not require batteries or electricity to function. A magnetic compass works on the magnetism of the earth. Magnetic compasses point to magnetic north. True north is some distance away from magnetic north. The compass housing is marked with a lubber line. The housing contains a round magnetized card suspended in a liquid, the card always points to magnetic north and is generally divided in degrees increasing clockwise by 5 degree increments. When the boat turns the card remains, pointing north. To read a heading simply read the number that is indicated by the lubber line. To reverse course simply add or subtract 180 degrees from your present heading. Example, your heading is 90 degrees. To reverse course add 180 to 90 and your return heading is 270 degrees. To caculate a reverse heading of 270 subtract 180 and your reverse heading would be 90 degrees. The rule of thumb for caculating a reverse heading is when your heading is more than 180, you subtract 180, when less than 180, you add 180. Whether held level in your hand, on land or water, **a compass will provide you with a directional heading. Due to the nature of a magnetic compass it can be influenced by belt buckles and other metallic items such as a fishing knife, or things like wiring, speakers, radios and other electronic devices. Keep them at least three feet from wiring when possible.** If this is not possible make sure the wiring is tightly twisted in pairs of positive and negative; doing so will help reduce the magnetic field produced by wiring.

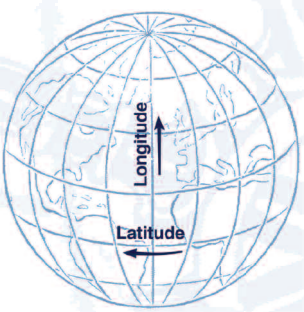
Keep electrical and metal objects away from the compass

Sun and salt water spray are harmful to a compass. The sun may make the card brittle and salt water spray may etch the dome. Clean with mild soap and water, never use abrasive cleaners. Cover when not in use. Prior to leaving the dock, check that the compass moves freely.

Note:
Deviation: the boat's possible magnetic influence on the compass and variation: the magnetic geographical location of the boat can also affect a compass. Compass error can be corrected by a qualified professional.

Nautical charts and topographical maps

You decide to be adventurous and plan a cruise to an area not previously visited. Where do you find information about the lake, such as the location of a marina for launching, lunch, or gas? Use a nautical chart!



Nautical charts are graphic representations used to assist a skipper in navigating on the water, and locating or identifying marinas, navigational aids, rivers inlets, underwater hazards, shipping lanes, water depth, currents, shoals, sand bars and many other hazards such as low bridges or submerged ship wrecks. The top of a chart is always north and is overlaid with a grid system, called parallels of latitude and meridians of longitude. Also located on a chart is a compass rose that shows true north and magnetic north. Using charts, a compass and or GPS, you can determine position and a heading for a destination.

Units of measurement for depth can be feet, metres or fathoms (6 feet).

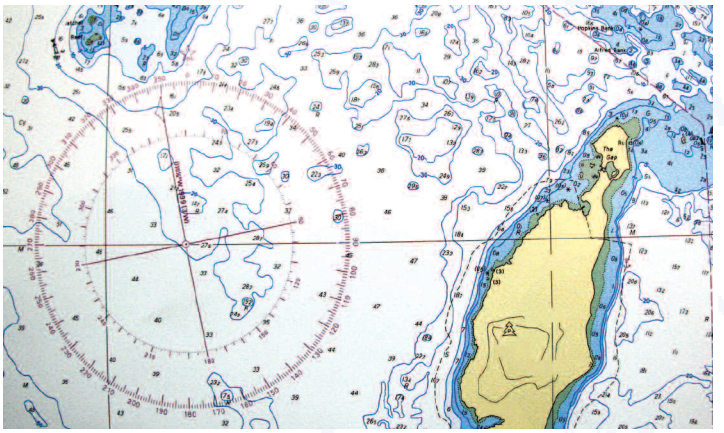
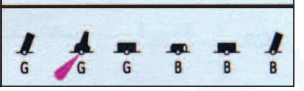


Chart symbols for starboard hand buoy	
Chart symbols for port hand buoy	

Nautical charts are published by the Canadian Hydrographical Service and may be purchased at local marinas. When buying your first chart be sure to get a copy of chart one. **Chart 1** really is not a Chart all, but a booklet that deciphers the chart symbols. Using an outdated chart is very dangerous. Navigational aids such as weather buoys are occasionally repositioned. Meaning a buoy that was in one position last year may not be located in the same position the next year. There is no need to purchase new Charts every year provided they are **updated using Notice To Mariners.** This publication is available online, visit www.notmar.gc.ca

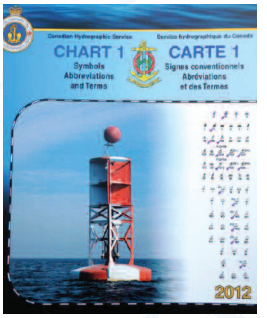


Chart 1

Unless familiar with the navigational hazards and local conditions such as tides, currents, ice and weather patterns, the following documents must be carried on board:

- The most recent edition, largest scale chart available
- Sailing directions, published by the Canadian Hydrographic Service
- Notices to Mariners, used to update charts
- Tide and current tables, published by the Canadian Hydrographic Service
- A list of lights, buoys and fog signals published by Fisheries and Oceans
- If fitted with radio equipment, Radio Aids to Marine Navigation

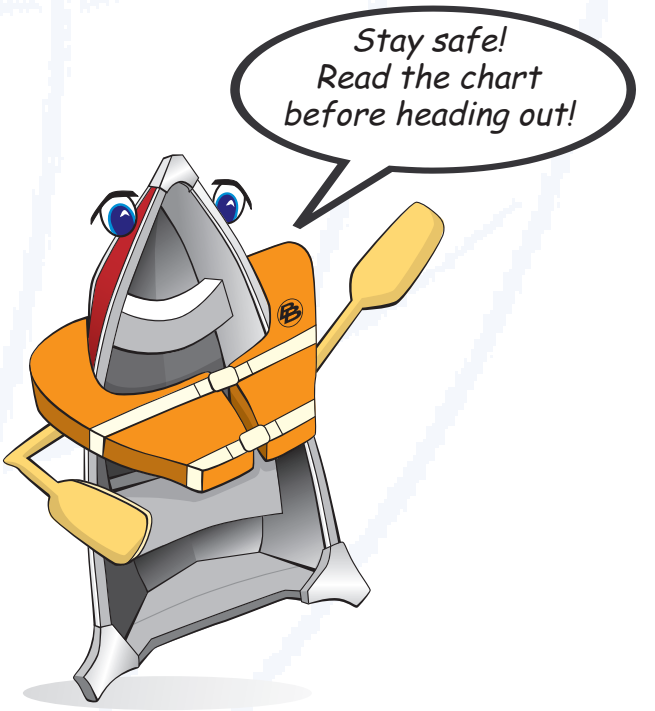
For storage purpose, charts may be folded or rolled up and kept in a dry location. Skippers are well advised to plot courses and refuge from weather before heading out on the water. Note that not all waters are charted.

Note: *Parallels lines of latitude run east, west*
Meridians of longitude lines run north, south

Among other details, charts show bridge clearance

Topographical maps

Topographical maps are to land, what charts are to water. Used for travelling on land, they show natural and artificial features of the land that are higher than water including elevation, roads, houses, cottages and other buildings. They also depict contours of shorelines, however water depth, navigational aids and water hazards will not be shown! They are published by Natural Resources of Canada www.maps.nrcan.gc.ca and can be used for general reference only where there are no charts available.



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VOYAGE 3 REVIEW

Question #1
What is the minimum length for a buoyant heaving line?

A. 20 m
B. 10 m
C. 6 m
D. 15 m

Question #2
A compass provides:

A. Time
B. Direction
C. Radio signals
D. Water temperature

Question #3
What VHF channel is used to send distress calls?

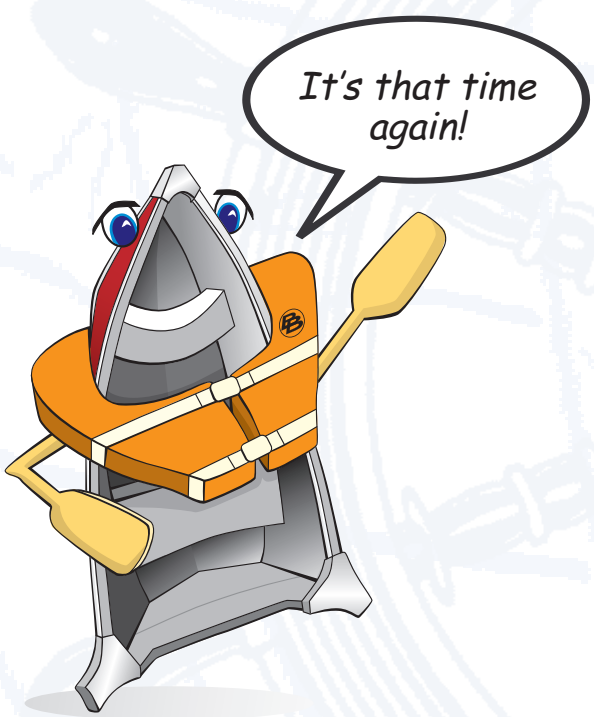
A. 12
B. 16
C. 70
D. 15b

Question #4
Nautical Charts indicate:

A. water depth
B. aids to navigation
C. land elevation
D. both A&B

Question #5
When do flares expire?

A. 1 year after date of manufacture
B. 4 years after date of manufacture
C. 5 years after date of manufacture
D. 6 years after date of manufacture



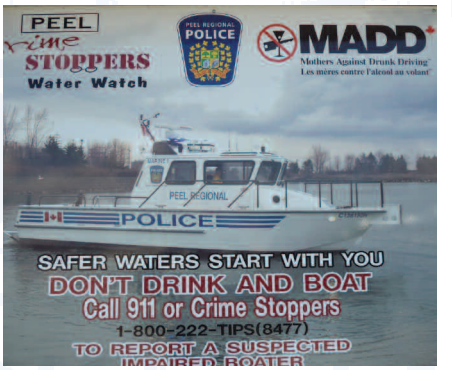
Answers review 3
1. D
2. B
3. B
4. D
5. B

Effects of the environment

The motion of the water can affect your balance, coordination, response time, eyesight, hearing, reflexes, judgement and the ability to enjoy a day's outing. The combination of wind and waves can cause sea sickness, which will affect motor skills and one's ability to think clearly.

Humid or hot sunny days can cause sunburn, dehydration, fatigue, sun and heat stroke. Drink plenty of water, wear sunscreen and appropriate clothing. White clothing and hats are a good way to stay protected. A cool breeze can cause hypothermia, wind chill or wind burn. Wear warm, dry clothing and cover up with a wind breaker. Also know that the noise from rumbling engines can produce a headache and cause irreversible hearing loss.

Alcohol



The use of drugs and or alcohol can and will cause the same effects as the motion of the water, and may have unfavourable effects on anyone who is on board or in the vicinity of your boat. They can alter your sensitivity to pain, field of vision, tolerance to sunlight, resistance to glare from the sun, and ability to tell one colour from another. Balance, coordination and judgment can also be affected. **Alcohol also causes DEHYDRATION.** All of the above mentioned can reduce your ability to operate a boat in a safe and responsible manner not to mention avoid collisions.

*

A Canadian Red Cross report stated that alcohol consumption is responsible for 40% of all boating accidents and that 66% of people admitted consuming alcohol while boating. It does not matter that you have one beer, one shot of liquor or one glass of wine. The fact is you are putting other people and property at risk!

Operating a boat while impaired is illegal!
Laws regarding transporting or consuming alcohol vary from province to province, for more information on alcohol and boating check with you local and provincial authorities.

Fatigue

Many people do not realize or foresee that the gentle rocking motion of the boat caused by the water causes the body to flex its muscles so that it can maintain its balance. These little muscle flexes will cause a person to become fatigued over the course of the day.

Physical exercise such as tubing, water-skiing or operating a PWC will increase the rate at which fatigue sets in. The consumption of alcohol or lack of fluid intake such as water will also increase the rate that fatigue sets in.

Symptoms include:

- Weakness of the muscles
- Lack of energy
- Tiredness, exhaustion
- Passing out or feeling as if you are going to pass out
- Palpitations (feeling your heart beating)
- Dizziness
- Vertigo
- Shortness of breath

Many causes of fatigue can be treated with rest, to keep safe always take turns at the helm while boating.

Boat handling and manoeuvrability

A common mistake novice operators make when they get into a boat is to immediately punch the throttles to full ahead! This mistake can result in serious injury or death! Before embarking on a journey, the operator should become familiar with the boats handling characteristics and the area that will be travelled.

Steering

The larger the vessel the more distance it will require for turning.

Always keep your hands on the steering wheel or tiller handle when underway!

Failure to do so may result in the boat turning abruptly, tossing persons out of the boat. Once in the water the boat may continue to circle your position known as the **CIRCLE OF DEATH!**

Stopping

Freighters like this one need a few kilometres to come to a dead stop.

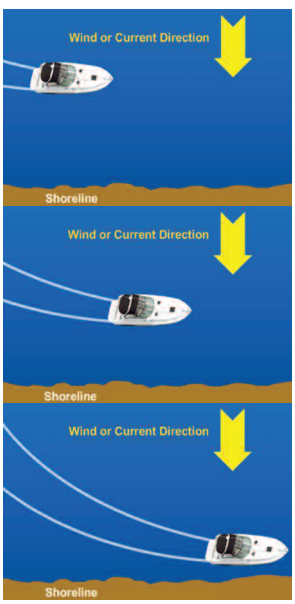
Boats do not have brakes. The only way to stop a boat is to shift to neutral then ease the shifter into reverse. The more they weigh and the faster they go, the more stopping and turning distance they need.

Weight

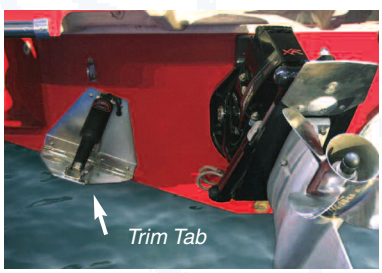
The more a boat weighs, the more it takes to bounce and toss it around on the water and change its track (direction).

Wind and currents

Wind and current will affect the boat's manoeuvrability at slow speed (docking) more than at high speed. Always check that the wind or currents have not pushed you off course, particularly in a channel or river where you may run aground.



Trimming (levelling) a boat



Trimming a boat under way is accomplished using motor trim and or trim tabs. When the motor is trimmed out the bow will rise. Trimming the motor in will lower the bow. Trim tabs adjust the boat's list (right and left balance).

To minimize the use of trim tabs when underway, guests should remain seated ensure gear is stowed securely and both must be distributed evenly. Carefully adjust the trim to match water conditions.

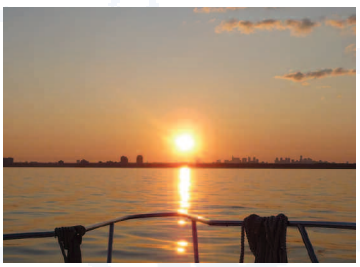
Whether operating a PWC, or a large cruiser equipped with pod steering and twin screws, take your time and get the feel of the boat's handling characteristics.

Practice boat handling skills by throwing a lifejacket, hat or fender overboard and see how close you can dock to it. This can be used to practice a person overboard rescue too!

Never overload the boat beyond its weight or person capacity rating. Always ensure everyone wears a PFD. Know your limits and the boat's limits. Ensure you are confident with your **skill set** for the planned trip!

Check the weather forecast

Red skies at night, sailor's delight. Red skies at morning sailor take warning!



Just after sunrise Lake Ontario

The weather can change from province to province, city to city, hour to hour. This is why it is important to check the weather forecast for the area, or areas, you are heading to.

Always obtain the current forecast and the long range forecast; you never know when a mechanical break down may occur, stranding you out on the water. When heading to a large body of water, try to get the weather forecast from the previous day. Large bodies of water, such as Lake Ontario, are very susceptible to winds. Even after a day of light winds, large smooth waves (called rollers) may still be present making the water too dangerous for travel. Some lakes have weather buoys located on them. Some buoys may provide wave height, wave speed, water temperature, air temperature and wind speed.
Visit www.ndbc.noaa.gov for current buoy information.

Sources of weather forecasts:

- Personal observations
- Newspapers
- AM/FM Radios, VHF radio
- Television weather channels
- Environment Canada
- Internet

Marine weather forecasts are broadcast in knots

Light winds: . . . . . less than 12 knots (21 km/h or less)
Moderate winds: . . . 12 to 19 knots (21-35 km/h)
Strong winds . . . . . 20 to 33 knots (37 – 61 km/h)
Gale warning: . . . . . 34 to 47 knots (62 – 87 km/h)
Storm warning: . . . . 48 to 63 knots (88 – 117 km/h)
Hurricane Warning . . 64 knots or more (greater than 118 km/h)

High, wispy, white clouds indicate good weather for the next 4 to 8 hrs. The more clouds thicken and the lower they become, the more chance that you will get wet. Sudden wind changes can indicate an approaching squall or rain shower. Remember, the more wind, the bigger the waves, the bigger the waves, the more chance of swamping, capsizing, and sinking! When operating in tidal areas, opposing winds and tidal currents can make for very rough waters.

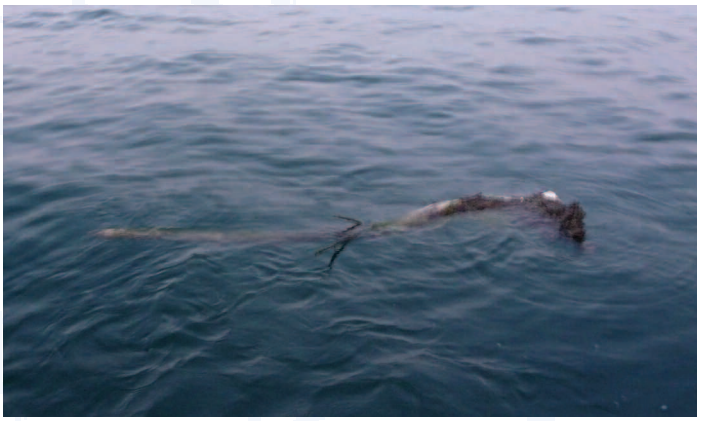
Monitor the weather

Mother Nature can sometimes be unkind to operators. She can whip up a howling wind in a matter of minutes creating rough seas or she can roll the fog in, blinding your direction. She is also responsible for the sudden appearance of waterspouts.

You may have listened to the latest weather forecast via the Weather Network, VHF or FM radio but heat from big cities and the contour of land masses such as mountains and valleys can create localized weather conditions. These same mountains, valleys and other local land features can create a **wind funnel,** which in turn can create a sudden build of waves in the area.

The appearance of dark clouds on the horizon can indicate an ominous storm is approaching and if not heeded, can result in having to deal with sudden winds and a rapid build up of high wave conditions. To avoid the situation, head for home or use a chart and compass or GPS to pick a sheltered bay or inlet to anchor until it passes.

Heavy rains may cause rivers, streams, and creeks to suddenly rise above normal conditions **(flash flooding).**



This 2 m tree limb was washed into the lake after a recent rainfall

The rising waters can cause stronger currents than normal and can send hazards such as docks, trees, tree limbs, and lawn chairs down stream. Boaters are well advised to maintain a proper lookout for these hazardous conditions. When not familiar with the area, talk with people (lodges, campgrounds, hotel operators) in the area about the localized wind, weather and wave conditions. Ask them about other hazards such as rapids, currents or the possibility of shipping lanes.

Handling rough weather

Approach waves at 45 degrees

Rough seas are a relative term. To some, rough seas start at 2 m (6 ft); others may consider knee high waves terrifying. What is considered rough is not the point. The point is that you get home safely. **If travelling in rough water conditions must be done, don lifejackets or PFDs. Have bailers handy and bilge pumps ready, ensure deck drains (scuppers) are clear. Take note of your position and surroundings. Ensure all persons are seated and gear is secured.** Sitting on the bottom of the boat, or as near as possible, is also an option to consider, particularly in small open boats. Close all hatches, ports, change into appropriate clothing, turn navigation lights on and turn off appliances.

Try to avoid running with or ploughing straight into the waves. Running with them (following sea) may allow a wave to come over the stern (the back) resulting in a swamping. Ploughing straight into a wave may result in nose-diving or pitch polling, meaning end over end you go! Instead, take them at an angle of comfort, generally 45 degrees is good. If it is a long treck back home, or to a sheltered bay, use a zig, zag pattern to reach safe haven. To reduce the risk of rolling over, use a minimal amount of turns. Constantly bailing any water that has entered the boat.

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Poor visibility

With less than 30 metres visibility the anchored ship could not be seen!

After the fog let up a bit the ship showed herself.

Always maintain a proper look out!

Even for an experienced boater, being caught blind in the fog, heavy rain or smoke from forest fires can be a trying event. There is no need to panic. Remain calm, turn on navigation lights, proceed according to conditions or consider anchoring until visibility conditions change for the better. Keep a sharp lookout for boats and other hazards. Raise your radar reflector and sound the fog horn. If you have GPS with chart capability, now is a good time use it.

Loading the boat

Ahh! The waves are not that big. Let's go! Out they go,

Improperly loading a boat could result in swamping, capsizing and drowning.

and down she went.

Moving around on a boat is one thing, moving around on an overloaded or cluttered boat is another thing. Tripping over gear can result in bumps and bruises or worse, a fall overboard.

Secure and distribute all gear and persons evenly and as low as possible along the boat's centreline so as not to interfere with the safe operation.

When loading gear into the boat, it is safer to leave it on the dock where it can be reached safely from the boat or passed from a person who is on the dock to a person who is in the boat.

Proper fuelling procedures

Safe fuelling is essential knowledge. Spilled gas or diesel fuel can lead to fires and explosions and harm marine life. The most common breakdown is running out of fuel. Before departing for any trip remember the one third rule: one third out, one third back and keep one third in reserve. Doing so could save your life if the weather turns rough or at the very least save an embarrassing moment.

Before filling the tank verify the fuel type, gas engines don't run on diesel and vice versa.

It's the law!

Before fuelling:

- Know the tank capacity
- If the fuel dock is occupied, stay well clear
- Make sure boat is secured to the dock
- Shut down all engines
- Turn off electrical equipment via the main switch
- Extinguish all open flames
- Do not smoke in fuelling area
- Close all doors, hatches and ports
- Move portable tanks ashore
- All persons must go ashore
- Have fire extinguisher on hand

During fuelling:

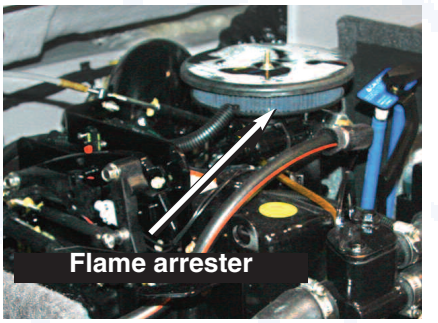
- To prevent static discharge hold the fill nozzle against filler pipe
- Avoid overfilling the tank

After fuelling:

- Clean up any spillage and dispose of rags appropriately
- Open doors, hatches and ports
- Sniff for vapour odours in bilges and cabins
- Run the engine compartment blower for four minutes before the ignition is switched on

Ignition protection

The key is turned and the boat goes boom! Why?



Well it could be because the boat was fitted with the wrong type of electrical component. The construction standards state that **ELECTRICAL COMPONENTS MUST BE IGNITION PROTECTED.** Ignition protected components prevent electrical sparks from igniting fuel fumes and vapors emitted from gasoline, engines, generators and fuel burning appliances.

Many boats use automotive engines that are adapted and fitted with ignition protected parts.

Pre owned boats might have been fitted with standard automotive components which are not ignition protected. To ensure that the boat is safe, it is a good idea to hire a certified marine technician or a marine surveyor to inspect the vessel.

Fuel-burning appliances

On board fuel burning appliances are great creature comforts that add to any day on the water. However if not operated or installed properly can quickly end in a bad day on the water. Gas vapors, leaking propane and butane are heavier than air and will quickly flow into the lower parts of the boat. These gases are hard to remove and are highly explosive. In addition to the following list always turn the exhaust blower on prior to starting the engine or generator.

To use these appliances safely:

- Use only in a well-ventilated area
- Secure portable appliances and heaters so that unexpected movement cannot cause a leak
- Secure gas cylinders and tanks in an area with good ventilation; store them outside on the deck
- Turn all tanks off when not in use
- Always attend to an open-flame heating, cooking or refrigeration system
- Keep flammable materials such as curtains, dishtowels and other combustibles away from the flame
- Use only fuel-burning devices designed for marine use and install as per the manufacturer's instructions
- Regardless, whether you are using a fuel-burning appliance or an electric appliance, do so only on calm waters

Sail plan

What is a sail plan? **It is a document that is left with someone who cares** about you before you leave the dock. What is the purpose of a sail plan? Its purpose is to aid search and rescue personnel in the event you don't make it back home or to a planned destination on time.

Sail plans are also known as float plans or trip plans. They are used to describe the boat's colouring, the number of people on board, departure, return time, destination(s) that are planned, route to be taken and the time of arrival at planned destinations.

Updating the sail plan will prevent a wasteful call to search and rescue personnel.

Whether heading out for a couple of hours or a couple of days always let someone know where you are going and when you will be returning or if plans changed!

Canadian Coast Guard / Garde côtière canadienne

SAILING PLAN

VESSEL NAME AND NUMBER ☐ SAIL ☐ POWER

NAME AND ADDRESS | TELEPHONE

VESSEL SIZE AND TYPE

COLOUR ▶ HULL | DECK | CABIN

TYPE OF ENGINE(S) | OTHER DISTINGUISHING FEATURES

RADIOS AND CHANNELS MONITORED ▶ HF CHANNEL | VHF CHANNEL | CB CHANNEL

LIFE RAFTS | SKIFF DORY OR SMALL BOAT (COLOUR)

OTHER SAFETY EQUIPMENT

FLARES (NUMBER) | LIFEJACKETS (NUMBER) | OTHER

WHERE TO CALL FOR SEARCH AND RESCUE

CALL COLLECT BY DIALING "0" + THE AREA CODE + THE NUMBER

TRIP NO. 1

DATE | TIME | NO. ON BOARD

LEAVING FROM | GOING TO

PROPOSED ROUTE AND TIME OF ARRIVAL

RETURNING ON-DATE | ROUTE AND TIME OF ARRIVAL

CALL SEARCH AND RESCUE AT ▶ TIME | DATE

TRIP NO. 2

DATE | TIME | NO. ON BOARD

LEAVING FROM | GOING TO

PROPOSED ROUTE AND TIME OF ARRIVAL

RETURNING ON-DATE | ROUTE AND TIME OF ARRIVAL

CALL SEARCH AND RESCUE AT ▶ TIME | DATE

TRIP NO. 3

DATE | TIME | NO. ON BOARD

LEAVING FROM | GOING TO

PROPOSED ROUTE AND TIME OF ARRIVAL

RETURNING ON-DATE | ROUTE AND TIME OF ARRIVAL

CALL SEARCH AND RESCUE AT ▶ TIME | DATE

TRIP NO. 4

DATE | TIME | NO. ON BOARD

LEAVING FROM | GOING TO

PROPOSED ROUTE AND TIME OF ARRIVAL

RETURNING ON-DATE | ROUTE AND TIME OF ARRIVAL

CALL SEARCH AND RESCUE AT ▶ TIME | DATE

TRIP NO. 5

DATE | TIME | NO. ON BOARD

LEAVING FROM | GOING TO

PROPOSED ROUTE AND TIME OF ARRIVAL

RETURNING ON-DATE | ROUTE AND TIME OF ARRIVAL

CALL SEARCH AND RESCUE AT ▶ TIME | DATE

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Pre departure check list

Are you up to the challenge of being responsible for the boat and guests from the time you leave the dock until you return? That is the duty of the operator, skipper, or captain of a boat.

Some local police marine units offer a courtesy check program and once completed, will issue a compliance sticker.

Whether heading out for a day trip, an over nighter or an extended cruise being properly prepared for the excursion will go a long a way in keeping the crew happy and preventing an emergency!

Keeping in mind that it is illegal to operate a vessel that is not seaworthy, always give the boat a quick once over before departing, you never know what you might find that is in need of repair until you look!

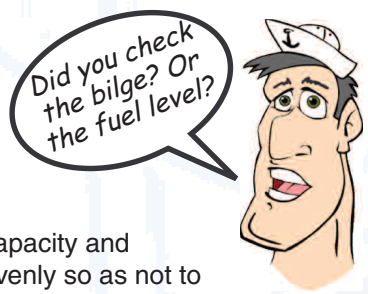
Sample Pre-Departure Checklist:

Weather

Check the latest weather forecast.
When forecasters issue a Strong Wind Warning, 20 – 33 knots (37 – 61 km/h) even experienced boaters stay off the water.

Fuel

One third out, one third back, one third reserve.



Compliance notice

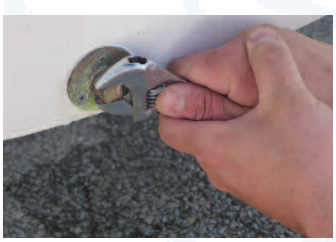
Check the boats gross load capacity and distribute gear and persons evenly so as not to interfere with the safe operation of the vessel.

Safety equipment

Confirm one approved PFD or lifejacket is onboard for each person and all persons wear them.
Check that all mandatory safety equipment is on board is readily accessible and functioning properly.
Check that the first aid kit is onboard and fully stocked.

Outside the hull

Check that the drain plug is in place. More than one trailer and boat has sunk due to a forgotten drain plug.
Check the hull for damage cracks or leaky rivets.
Check all fittings for tightness.



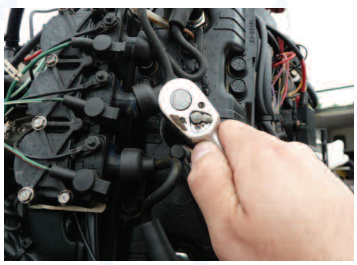
Install the drain plug!

Inside the hull

Check all drains are clear.
Check all bilges are clean and free of debris.
Check all hoses and lines for leaks or cracks.

Motor

Check that the maintenance scheduled has been followed as per the manufacturer's instructions.
Open the vent cap on portable tanks.
Let the engine warm up before departing the dock.



Electrical

Check all gauges and charging system.
Check the VHF radio and other electronics.
Check navigation lights and horn.
Check that CO detectors are functioning properly.

Check the navigation lights before heading out

Tools and spare parts

Check all tools and spare parts are on board.
Wooden tapered plugs, duct tape or other means for slowing and stopping leaks.

Documents

File a sail plan.
Check ownership/registration.
P.C.O.C.
Check tide and current tables (if applicable).
Check ROC (radio operator's certificate maritime).
Check charts for safe harbors and local hazards in the area.
Check the latest information regarding Homeland Security.
Check passport.

Food and clothing

Nutritional snacks and beverages.
Sunglasses, sunscreen, hat and appropriate clothing.

Medication

Seasickness remedies.

Informing Guests, It's the Law!

Bringing guests aboard who have never experienced the thrill of boating can be very rewarding to you as the skipper.

When guests come aboard always ensure that there is one approved PFD or lifejacket for each person onboard.

Remember it is your duty to demonstrate and provide safety instructions to them.

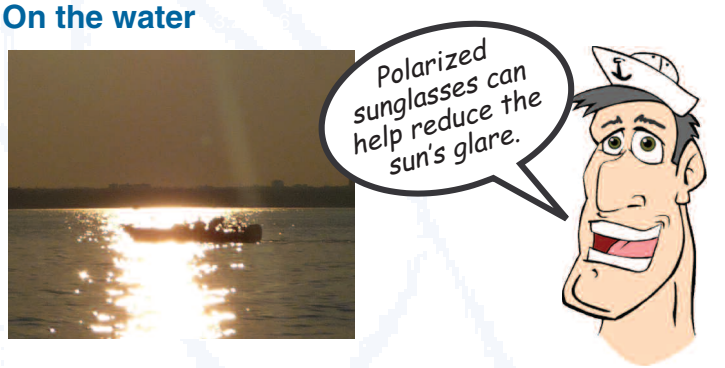
They should also be made aware of their expected roles in the event of an emergency.

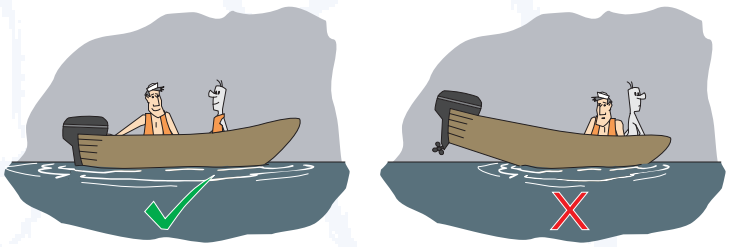
To help facilitate this obligation have guests run through the pre-departure list with you and instruct them regarding the following items.

- **The importance of wearing a properly fitted PFDs or lifejackets at all times.**
- The location of ALL SAFETY EQUIPMENT and how it functions
- How to properly fit and fasten a PFD or lifejacket.
- To read and follow the manufacture's instructions regarding lifejackets, PFDs
- The technique for putting on PFD and or lifejackets when in the water
- The affects of the motion of the pleasure craft, sunlight, waves, wind, sound and alcohol can have on them
- To keep limbs and digits inside the boat, when approaching or leaving a dock
- Not to sit on or lean over the gunwales of the boat
- To remain seated at all times. You never know when the captain might have to make an abrupt course correction!
- Not to sit on pedestal seats, commonly found on Bass Boats when underway
- Listen to the radio for updated weather conditions
- In the event of foul weather, to position themselves on the floor along the centre line of the vessel
- When moving around on the boat must be done, to maintain three points of contact
- The captain of the craft should also explain any personal rules of the boat to guests

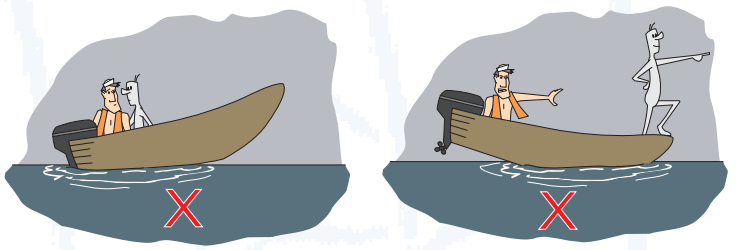
In the event that you become ill or incapacitated, instruct them on the basic operation of the boat, let them drive it and get a feel for it.

On the water





Don't be a rebel. Always wear your PFD and remain seated.



Once underway, check that the boat is properly trimmed. It should ride level port to starboard and stern to bow or slightly bow high. A boat that is loaded port or starboard heavy is in danger of capzing. A boat that is loaded stern or bow heavy is in danger of swamping.

Maintaining a proper look out

Every vessel shall at all times maintain a proper look out by sight and hearing as well as by all available means appropriate. Simply put, the operator must maintain a proper look out and use every available resource available to prevent a collision. Binoculars, radar, a VHF radio and posting a person on the bow of the vessel can assist in maintaining a proper look out.

The operator must keep a sharp look out for vessels in need of assistance and steer clear of water hazards such as:

- Low head dams
- White bubbly water which may indicate the presence of rapids or tidal waters
- Approaching storms or wind funnel that may produce a sudden change in winds and an increase in wave height
- Under water and overhead cables (e.g telephone, hydro, ferry etc.)
- Bridge clearances
- Stonger than usual currents, that may follow heavy rains

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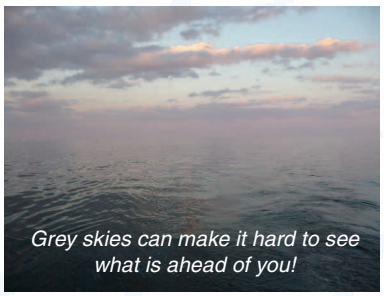
Safe speed

As per the *Collision Regulations*, every vessel shall precede at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.



Grey skies can make it hard to see what is ahead of you!

In determining a safe operating speed, the following factors shall be among those taken into account:

Restricted visibility: conditions such as fog, rain, snow, haze, or smoke from forest fires can restict visibility conditions.

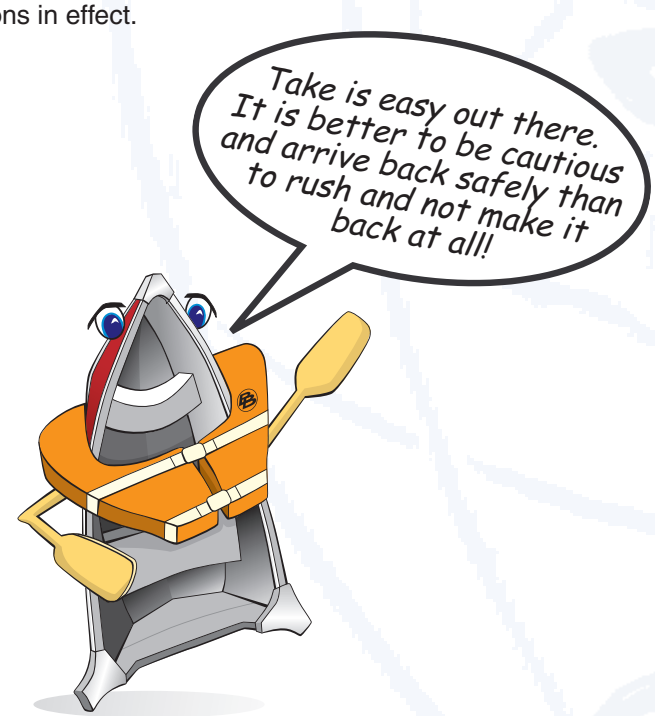
Wind & waves: the more wind the bigger the waves, both can make it difficult to control the boat's manoeuvrability.

Water currents: changing tides and heavy rains can make for stronger currents near and on rivers and canals.

Traffic density: many accidents have occurred at river mouths from lack of respect for the rules of the road. Slow down in areas of dense traffic.

Types of vessels in the area: remember the bigger the vessel is the more distance it will require for manoeuvring and stopping. Consider your own boat's manoeuvrability. How does it handle in close quarters?

Don't forget to check for and comply with any boating restrictions in effect.



VOYAGE 4 REVIEW

Question #1
Alcohol will affect your:

A. judgement
B. your eyesight
C. your balance
D. all of the above

Question #2
What are three symptoms of fatigue?

A. Shortness of breath, weakness, dizziness
B. Red eyes, swollen hands, pale skin
C. Yellow eyes, runny nose, loss of hearing
D. None of the above

Question #3
When fuelling a boat you must:

A. shut down engines
B. avoid over filling the tank
C. clean up any spills
D. all of the above

Question #4
Why should you use a pre departure checklist?

A. To help reduce the chance of breakdowns
B. To help predict the weather
C. To ensure the chart is folded
D. To help find attractions

Question #5
When underway you should stay clear of:

A. strong currents and tide changes
B. navigational storms
C. cat's paws
D. port

Answers review 4
1. D
2. A
3. D
4. A
5. A

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Rules of the road as per *Collision Regulations*

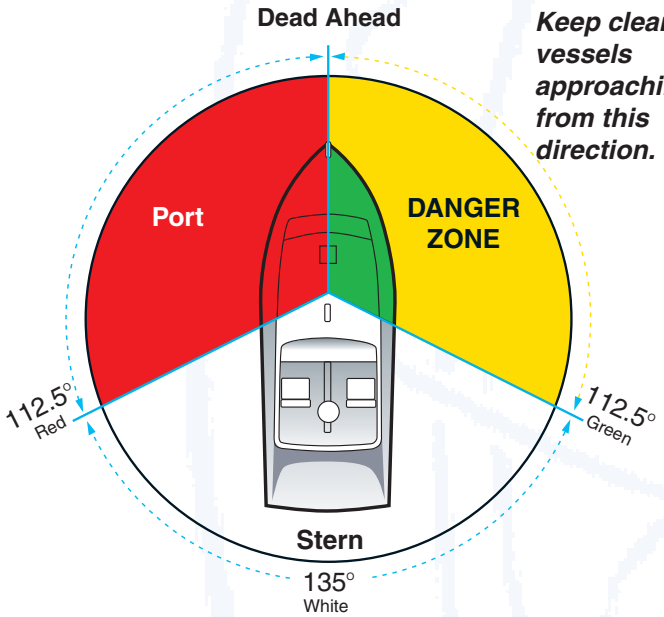
Do you know the rules of the road?

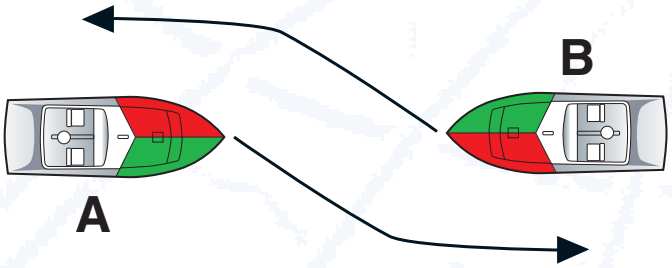
Stand-on vessel is the vessel that maintains course and speed unless it is apparent that the give-way vessel is not altering course, then the stand on vessel must take early and substantial action to avoid collision.

Give-way vessel is the vessel that is required to keep out of the way of another vessel. Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.

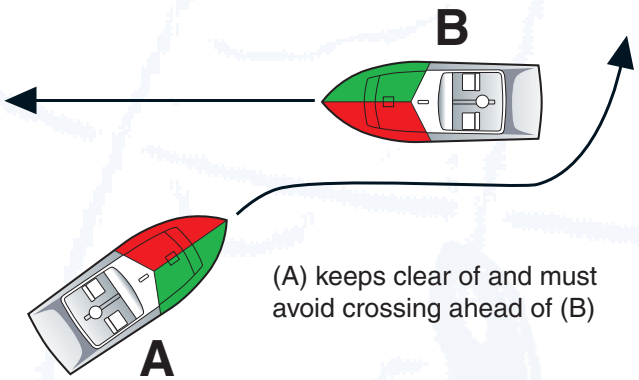
Port is the left side of a pleasure craft when looking forward.

Starboard is the right side of a pleasure craft when looking forward.

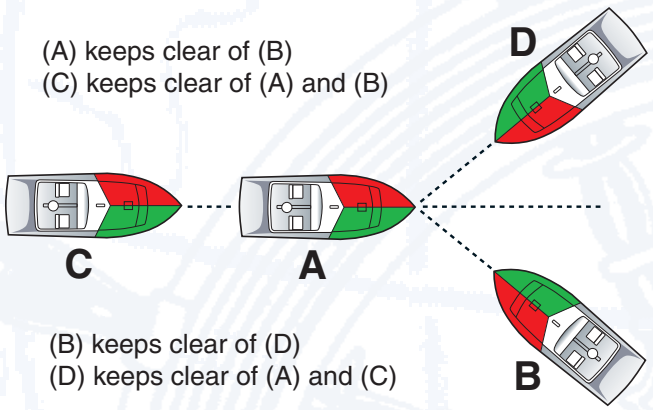




(A) blows one short blast (1 sec.) and alters course to starboard
(B) blows one short blast (1 sec.) and alters course to starboard

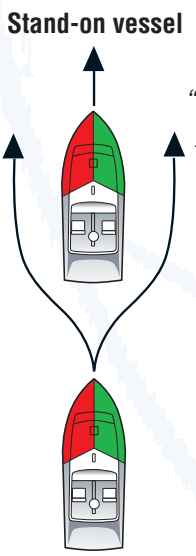


(A) keeps clear of and must avoid crossing ahead of (B)



(A) keeps clear of (B)
(C) keeps clear of (A) and (B)

(B) keeps clear of (D)
(D) keeps clear of (A) and (C)



Great Lakes Rules
"I want to pass you on your port side"
2 short blasts
(1 sec.)

"Procced"
2 short blasts
(1 sec.)

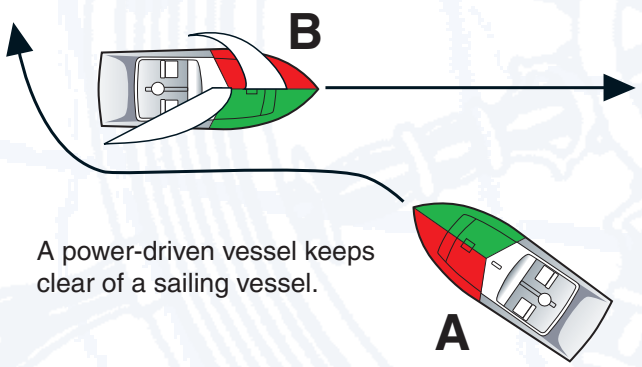
Great Lakes Rules
"I want to pass you on your starboard side"
1 short blast
(1 sec.)

"Procced"
1 short blast
(1 sec.)

International Rules
"I am altering my course to port"
2 short blasts
(1 sec.)

International Rules
"I am altering my course to starboard"
1 short blast
(1 sec.)

The same rules apply to sailing vessels.



A power-driven vessel keeps clear of a sailing vessel.

Collisions between ships and little boats rarely end up with injuries on the big ship. As a **general rule**, small boats should keep clear of big boats. Big ships may look like they are far off in the distance but can travel faster than sail boats. They can be on you faster than you can say “Bob’s your uncle”.

Vessel hierarchy

- Vessel not under command, not making way (i.e. a vessel engaged in a diving operations)
- Vessel restricted in her ability to manoeuvre (the nature of her work restricts her ability to move) i.e. a vessel towing or pushing a barge
- Vessel engaged in fishing (with trawls or nets)
- Sailing vessels
- Power vessel

Notice power vessels are at the bottom of the pecking order!

Stay clear of ferries

Use caution when operating around ferries as **some ferries use submerged** cables to pull them back and forth across the water.

Operating in narrow channels and shipping lanes

- A vessel travelling in a downstream direction or travelling with tidal currents shall be deemed the stand-on vessel
- A vessel shall not prevent the safe passage of vessels following traffic separation schemes
- All vessels shall stay to the outer limits and as far to starboard as safe to do so when operating in narrow channels or fairways
- A vessel shall not cross a narrow channel or fairway if such crossing impedes the passage of a vessel which can safely navigate only within such channel or fairway
- A vessel of less than 20 metres in length or a sailing vessel shall not impede the passage of a vessel which can safely navigate only within a narrow channel or fairway
- No vessel shall anchor in a narrow channel or fairway

Human powered craft

Reduce your speed when passing canoes and other small vessels

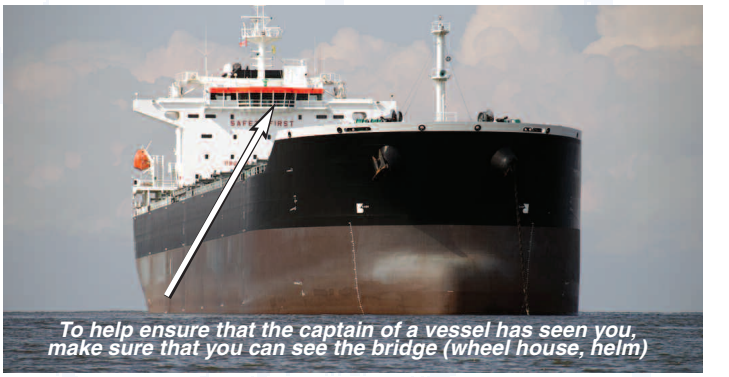
Stay clear of all human powered craft.

Seaplanes

Stay clear of float planes

Technically seaplanes and float planes must give way to other vessels, however if a risk of collision exists then they must obey the rules of the road. Generally speaking, when they want to land they will buzz the surrounding area a couple of times.

Crossing ahead of a large vessel



To help ensure that the captain of a vessel has seen you, make sure that you can see the bridge (wheel house, helm)

Crossing the path of a freighter or other large vessel can be a little intimidating. There is no need to panic, it’s no different than crossing a busy, snow covered street in the fog and heavy rain.

Large vessels have blind spots and will not see you unless you are some distance in front, behind or beside them. Before crossing in front of any vessel, be confident that they have seen you. If needed, use the VHF radio to advise them of your intentions. Hoist a radar reflector if possible; turn on the navigation lights, check the wind, wave and water conditions.

Pick your time and go, do not hesitate, get it done. To help ensure that the captain of a vessel has seen you, make sure that you can see the bridge (wheel house, helm) if you can see them they should be able see you. There are three good reasons that **groups of small boats should cross together.**

- The number one reason for crossing together is it increases the chances that you will be spotted either by sight or radar
- Crossing individually only prolongs the adventure which may lead to a collision
- In case of a mechanical breakdown or other mishap help is immediately available

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How can you determine when the risk of collision exists?

Use the following as an example, draw an imaginary line (take a compass bearing) from the windshield or some other part of your boat to the other boat. When the other boat does not continue to fall behind, or move ahead of the line, a risk of collision exits.

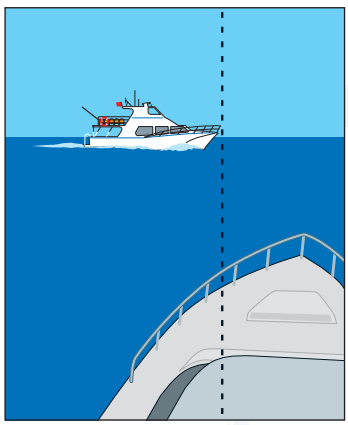


Fig. A
Take a bearing on the approaching vessel.

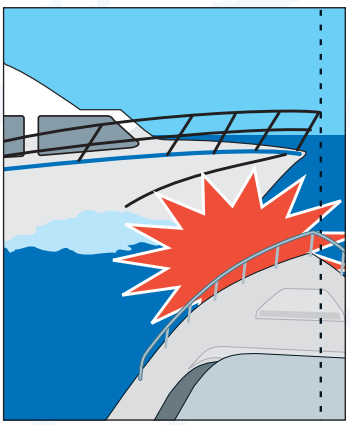


Fig. B
A collision exists when both vessels maintain course and speed.

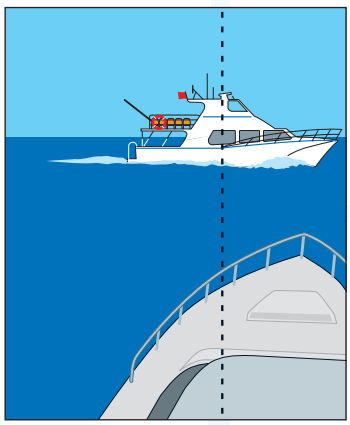


Fig. C
Collision is avoidable provided the vessel continues to move forward of the line.

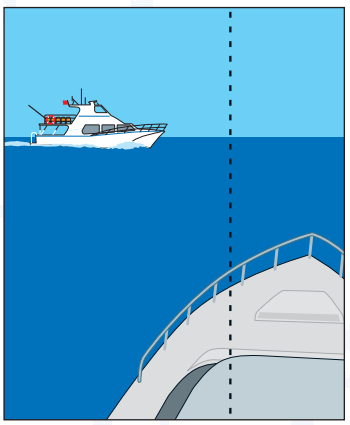


Fig. D
Collision is avoidable provided the vessel continues to fall behind the line..

Accident reporting

Should vessels collide and provided it can be done **without endangering their vessel, crew or passengers**, each shall remain at the scene and **render assistance** to the other and exchange pertinent information such as names, addresses and ownership.

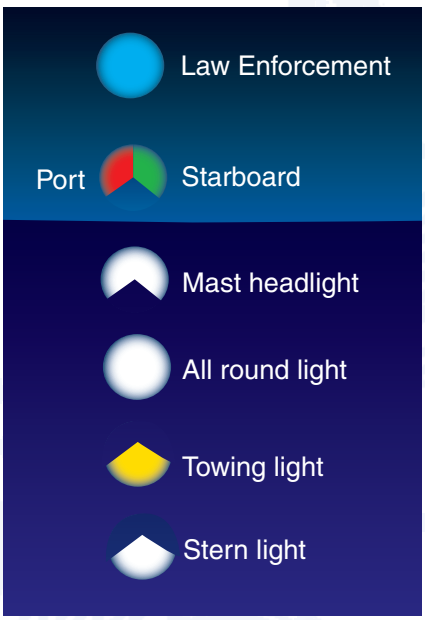
Common sense also dictates that should serious injuries or a fatality occur, authorities need to be informed too.

Should damage occur resulting from an accident, boaters should check with their respective insurance companies regarding additional information that may be required.

Navigation lights as per *Collision Regulations*

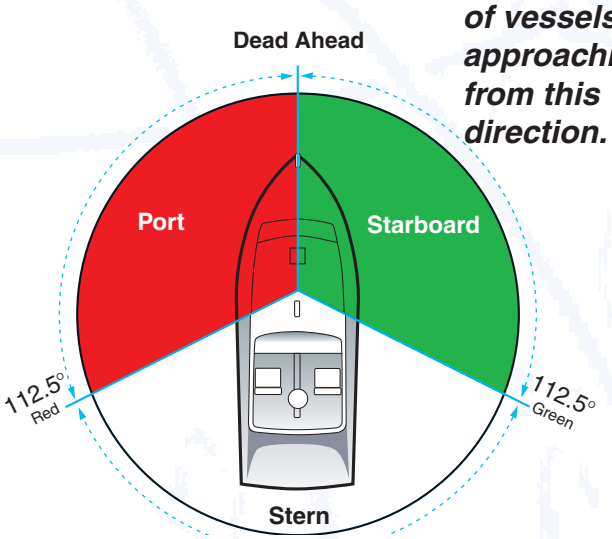
Navigation lights (nav lights), also known as running lights when under way, are **RED, GREEN, and WHITE in colour.** They are used to identify a boat type, size and direction. For the safety of all vessels, navigation lights must be used from sunset to sunrise and in restricted visibility such as fog or heavy rain and may be exhibited in all other circumstances when it is deemed necessary.

Navigation lights must be installed as per Annex 1 and must be bright enough to be visible at appropriate distances based on the length of the vessel as stated in the *Collision Regulations* (Rule 22).



Boaters should ensure all navigation lights are in good working order prior to leaving the dock.

Arc of Lights



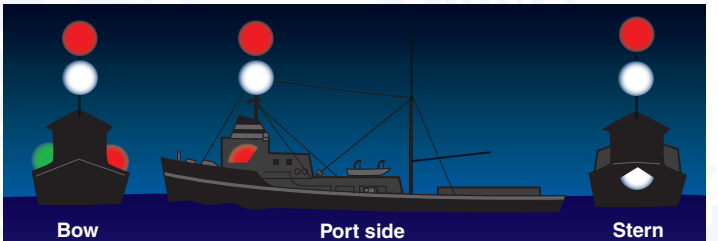
Keep clear of vessels approaching from this direction.

Masthead light means a white light placed over the fore and aft centerline 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

Standard navigation lights are:
RED indicates the port side of a vessel
GREEN indicates the starboard side of a vessel
WHITE can indicate the stern of a vessel or an approaching power vessel or a vessel at anchor
Note:
Vessels under sail do not display a masthead light. Sailing vessels under power must display the same navigation lights as power boats of equal length.

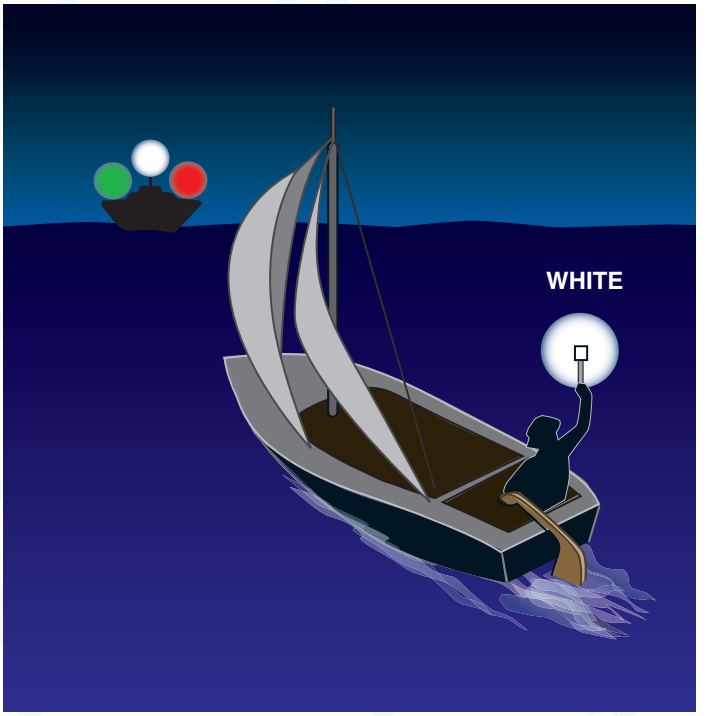
Vessels engaged in fishing, other than trawling

VESSEL ENGAGED IN TRAWLING
In addition to displaying standard navigation lights, vessels engaged in trawling must display an all round green light and an all round white light when underway.

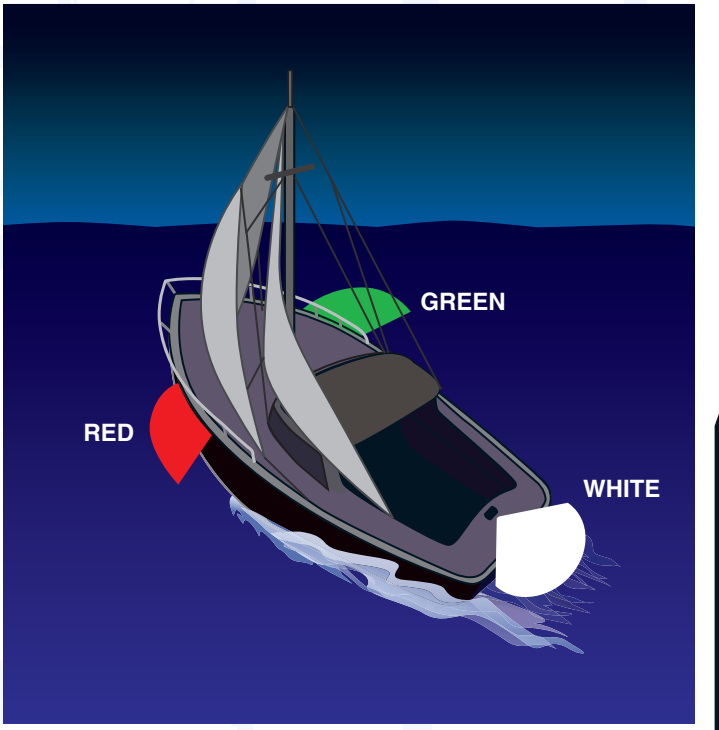


VESSEL ENGAGED IN FISHING, OTHER THAN TRAWLING
In addition to displaying standard navigation lights, vessels engaged in fishing must display an all round red light and an all round white light when underway.

Navigation light options for sail boats



Option 1
Sail boats under 7 m (23') underway may use a flash light or lantern showing a white light provided it is displayed in sufficient time to prevent a collision.



Option 2
All sail boats underway may use the above light configuration.

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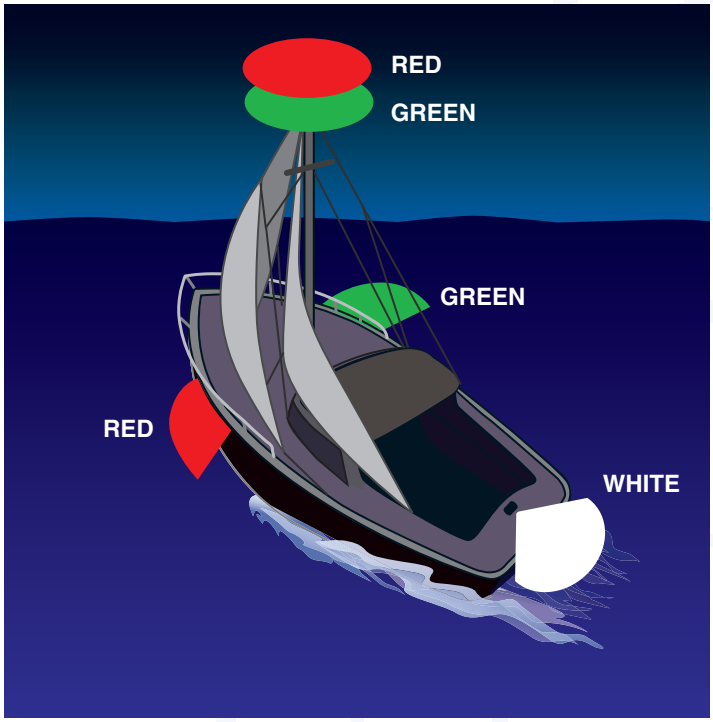
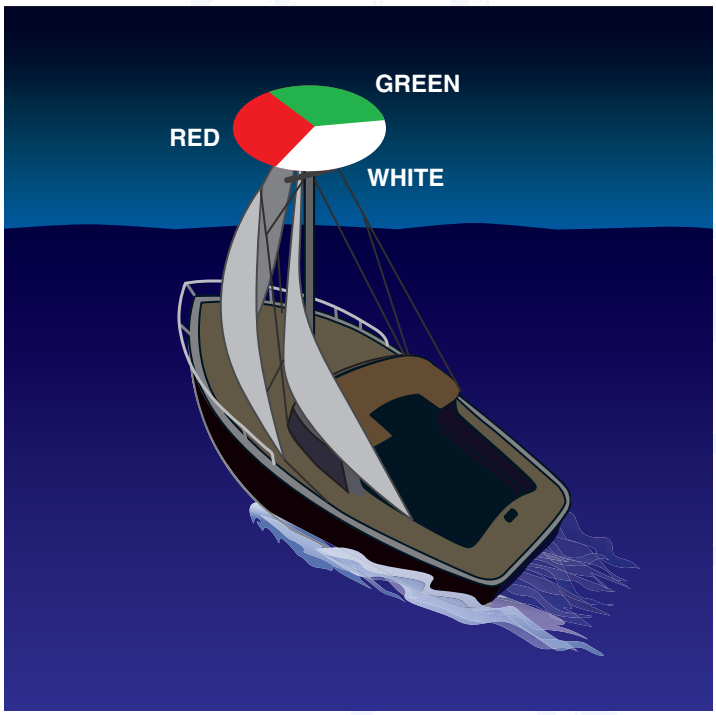


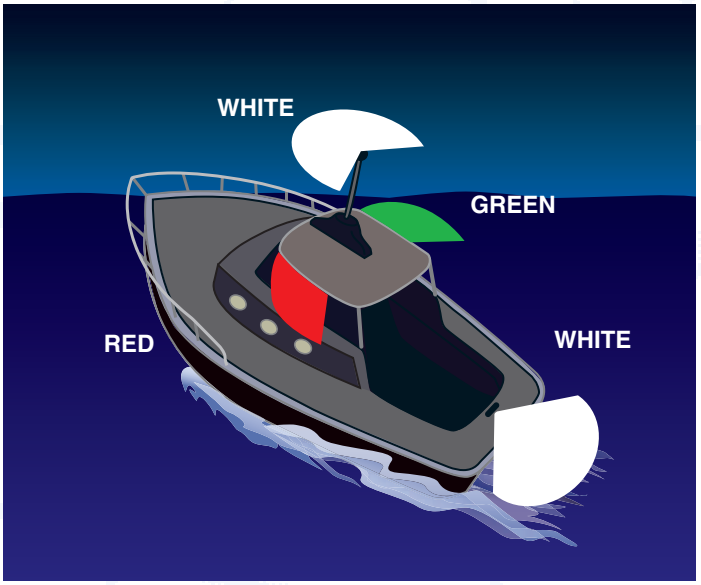
Option 3
Sail boats underway may use the above lights. Under this option you cannot use the combined red, green and white lantern as in option 4.



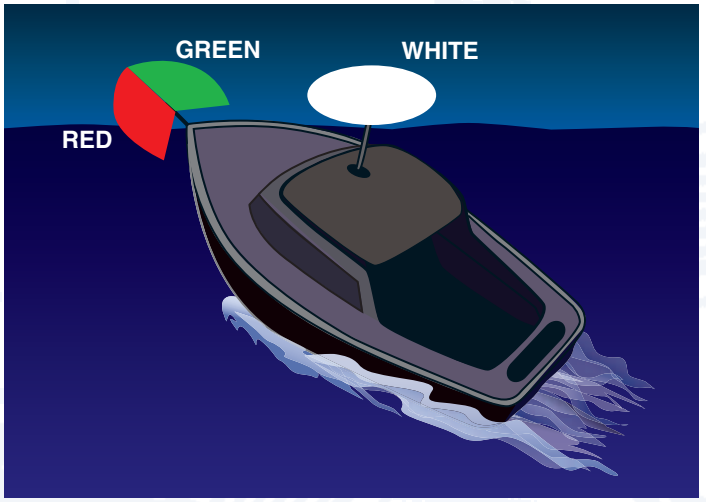
Option 4
Sail boats less than 20 m

NOTE: In Canadian waters a vessel greater than 12 metres in length proceeding under sail when also being propelled by machinery must exhibit a conical shape, apex downwards.

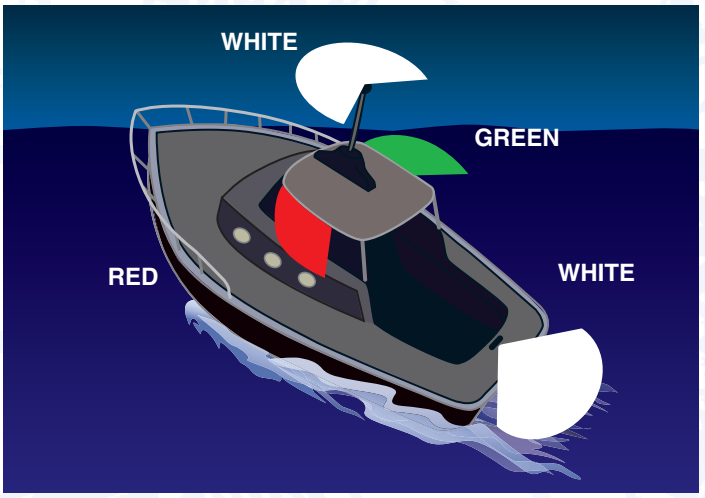
Navigation light options for powered boats



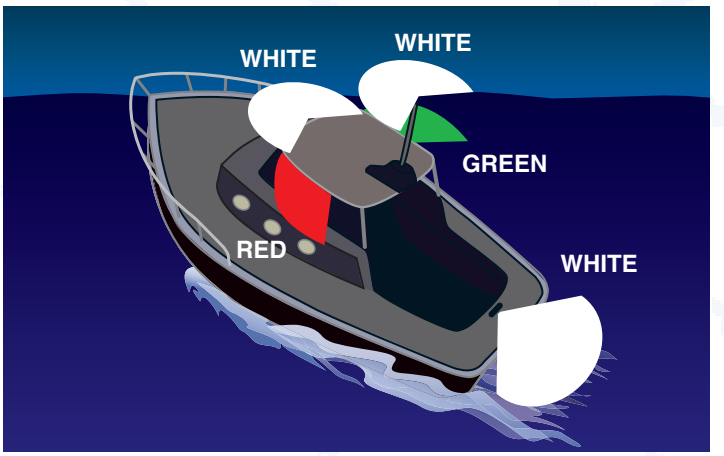
Option 1
Power Boats under 12 m (39'4")
May display a second masthead light



Option 2
Power Boats under 12 m (39'4")



Option 3
Power Boats from 12 m (39'4") to under 50 m (164'1")



Option 4
Under all the power boat options you will notice that Boat is capitalized?

Power boats from 12 m (39'4") to under 50 m (164'1") **may display** a second masthead light.

A power-driven vessel of less than seven metres in length whose maximum speed does not exceed seven knots may exhibit an all-round white light and shall if applicable, also exhibit sidelights.

Navigation lights for human powered craft

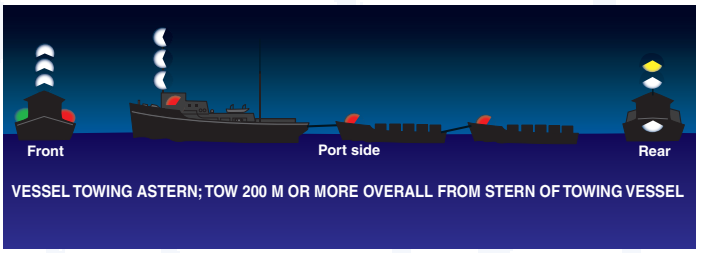
A vessel less than 7 m in length under oars may exhibit sidelights and a stern light, but if she does not, she shall have ready at hand an electric torch or lit lantern showing a white light which shall be exhibited in sufficient time to prevent collision.

To reduce the chance of your wake, capsizing or swamping unstable boats always slow down when operating around these small craft.

Police vessel

Police boats have a flashing blue light as well as standard navigational lights.

Tow vessel

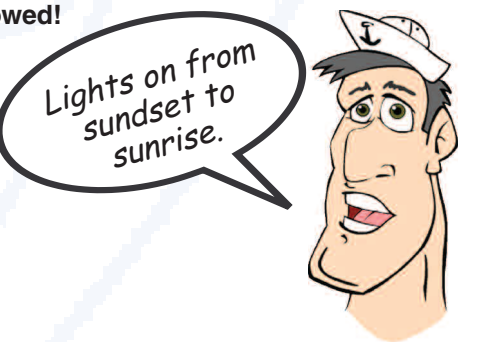


When a vessel is towing or pushing and the tow is less than 200 m (656 feet) bow to stern, the tow vessel shall display sidelights, stern light, and a yellow light directly above her stern light and two masthead lights in a vertical line. When the tow is greater than 200 m (656 feet) bow to stern, the tow vessel shall display three masthead lights in a vertical line.

The object or vessel being towed or pushed may display a flashing yellow or special flashing yellow light in addition to standard navigation lights. Depending on the configuration, the tow vessel and vessel(s) or object(s) being towed or pushed may be identified as a single lit vessel or separate lit vessels.

To prevent a collision with the tow line, the tow line shall be illuminated and made as visible as possible so as to indicate its presence. That being said boaters should also be careful of submerged tow lines not visible to boaters.

Never travel between a tow vessel and the object or vessel being towed!



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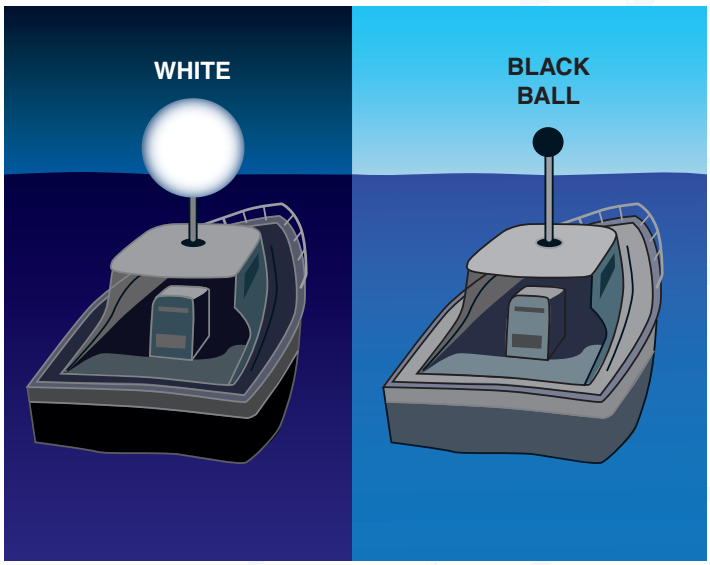
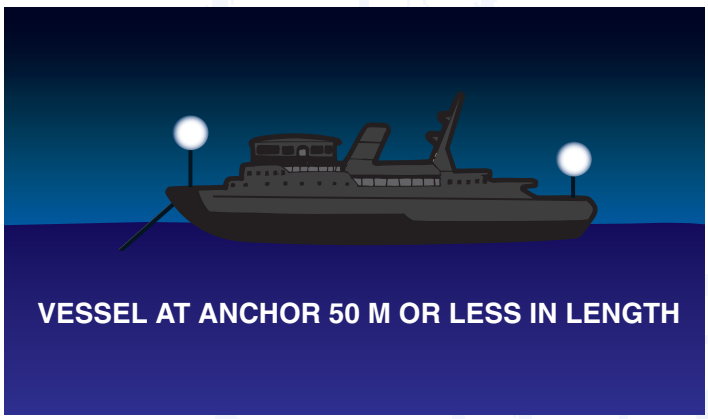
Anchored vessels



Option 1 Anchored vessel less than 50 m

From sunrise to sunset boats less than 50 m (164'1") must display an all-round white light near the front part of the vessel and a black ball during daylight hours.



Option 2 Boats under 50 m (164'1")

Vessel more than 100 m (328 ft) in length shall use lights to illuminate the decks at night.

A flood light may be used to attract attention or to indicate danger but cannot be aimed as to create embarrassment or a nuisance to other vessels.

Sound signals as per *Collision Regulations* # 34

Power vessels - shall sound one prolonged blast every two minutes

As discussed under sound signaling devices, horns, bells and whistles can be used for communication on the water.

The following is a list of sound signals.

"Short blast"- is one second in length
"Prolonged (long) blast" - is four to six seconds in length
One short blast - means *"I am altering my course to starboard"*
Two short blasts - means *"I am altering my course to port"*
Three short blasts - means *"I am operating astern (reverse) propulsion"*
Five or more short and rapid blasts - means "*I don't agree, or danger signal"*

Sound signals in restricted visibility

Vessels less than 12 metres in length must carry signalling device or a sound signalling appliance. Vessels larger than 12 metres must carry a sound signalling appliance.

Power vessels - shall sound one prolonged blast every two minutes

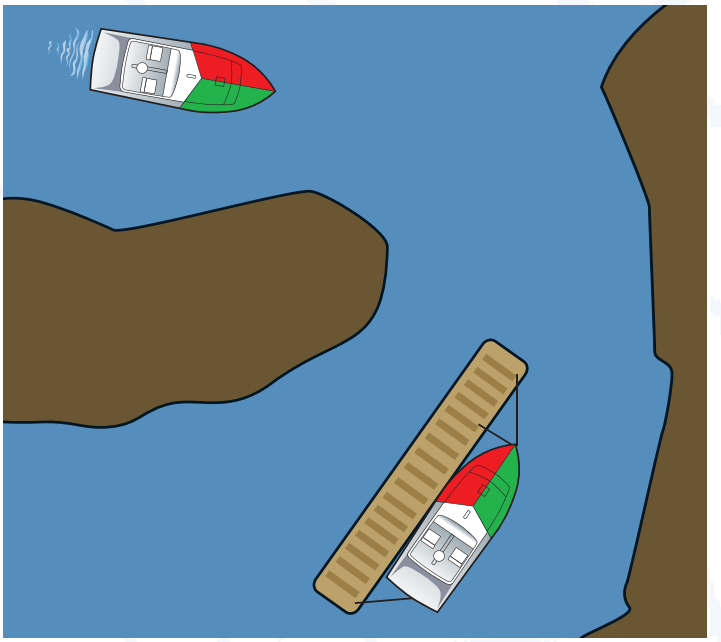
Power vessels - stopped underway but making no way, shall sound two prolonged blasts every two minutes

Sailing vessels - shall sound one prolonged blast plus two short blasts every two minutes

Boats at anchor - shall sound rapid strokes on the bell for 5 seconds at intervals not less than one minute intervals

Boats aground - shall sound three distinct strokes on the bell, followed by five seconds of rapid ringing of the bell, and followed by three distinct strokes on the bell

A towed vessel - sounds one prolonged followed by three short blasts every two minutes



Vessels approaching a blind bend in a river or channel or if the vessel is partially hidden, the vessel shall sound one long blast.

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VOYAGE 5 REVIEW

Question #1
When determining a safe speed you must consider:

A. vessel density
B. the bilge
C. navigational aids and hazards
D. A & C

Question #2
A power vessel approaches from the port side, you should:

A. maintain course and speed
B. give way
C. throttle up
D. come to a dead stop

Question #3
To determine the risk of collision you can:

A. take a bearing on the other vessel
B. use a VHF radio
C. use radar
D. all of the above

Question #4
Standard navigation lights colours are:

A. red, green and white
B. blue, green and red
C. white, blue and red
D. yellow, blue and green

Question #5
Anchored vessels less than 50 m must display one?

A. Green light to port
B. One all round red light
C. One all round white light
D. One all round red light

Answers review 5
1. D
2. A
3. D
4. A
5. C

Courtesy and common sense

Under Transport Canada *Small Vessel Regulations*, it is illegal to operate in a reckless or carless manner or without due care and attention or without reasonable consideration for other persons.

Slowdown to reduce your wake

Control your wake!

Wake is the V shape wave created by the forward movement of a vessel, and it will increase in size when combined with the wind and waves!

The wake from a passing vessel can cause floating docks to raise violently tossing little ones into the water not to mention make a person drop the book they were reading. It can drown swimmers and divers. A wake can also swamp or capsize a small boat.

Control your wake in order not to create damage to the shoreline or cause harm to wildlife or any persons enjoying the water!

Water activities

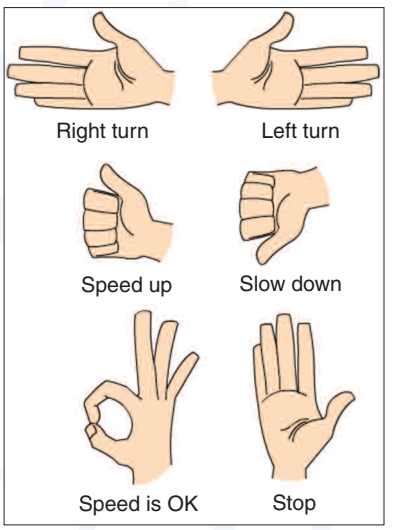
According to a Life Saving Society study, boating accounts for about 40% of all drownings and 45% of them are drownings during recreational activities. Small open powerboats less than 5.5 metres long and canoes account for most recreational boating drownings. According to a Red Cross report, 90% of drowning victims were not wearing a PFD.

Most frequent drowning incidents involving these boats are results of capsizing, swamping, and falls into water that potentially affect all occupants of the boat. Capsizing of the boat can be the result of horse play such as rocking the boat or standing or sitting on the edges of the boat (gunwales). It can also be the result of a wave or wake from a passing boat.

The most common cause of non fatal boating accidents is collisions with another boat or a fixed object such as the shoreline, dock or a navigational aid. This in turn can result in capsizing of the boat. Water-skiers or persons being towed on tubes and other devices can collide with rocks, docks and other boats or be struck by a propeller while being retrieved from the water.

Towing a person

Water skiing, tubing and wake boarding can be an enjoyable way to spend an afternoon. Remember it is illegal to tow from sundown to sunup and there **must be a spotter** and **a seat for each person onboard and for each person being towed.**



If not already familiar with the boat's handling characteristics, do so before towing anyone.

Develop and understand some basic hand signals to allow communication between persons being towed and the spotter.

When the person being towed is on the outside of a turn they will begin to accelerate (whip), this "whip" affect will cause the person to travel further outside of the turn than the boat. Riding the "whip" can be exhilarating; however it can also lead to a collision with a DOCK or vessel! Backing down on the throttle during the turn will reduce the "whip" effect.

Being towed behind a boat requires a great deal of strength. Persons must be competent swimmers, know their physical limits and not participate in a water activity beyond those limits.

To avoid propeller strike injuries always turn the engine off when retrieving a person from the water. To avoid injuries and possible damage to the boat always beware of the water depth and possible hazards such as submerged rocks in the area.

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Mufflers

A muffler system in good working order must be used at all times when the vessel is operated within five nautical miles (9.26 km) of shore.

A muffler system in good working order must be used at all times when the vessel is operated within 5 nautical miles (9.26 km) of shore.

Unless the boat:

- Was built or constructed before 1960
- Is used in a formal race or training exercise
- The exhaust gases are directed under water below the cavitation plate
- Is propelled by gas turbines or by an aircraft-type propeller operating in air
- Or operated at five or more nautical miles (9.26 km) from shore

Play nice and keep the peace!

Propeller Strikes

Stay well clear of this flesh eating monster.

Every year there are unaccounted number of boating injuries some of them are the result of propeller strike.

To help reduce the risk of a propeller strike:

- Always secure lanyard (kill line).
- Install a propeller cage or guard.
- Keep the boat properly maintained.
- Maintain a proper lookout.
- Remain seated when underway.
- Stay clear of swimmers and divers.
- Turn the engine off when boarding or retrieving a person from the water.

Hunting and fishing

Hunting and fishing are great ways to enjoy a day on the water. Who knows you may even get lucky and catch the trophy of a life time!

Courtesy U.S. Coast Guard.

Whether you are hunting or fishing, be sure to wear appropriate clothing and lifesaving devices.

As previously mentioned standing up in boat can result in falls overboard, so when Mother Nature calls go to shore.

Swimming

A heaving line, fastened to the boat and a safety device can be used for rescue, should you become tired.

Whether swimming across a lake for exercise or just playing beside the boat, **stay close to shore and away from boats underway.**

Kayaking, canoeing and other paddle sports

Paddling a canoe or kayak can be a fantastic way to visit quiet back bays of a lake!

Courtesy U.S. Coast Guard.

When boarding a canoe you will notice that they are **very unstable.** Hold on to the gunwales and step into the center of the vessel. **NEVER** step on the gunwales.

Paddling a vessel will lead to fatigue, especially when paddling against wind and currents. Be sure to save enough energy so you can safely return back to your departure point.

PWC and Jet Boats

Both a PWC and a jet boat can be exciting to operate. However they can also be lethal weapons when not operated at safe speed.

Attach the safety lanyard.

Safe operation

Before getting underway always read the manufacturer's operating instructions and **attach the safety lanyard** to your wrist or PFD. Should you fall off, the lanyard will turn the machine off, preventing it circling around you and perhaps running over you.

PWCs and jet boats generally require **a minimum of half a metre of water depth.** The intake located under the machine swallows large amounts of water and discharges it aft of the machine through a nozzle at very high pressure, providing thrust.
There are several concerns when operating in shallow waters:

- Marine vegetation may clog the intake reducing steering control
- Foreign objects may be sucked into the impellor and discharged like a bullet, possibly causing serious injury
- **You may run aground** or cause damage to aquatic vegetation and other marine life

Avoid wake jumping

The wake from a passing cabin cruiser may look seductively attractive however, the reason for not jumping the wake of a passing vessel is that your visibility will be restricted by the passing vessel, this in turn may restrict the ability of other vessels in the area from potentially seeing you!

Avoid sharp turns

Jet boats attempting to complete 180 or 360 degree turns put persons onboard at risk of head and other bodily injuries. PWC operators attempting the same maneuvers are at risk of being catapulted off the machine.

Steering and stopping

Carrying or towing a person will make steering sluggish and decreases acceleration. Neither type of boat steers very well when at idle and perhaps even worse when in reverse. For this reason caution must be used when operating at low speeds.

Unless operating a PWC that is equipped with breaking capabilities, it will not stop abruptly; in fact they can travel a great distance before coming to a rest.

Wetsuits provide protection from the elements.

Clothing

Wetsuits provide protection from the elements.
It may be a relatively warm day however traveling at speed you are prone to hypothermia while riding a PWC. The air will wick the heat away from your body and water droplets will feel like little needles pricking your skin! Operators are well advised to wear a high impact PFD, wetsuit, gloves and goggles.

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Do:

- Become familiar with the controls and operation of the vessel before towing a person, carrying passengers or showing off to your friends
- Operate at a safe speed

Don't

- Wear an inflatable PFD
- operate a PWC in conditions of poor visibility or from one hour after sunset to sunrise
- **allow anyone under the age of 16** to operate a PWC
- lend your PWC to anyone before making sure you have instructed them on how to safely operate the machine. Remember you are responsible for them and their actions
- buzz people, docks or other boats
- operate near or around people swimming
- create a nuisance to wildlife or other people
- tow persons unless familiar with the PWC and its towing characteristics

IF A COLLISION SEEMS UNAVOIDABLE IT MAY BE APPROPRIATE TO APPLY THROTTLE and steer away from the danger.

VOYAGE 6 REVIEW

Question #1
What percentage of drowning victims are found not wearing a PFD?

A. 20%
B. 28%
C. 90%
D. 60%

Question #2
When may you tow a person after dark?

A. When everyone is wearing a PFD
B. When there is a seat for the person being towed
C. It is against the law to tow a person after dark
D. When there are three seats on the vessel

Question #3
When swimming you should:

A. stay clear of moving boats
B. stay clear of strong currents
C. swim with a buddy
D. all of the above

Question #4
What is the purpose of a sail plan?

A. To record weather information
B. To assist in search and rescue
C. To keep track of water
D. To mark buoys location

Question #5
When operating a paddle craft you should:

A. stay clear of heavy boat traffic
B. wear a bright coloured PFD
C. carry a flash light and buoyant heaving line
D. all of the above

Answers review 6
1. C
2. C
3. D
4. B
5. D

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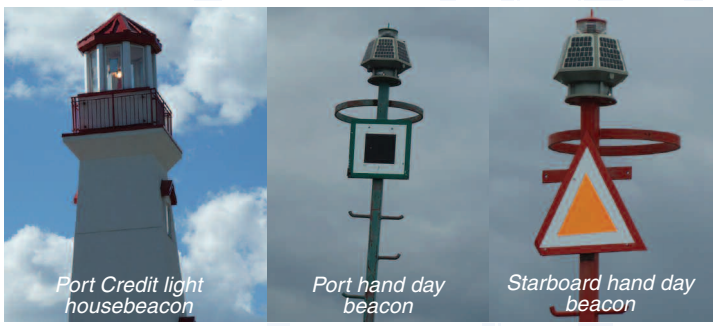
Canadian Aids to Navigation

Do you know the purpose of these buoys?

Aids to navigation are an important tool to be used by all boaters. Knowing how to identify and use them will provide you with peace of mind. They are to boaters what road signs are to drivers. That is to say, they provide the **preferred route,** location of navigational hazards, can provide information and are used to locate **position** and plot a **course direction.**

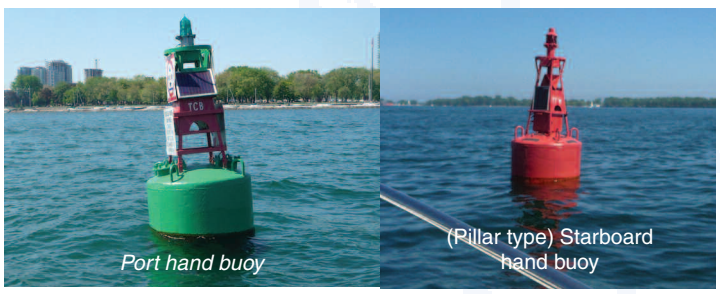
They consist of floating and land based markers and are divided into two groups, Lateral and Cardinal. They may carry a light, display a combination of letters and or numbers and come in various colours, shapes and sizes. **If they are numbered** the numbers increase as you proceed in an upstream direction. The upstream direction is the direction taken by a vessel when proceeding from seaward, toward the headwaters of a river, into a harbour or with the flood tide.
Buoys are secured using chains and anchors and caution should be exercised when operating around them.



Port Credit light housebeacon

Port hand day beacon

Starboard hand day beacon



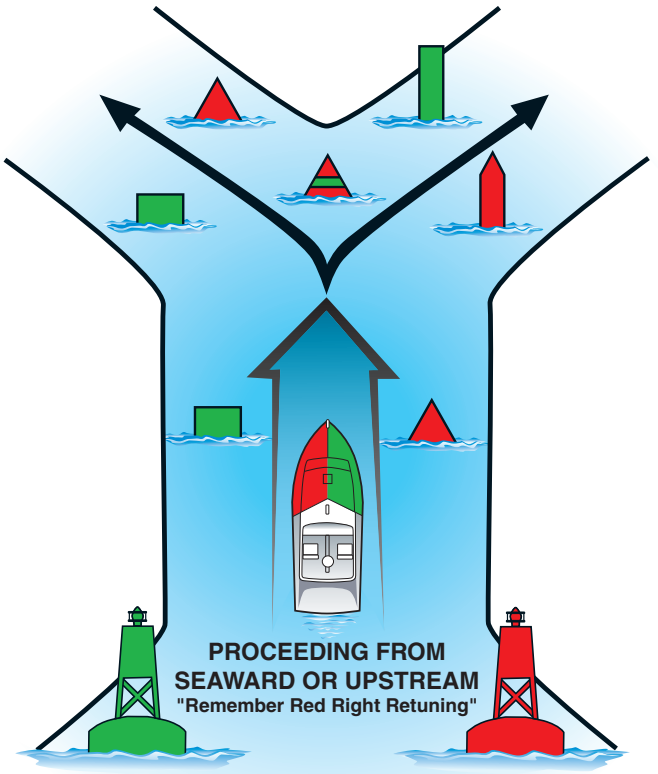
Port hand buoy

(Pillar type) Starboard hand buoy

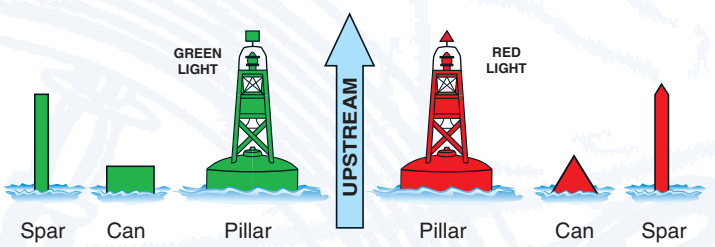
To help understand lighted buoys please consult the following table:

Names, abbreviations and descriptions of buoy light flash characters

Name	Abbrev.	Description	Buoy
Flashing	Fl	A light in which a 0.5 second flash is regularly repeated at a rate of 15 flashes per minute (one flash every 4 seconds)	Port Starboard Anchorage Cautionary Mooring Keepout Control Hazard Information Swimming Diving
Quick Flashing	Q	A light in which a 0.3 second flash is regularly repeated at a rate of 60 flashes per minute (one flash every second)	
Very Quick	VQ	A light in which a flash is regularly repeated at a rate of 120 flashes per minute (a flash every 1/2 second)	
Morse "A"	Mo(A)	A light in which a 0.3 second flash is followed by a 0.6 second eclipse then a one second long flash repeated at a rate of 10 times per minute (every 6 seconds)	Fairway
Long Flash	LFl	A light in which a flash of 2 seconds duration is repeated at a rate of 6 flashes per minute (one flash every 10 seconds)	Fairway
Group Flashing (2)	Fl(2)5s or Fl(2)10s	A light in which a group of 2 flashes is regularly repeated 12 times per minute (every 5 seconds) or A light in which a group of 2 flashes is regularly repeated 6 times per minute (every 10 seconds)	Isolated Danger
Composite Group Flashing	Fl(2+1)6s or Fl(2+1)10s	A light in which a group of 2 flashes is followed by a single flash, the whole sequence being repeated 10 times per minute (every 6 seconds) or A light in which a group of 2 flashes is followed by a single flash, the whole sequence being repeated 6 times per minute (every 10 seconds)	Port and Starboard Bifurcation



Lateral buoys - indicate the side on which they may be safely passed. There are six types of lateral buoys: port hand, starboard hand, port bifurcation, starboard bifurcation, fairway, and isolated danger.



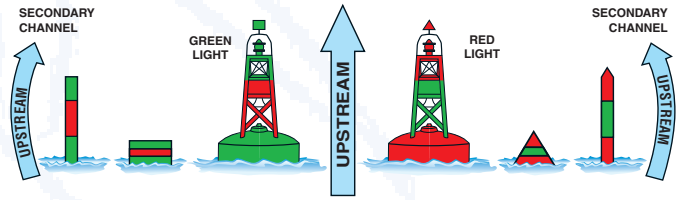
"Remember Red Right Retuning"

Starboard hand buoy

Marks the starboard (right) side of a channel, or the location of danger and must be kept on the starboard side (right) when proceeding upstream. They are coloured red and they display an identification letter(s) and an even number(s). It may have a single red cone top , the top mark is pointed upward. It may carry a red light (F1) 4s; or quick flashing (Q) 1s

Port hand buoy

Marks the port (left) side of a channel, or the location of danger, and must be kept on the port (left) side when proceeding upstream. Thay are coloured green, displays identification letter(s) and odd number(s) and may have a top mark, the top mark is a single green cylinder. May also carry a green light (F1) 4s; or quick flashing (Q) 1s.



Starboard bifurcation buoy

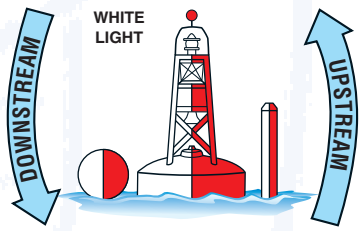
May carry a light , the light is red Fl (2+1)6s or Fl (2+1)10s. It may carry retroreflective material, which is red. If it does not carry a light, it is conical and is coloured red with one broad green horizontal band. If it carries a topmark, the topmark is a single red cone pointed upwards.

The main or preferred channel is indicated by the colour of the top most band.

Port bifurcation buoy

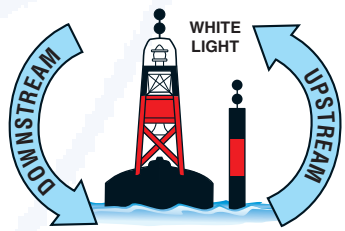
May carry a light, which is green Fl (2+1)6s or Fl (2+1)10s It is coloured green with one broad red horizontal band. It may carry retroreflective material. This material is green. If it does not carry a light, the top of the buoy is flat and if it carries a topmark, the topmark is a single green cylinder. The main or preferred channel is indicated by the colour of the top most band.

Fairway buoy



A fairway buoy indicates safe water. It is vertically coloured red and white . It is used to mark landfalls, channel entrances or the centre of a channel. It may be passed on either side but should be kept to the port (left) when proceeding in either direction. It displays identification letter(s). May carry a white light flashing Morse "A" Mo (A) 6s light or a long flash (LFl) 10s light. If it does not carry a light, the top of the buoy is spherical and if it carries a topmark, the topmark is a single red ball. It may carry white retroreflective material.

Isolated danger buoy



An isolated danger buoy is moored on, or above, an isolated danger, which has navigable water all around it. Displays identification letter(s). It may carry a white light, group flashing Fl(2)5s or Fl(2)10s. If it does not carry a light, it is normally sphere shape, although other shapes may be used. The topmark is two black spheres, one above the other. May carry white retroreflective material.

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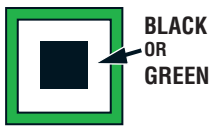
Standard Day Beacons

Day beacons serve the same purpose as buoys, however, they are not lit. Day beacons may be reflective in nature to assist in conditions of poor visibility.

Port Hand
When proceeding upstream, a port hand daybeacon must be kept on the vessel's port (left) side. The port hand day beacon may have an odd number made of white reflective material.



PORT HAND

Junction
Marks a point where the channel divides and may be passed on either side. If the preferred channel is desired the day beacon should be kept on the vessel's port (left) side.


JUNCTION
(preferred channel to RIGHT)

Junction
Marks a point where the channel divides and may be passed on either side. If the preferred channel is desired, the day beacon should be kept on the vessel's starboard (right) side.


JUNCTION
(preferred channel to LEFT)

Starboard Hand
When proceeding upstream, must be kept on the vessel's starboard (right) side. The starboard hand day beacon may have an even number made of white reflective material.


STARBOARD HAND

Special buoys

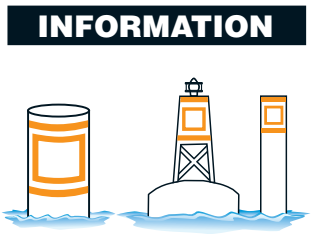
Special buoys are used to convey a variety of information to the mariner which, while important, are not primarily intended to assist in the navigation of the vessel. The shapes of special buoys have no significance and a variety of shapes may be used in practice.

Cautionary buoy

Marks an area of danger such as firing ranges, racing courses, seaplane bases, underwater structures , aquaculture, or areas where no safe through channel exists and for traffic separations. You must consult a chart to determine the precise nature of the danger being marked. It is coloured yellow, displays identification letter(s) and if it carries a topmark, the topmark is a single yellow "X" shape.

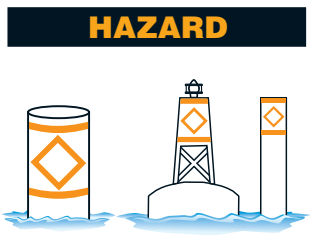
Information buoy

An information buoy displays, by means of words or symbols, information of interest to the mariner. Examples are campsite, marina or restaurant locations. It is white in colour and has an orange, open faced square symbol on two opposite sides and two orange horizontal bands. One is above and one is below the square symbols. It may display identification letter(s).



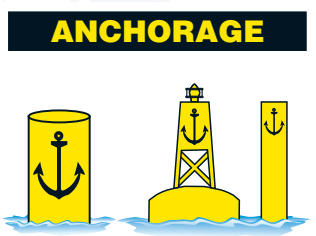
Hazard buoy

Marks random hazards such as rocks, shoals or turbulent waters located outside the main channel.
It is coloured white and has an orange diamond on two opposite sides and two orange horizontal bands, one above and one below the diamond symbol.



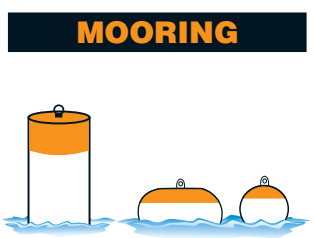
Anchorage buoy

An anchorage buoy marks the perimeter of a designated anchorage area. It is coloured yellow, displays a black anchor symbol on at least two opposite sides, displays identification letter(s) and if it carries a topmark, the topmark is a single yellow "X" shape.

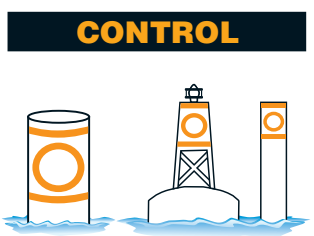


Mooring buoy

A mooring buoy is used for mooring or securing a vessel, seaplane, etc. It is coloured white and orange. It may display identification letter(s).



Control buoy



Marks areas where boating is restricted. The type of control is indicated in the circle. It is coloured white and has an orange, open-faced circle on two opposite sides and two orange horizontal bands, one above and one below the circle. A black figure or symbol inside the orange circle indicates the nature of the restriction in effect. It may display identification letter(s).

Keep Out buoy

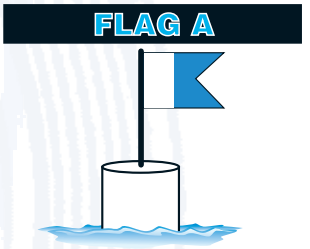
A Keep Out buoy marks an area where boats are prohibited. It is coloured white and has an orange diamond. This diamnond contains an orange cross on two opposite sides and two orange horizontal bands, one above and one below the diamond symbols. It may display identification letter(s).

Ocean Data Acquisition System (ODAS) buoy

An ODAS buoy marks a scientific, meteorological or oceanographic station. An ODAS buoy shall not exhibit a shape that conflicts with any navigational mark. An ODAS buoy is coloured yellow, and displays identification letter(s). It may carry a yellow light, group flashing light of 5 flashes every 20 seconds, Fl (5) 20s, and if it carries a top mark, the top mark is a single yellow "X" shape.

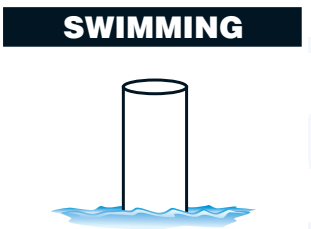
Diving buoy

A diving buoy marks an area where scuba or other such diving activity is in progress. A diving buoy is white in colour and carries a red flag not less than 50 centimetres square with a white diagonal stripe extending from the tip of the hoist to the bottom of the fly. It may display identification letter(s) and if it carries retroreflective material, such material is yellow. **You shall take early and substantial action to keep well clear.**



Flag "A" is from the International Code of Signals, and also means "I have a diver down", **keep a safe distance away and at slow speed.**

Swimming buoy



A swimming buoy marks the perimeter of a swimming area. It is coloured white and may display identification letter(s)

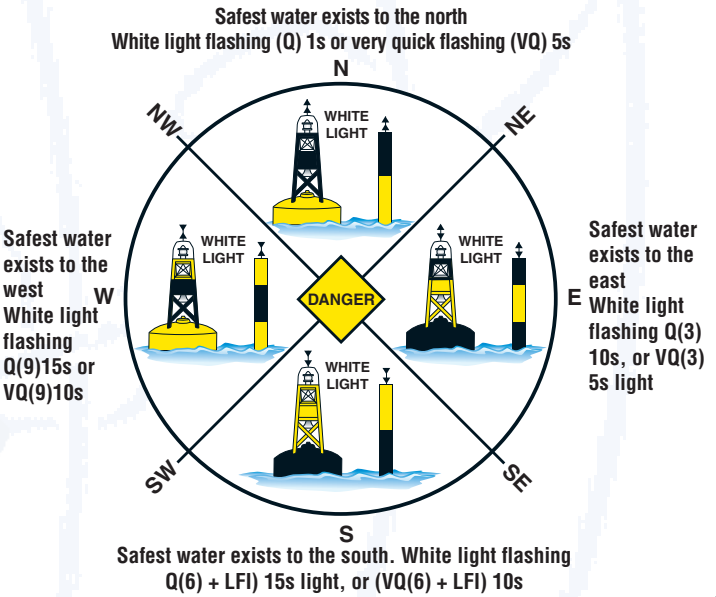
A person may place a private buoy to mark a hazard such as a rock, submerged island or some other local hazard that has not been marked.

However, the buoy must meet the standards set out in the Private Buoy Regulations and the Canadian Coast Guard must be notified of its position.

Although popular, propane tanks and javex bottles do not meet the regulations and should not be used as buoys.

Cardinal buoys

Indicate the location of the safest or deepest water by reference to the cardinal points of the compass. There are four cardinal buoys: North, East, South and West. Example: keep to the south side of a south cardinal buoy and to the north side of a north cardinal buoy. Although cardinal buoys are not as common as other buoys, you should still keep them in mind.



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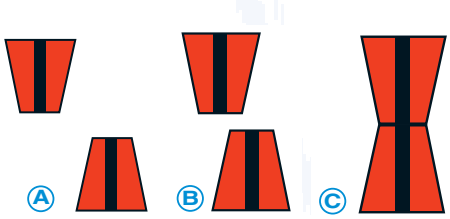
One of the most asked questions is, when there are no buoys on the water how do I know which way is upstream? The simple answer is it does not matter, just pass port to port when meeting a boat head on!

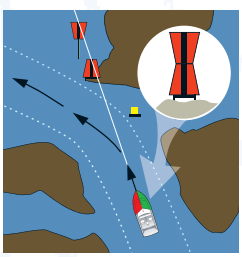
Another common question is when there is only one buoy on the water, how do I determine upstream direction? The answer you can look at the water and determine which way it is flowing or you can use a chart to determine the upstream direction.

Remember that in general terms, water flows in counter clockwise direction around North America. This means that on the west coast water generally flows south, on the east coast water flows north, and in the arctic it flows from east to west. This means when heading in a northerly direction on the west coast you are heading upstream.

Range Day Beacons

Range day beacons are generally used to guide larger vessels such as ferries, freighters and oil tankers to or through a channel. They consist of two fixed navigation marks. One is located near the shore line the second is set back inland and higher than first one. They can be seen from great distances, and once aligned indicate you are on the proper course. Steering in the direction of the lower beacon will cause the two beacons to appear as one.





Additional signs

Posted command signs can be located in the water or on the shoreline. They display information such as:


No anchorage

- No wake zone signs
- No anchorage area signs (may display time restriction)
- Speed limit zone signs
- Low head dam hazard signs
- Power line hazard signs (over head or under water)
- Pipeline hazard signs

Vessel Operation Restrictions Signs

Under the *Vessel Operation Restriction Regulations* (VORR), you must also be aware that operating a prohibited vessel in designated waters or where special conditions apply is subject to fines and or tickets. Not all waters have posted command signs it is for this reason you should consult the local authorities or Transport Canada for the body of water you will be travelling on.

Command signs maybe green and orange or just orange in colour. Signs with green contain special instructions such as time of day that the restriction applies to. There are five shapes and the arrow points to the direction that the restriction applies.

Standardized speed limit (normally 5, 10, 25, 40, 55)

No regatta

Power limit

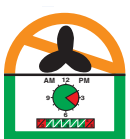
No skiing


No power vessels


No power-driven vessels in the direction indicated by the arrow


No boats


No internal combustion or steam engine is permitted


No power vessels between the hours and days in red

No skiing north of the sign

Combined sign (no skiing and speed limit)

Regardless if posted or not posted, the universal speed limit is 10 km per hour when within in 30 metres (98.42ft) of shore unless you are towing a person straight out from the shoreline or in rivers that are less than 100 m (93.28 ft) in width or in canals or buoyed channels, or in any waters referred to in the VORR or in respect of which a maximum speed is set out.

For more information please consult the Vessel Operation Restriction Regulations.

Boaters Tip

Just because you can see a buoy or day beacon does not mean that there is not an island, sandbar or some other hazard between your position and the marker!

VOYAGE 7 REVIEW

Question #1
What colour is a starboard hand buoy?

A. Green
B. Yellow
C. Red
D. Black and yellow

Question # 2
What colour is a port hand buoy?

A. Yellow
B. Green
C. Black
D. Red

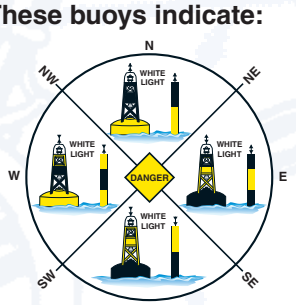
Question # 3
What colour is a cautionary buoy?

A. Red
B. Green
C. Yellow
D. Black and yellow

Question # 4
What does this image indicate?

A. A boat at anchor
B. Stay well clear there is a diver down
C. Turn to starboard
D. Marina up ahead

Question # 5
These buoys indicate:



A. The location of a marina
B. The location of safe anchorage
C. Submerged crab pots
D. Safe water exists in relationship to their name

Answers review 7
1. C
2. B
3. C
4. B
5. D

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Navigating locks and bridges

Swift Rapid lock on the Trent River shows the lock on the left and the dam on the right

Water flows down hill and does not always allow for safe passage, so locks were invented to traverse the different water elevations and obstacles. Locks are gated at both ends. Opening one gate allows water to either flood or drain the lock chamber, allowing passage between two bodies of water with different elevations. Obey all laws when approaching locks and bridges. Prior to travelling on any water system that uses locks visit www.pc.gc.ca to obtain the latest hours of operation and current water depths.

Tying up to the painted blue strip (blue line) indicates to the lockmaster your request to pass through the lock.

Approaching the lock

Sounding three long blasts (5s) signals to the lockmaster your intention to pass through the lock. Tying up to the painted blue line also indicates to the lockmaster your request to pass through the lock. Be prepared to deal with **strong currents** and winds.

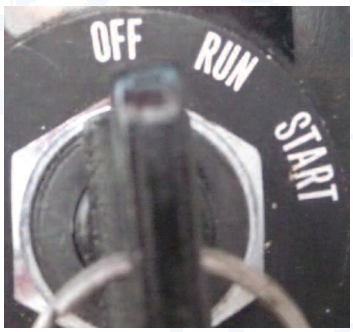
Entering a lock

Some locks use a traffic light to signal when to proceed into the lock. The lockmaster's instructions must be followed precisely. As you approach an appropriate position inside the lock, post a crew member at the bow and stern ready to loop lines around the black drop cables. **DO NOT TIE VESSEL LINES TO THE DROP CABLES.** Wear a PFD when locking. Unexpected movement of the vessel could cause you to fall overboard.

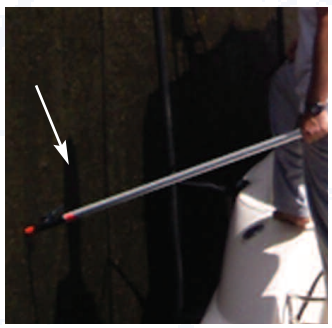
Inside the lock chamber

Never leave lines unattended, you may experience turbulence as the water changes elevation, looping the line around a cleat will provide extra leverage.

- Turn off all ignition switches (engine, generators, etc.)
- Extinguish all open flames
- Do not smoke
- Turn on the exhaust blower for the entire duration
- **DO NOT TIE VESSEL LINES TO THE DROP CABLES**



Turn off the engine



A boat hook is good for grabbing drop lines

Exiting the lock

Follow the lockmaster's instructions and do not turn your engine on until instructed to do so. When exiting a lock be prepared to deal with **strong currents** and winds. Travel slowly, in single file, giving way to vessels travelling downstream.

Bridges

Travelling on the water, you are bound to come upon a bridge sooner or later that will need to be opened before you can safely pass. Check the chart for bridge clearance it should also be posted on approach to the bridge. Know the boat's bridge clearance, before requesting the bridge to be opened. Sounding three long blasts (5s) signals your request for the bridge to be raised or swung.

Safety around dams

Stay well clear of spillways, dams and waste weirs, which can produce strong currents and undertows. This can result in swamping, capsizing, sinking or even drowning!

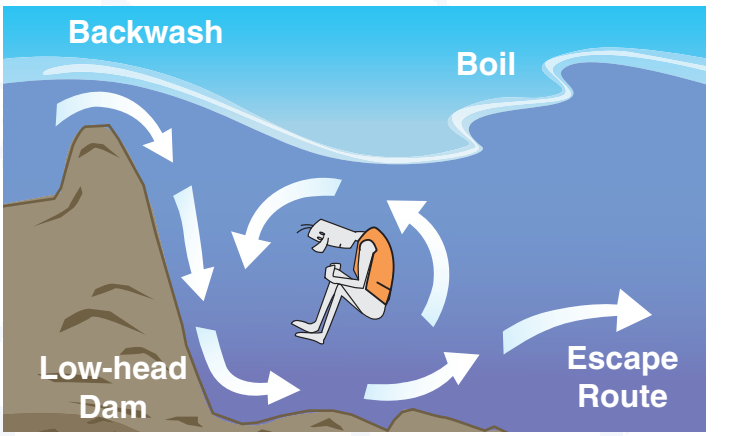
Dams are built to hold back water for a variety of reasons and are usually posted with warning signs to stay clear.

Large dams are easy to spot as they are generally located near a large structure such as Lock or Hydro Plant.

Low-head dams however are not so easy to see! They are essentially an invisible water fall. Both types of dams are hazardous above and below the dam. Following a heavy rain, stronger currents and rising waters may obscure the warning signs buoys posted near the dam, or even the Low-head dam itself!

Water flowing over a dam creates a dangerous backwash current known as hydraulic suction.

The backwash current will carry the victim to the base of the dam, where they will be sucked under water perhaps being dragged along the face of the dam and struck by debris washing over the dam.



Swim to the bottom of and then away from the dam!

The person will then be pushed away by the water current only to resurface a little ways from the dam in what is known as the boil, starting the cycle over again.

Trapped in the backwash cycle you and your vessel have little chances of survival even if you are wearing a PFD or lifejacket! Your greatest chance for survival is to swim down and away from the front of the dam when you are closest to the bottom of the river. This is when the backwash is at its weakest point allowing a chance to escape!

Dam Safety

- Always be on the look out for any sudden changes in water levels or currents, it could be an indication that you are approaching a low-head dam.
- Obey all warning signs.
- Stay a safe distance outside of fences, buoys, booms and barriers. They are put there to protect you.

- Stay well back from the edge of waters above and below dams.
- Never stand below a dam, or anchor or tie your boat near the dam. Rapidly changing water levels and flows can take you by surprise and could swamp and sink your boat or put you in the grip of the hydraulic suction.
- Keep in mind that it is against the law to jump, dive, scuba dive, swim or bathe within the vicinity of a dam.

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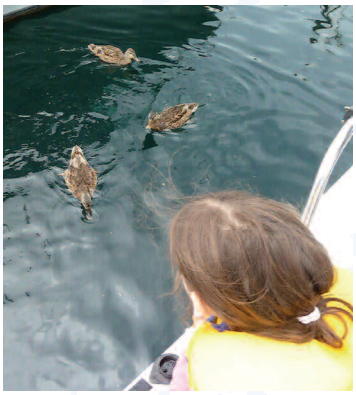
Respecting the environment

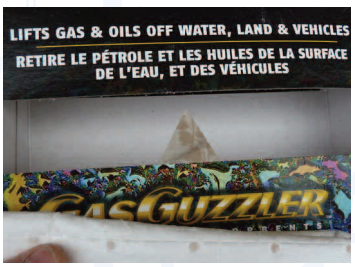
Prevention of Pollution

There is an old saying by Woodsy Owl ***"Give a Hoot Don't Pollute"***



The International Convention for the Prevention of Pollution from Ships (MARPOL) reports that, if no restrictions were in place, up to 35 per cent of pollution in the world's marine environment would be the direct result of marine transport.

Under the *Canada Shipping Act 2001*, it is against the law to pollute the water with things like fuel, oil, oily mixtures, fishing nets, plastics and any noxious liquid substance such as hydrocarbons and untreated sewage in inland waters.



To help reduce the risk of spillage use specially designed absorbent cloths and a funnel when adding oil or fuel to a tank. The cloths are made to repel water and absorb contaminates. Always dispose of used cloths in an approved container.

Holding tanks and marine sanitation devices:

In some provinces, if your boat has a berth (sleeping accommodations) it must also have a marine head (toilet). **The regulations prohibit the use of freestanding portable toilets (Porta Potties).** Boats fitted with toilets must be equipped with either a Holding Tank or a Marine Sanitation Device.

A holding tank is only used to collect and store sewage or sewage sludge and must be emptied at approved pump-out facilities. Most marinas provide this service for a nominal fee.

A Marine Sanitation Device is designed to receive and treat sewage on board. Only sewage treated with a Marine Sanitation Device that meets the standards set out in the regulations may be discharged in inland waters.

Black Water may not be dumped overboard in specifically listed waters of Manitoba and British Columbia and never in any Ontario waterways.

Sewage Terms:

Blackwater is a term used to describe waste water from toilets, and can be called brown water or sewage.

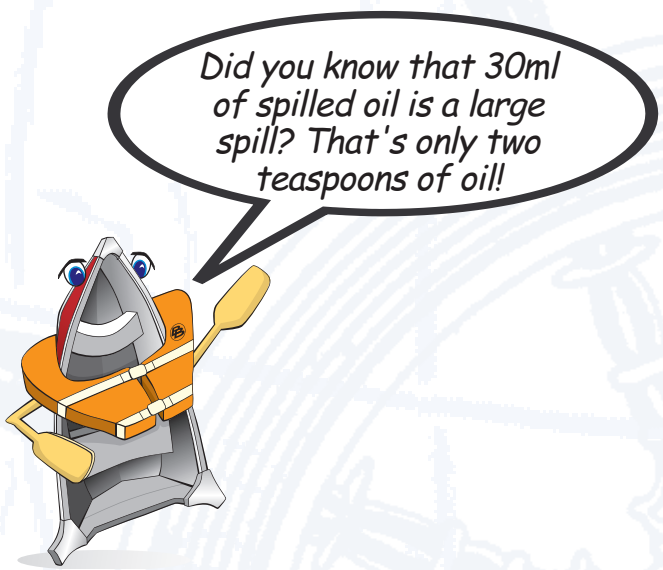
Greywater is a term used to describe waste water from showers and sinks.

Maintenance and repairs

Always perform regular maintenance checks to prevent hazardous contaminants from leaking into the bilge area that may accidentally be pumped overboard. Specially designed absorbent bilge cloths can be used to remove contaminated water from the bilge. Always dispose used towels or bilge cloths in an approved container.

After completing repairs to a boat or trailer, thoroughly wash them down with environmentally friendly cleaners away from watershed. This will prevent paint, paint scrapings, fibreglass, grease or harsh toxic chemicals from entering and harming the water.

If you accidentally pollute the water or you witness or see the result of someone else polluting, **report it to the Local Authorities** or a Government of Canada Pollution Prevention Office.



Controlling litter

On hiking trails the rule is ***"you packed it in, you pack it out!"***

It's no different on the water, no one wants fishing line or netting to get caught up on the propeller hub and possibly wear out the seals. Paper towels and plastic bags can cover the cooling water intake for the motor which can result in an overheated engine. Plastic rings from pop cans and other beverages are a hazard to ducks and other aquatic birds.

Help Keep Our Waters Clean!
Reduce, Reuse, Recycle

How long does it take for trash to decompose and become one with mother earth?

There is no definitive answer as to how long it takes for trash to break down in the water as it depends on the type of material, the water temperature and whether it is in fresh water or salt water.

Estimated Decomposition Times.

- Paper: 2-4 weeks
- Plastic bottle: 450 years
- Plastic bag: 15 years
- Milk carton: 5 years
- Tin can: 100 years
- Glass bottle: 500 years
- Styrofoam: Never

Source: nationalgeographic.com

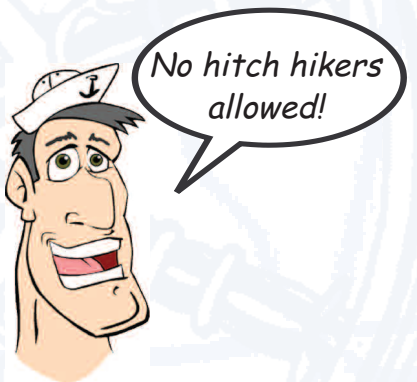
Stop the spread of invasive species

Trailering a boat from one body of water to another increases the chances of spreading invading species such as zebra mussels, round goby and sea lamprey. These little aquatic hitch hikers are capable of altering the natural food chain.

This mitt full of Zebra Mussels was found while cleaning the trim tabs!

To prevent the spreading of these little aquatic hitch hikers:

- Empty all live wells and bilges
- Remove any plant life that is clinging to the hull
- Scrape the zebra mussels from the hull
- Use hot (40C), soapy water
- Use a hose with a high pressure spray
- Leave the boat out of the water and in the sun (zebra mussels need water or humid air to live)



Green boating tips:

Environmentally friendly cleaning products are phosphate free! Although aquatic vegetation requires phosphate to survive, an over abundance of phosphate is hazardous to the aquatic environment. When using cleaners and other chemicals to clean the boat always ensure that they are phosphate free!

The following products can be used to clean the boat.

- Baking soda
- Borax
- Vinegar
- Edible linseed oil

Fuel conservation:

Conserving fuel not only helps protect the environment it also saves money!

For better fuel economy:

- Keep the hull cleaned and waxed, this will decrease drag and increase speed
- Keep the motor properly maintained
- Trim the vessel so as to ride slightly bow high
- Reduce the throttle once up on plane (maintain plane)
- Lowering canvas will reduce wind drag
- Run with or at slack tide

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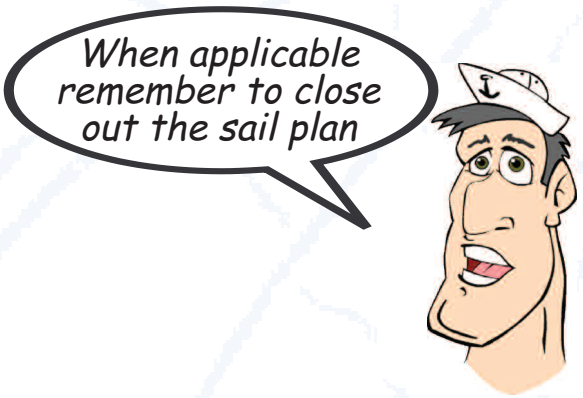
Docking

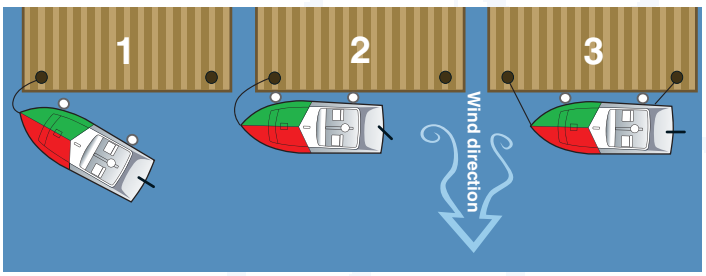
UH OH! Bump, thud, crunch the wind got us.

Docking a boat can sometimes test a captain's nerves particularly when operating in tight quarters. The key to docking is being prepared for the effects of the wind and water currents. **Priority should be given to whichever of the two is stronger.**



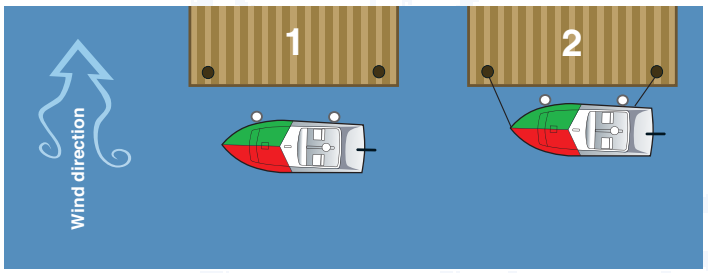
Docking scenarios

Wind is off the dock



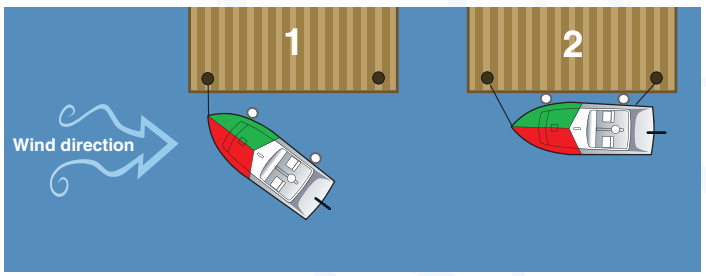
Approach the dock at a slight angle, 25 to 30 degrees. Secure bow line, short bursts of power may be needed to push the stern onto the dock. Note the rudder position in picture # 2

Wind is on the dock



Approach parallel to the dock, use a short burst of reverse to stop and let the wind do the rest.

Wind is parallel to the dock

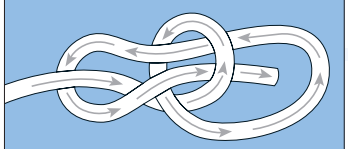


Secure the bow line and let the wind do the rest. Boaters are friendly and will gladly help you when docking without asking. Jumping off a boat while docking will only push the boat away from the dock.

Note: be mindful of prop walk when going astern.

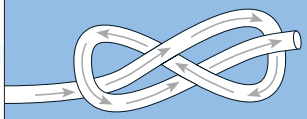
Knot Knowing

Bowline



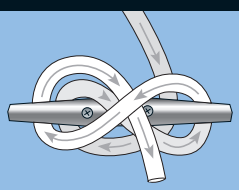
For an easy, secure noose. Probably one of the most common knots on board a vessel.

Figure of Eight



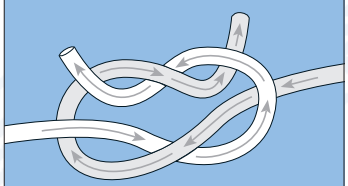
A good stopper knot to keep lines from running blocks or grommets.

Cleat Hitch



For securing rope to a cleat. Very strong yet easy to undo.

Reef Knot / Square Knot



For connecting two lines together.

VOYAGE 8 REVIEW

Question #1
When is it appropriate to swim near or around a dam?

A. After heavy rains
B. Before heavy rains
C. It is never appropriate to swim around dams
D. Between sun up and sun down

Question #2
Tying up to the blue line at the lock?

A. Indicates your intention to enter the lock
B. Signals your intention to moor for the night
C. Signals you require fuel
D. Signals you need medical assistance

Question #3
When may you swim near or around a lock?

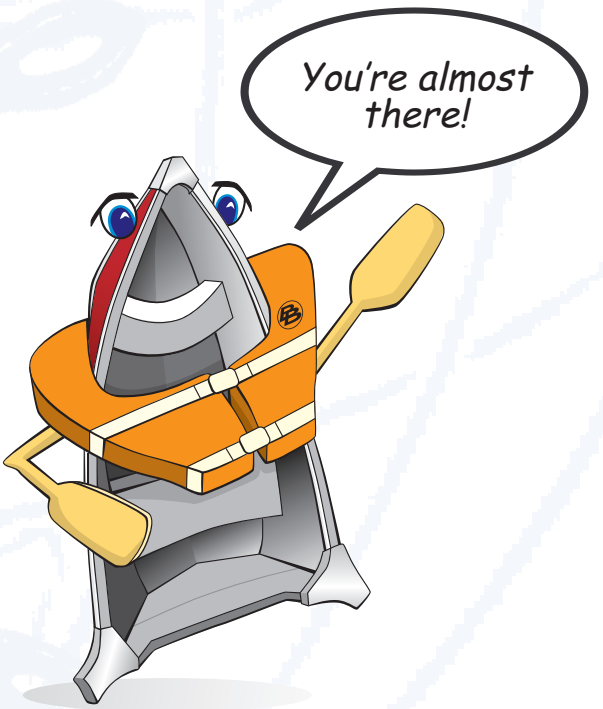
A. Between the hours of 8 am and 4 pm
B. You may never swim near or around a lock
C. Between sun up and sun down
D. During the off boating season

Question #4
To prevent propeller strikes you should:

A. Avoid swimming areas
B. Use a re-boarding device
C. Leave the motor running when re-boarding
D. A & B

Questions #5
To help prevent the spread of zebra mussels you should:

A. Run the boat at high speed
B. Wash the hull at the boat launch
C. Wash and drain water from live wells
D. All of the above



Answers review 8
1. C
2. A
3. B
4. D
5. D

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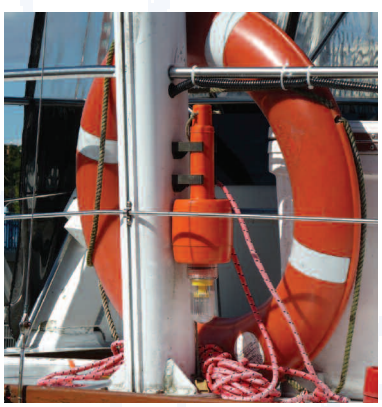
Responding to emergencies

Preventing an emergency is better than having to respond to one. However, that being said, mishaps do happen. Knowing how to respond to an illness such as seasickness or a collision with a rock, log or another boat and persons overboard could save a life.

Under the *Collision Regulations*, operators must maintain a proper look out at all times. If you witness, or are directly involved in an accident such as a collision or other type of emergency, you shall render assistance by all means available and stay with the person(s) or vessel(s) involved in the collision or in need of assistance, provided that there is no risk or danger to your own crew or vessel. This also applies to a person who is found at sea in danger of being lost. Regardless of the emergency the basic response is the same. If you are in grave and imminent danger, use a recognized distress signal to call or to display the need of assistance. Remain calm, panicking only leads to confusion. Assess the situation. Take the appropriate action. When needed, call for help using the VHF radio, cell phone or a recognized distress signal.

Person overboard

The ultimate challenge for a boat crew is rescuing someone who has fallen overboard.



Keep a life ring and lighted buoy near the stern

The following are items that can be used to recover a person overboard

- Lifebuoys
- Buoyant heaving lines
- Reboarding ladders
- Paddles/oars
- Lifejackets attached to a buoyant heaving line
- A heavy rope, chain or cable secured at both ends and draped over the side or back of the boat

The following is an **example** on how to recover a person who has fallen overboard:

- The first thing to do if a person falls overboard is sound the alarm and mark the position on your GPS then throw anything that floats to the person in the water. This will help mark the spot in case the person submerges.
- Delegate someone to keep an eye on the person in the water by pointing to the person in the water
- Stop the boat if possible and let them come to you. If this is not possible, then approach from the leeward side (opposite side that the wind is blowing from).

You will need to decide if you will be recovering from the side or the stern of the boat. Hauling a person, especially an unconscious person, in over the side of a small boat could result in capsizing. It may be best to bring them over the stern. Before recovery shut the engine down, a neutral propeller may continue to spin, stay low in the boat and be sure of your footing and get the person back onboard by all means possible. Once the person is safely back onboard treat them for hypothermia if needed. **When needed use recognized distress signals to call for or to display the need of assistance.**

Recovering a person from shore:

Reach them using anything such as a tree branch, fishing rod, paddle, dock line or any other object that is handy

Throw any object that floats such as a lifering, lifejacket or a PFD with a rope attached will also suffice

Row out to them if you cannot reach them, then let them hang on to the side off the boat while you row back to shore

Go for help when necessary

If a person must go into the water to retrieve a person overboard make sure they are wearing a PFD. Keep in mind a person who has fallen into the water unexpectedly or who cannot swim will be in a panic state of mind and very hard to recover!

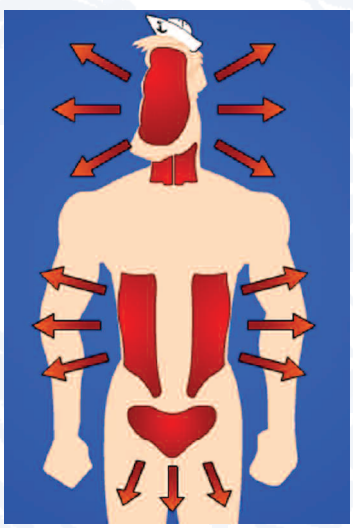
You, as the person overboard should remain calm and control your breathing, panicking will only lead to fatigue and perhaps drowning.

A practice drill for recovering persons overboard should be developed and practiced for your boat. Never practice with a person, instead use a life jacket, hat, or beach ball.

Survival in cold water

Wearing a PFD or lifejacket can save your life. The majority of people who drown are found not wearing a lifejacket. Cold water and cold air both rapidly conduct heat from your body. The head, neck, lower abdomen and sides of your torso lose heat the quickest.

Assuming the HEAT ESCAPE LESSENING POSITION (HELP) will reduce heat loss from the head, armpits and groin area.



Arrows indicate heat loss.

Groups of persons should cuddle up to the sides of everyone's chest and wrap their arms around each other's mid to lower back sections and intertwine legs.

Wearing one of the following can provide further protection from hypothermia:

- dry suits
- wet suits
- immersion suits
- survival suits
- exposure coveralls

Wearing layers of dry, light clothing with a waterproof and or windproof jacket can also add protection against the elements.

HEAT ESCAPE LESSENING POSITION (HELP)

Cold water shock

The best advice for falling into the water is don't. Even though the weather may be sunny and warm the water may not be. It takes time for Canadian waters to warm up above 15C which considered cold water. Unless you are mentally and physically prepared for cold water shock, you are certain to succumb to the effects of cold water immersion which include instant muscle paralysis. Whether you are riding a PWC, canoeing, kayaking or just boating in general, the importance of donning a PFD or LIFEJACKET and wearing appropriate clothing cannot be stressed enough.

Stage 1 Cold shock (3- 5 minutes)

On initial immersion, there is a **large gasp** for air which can lead to severe **hyperventilation**. With your head under water it could be your last breath! This on its own can cause small muscle spasms and drowning. Along with this, there is a massive increase in heart rate and blood pressure. These latter cardiac responses may cause death, particularly in less healthy people. The first few minutes of immersion are very important to your survival, keep your head up, control your breathing and get a lifejacket on!

Stage 2 Swimming failure (3-30 minutes)

As the body cools your thought process begins to slow down and your body begins to shut down. The ability to **use your arms, hands, fingers and legs will diminish.**

Death can occur in a little as thirty minutes. Swimming will only accelerate this process. The best option is to climb on to anything that floats and wait for rescue!

Stage 3 Hypothermia (> 30 minutes)

There is very little chance of rescuing oneself after reaching stage three. A person will **become unconscious**. Death from drowning may occur approximately one hour after immersion in water at 5°C, or two hours in water at 10°C, or in six hours or less at 15°C even when wearing a PFD or lifejacket. Cardiac arrest may also occur. Immediate medical attention is required.

Stage 4

Warming a person up or moving them too quickly after rescue may result in a post rescue collapse; the result is a stroke or heart attack. Immediate medical attention is required!

Hypothermia

Hypothermia is a drop in body temperature **below normal of body temperature 37ºC or 98.6ºF.** It affects the brain and body. It can happen over a period of time, as in the case of wearing wet clothing while riding a PWC on a cool day. It can also happen quickly, when suddenly immersed in cold water.

Hypothermia progresses in three stages.

Stage 1 begins when the body temperature drops below 37ºC or 98.6ºF
Shivering and slurred speech while conscious (awake), but withdrawn (quiet).

Stage 2 begins when the body temperature drops below 35ºC or 95ºF
The person will have a slow and weak pulse, slow breathing, and poor co-ordination, be irrational, confused, and sleepy and may need emergency care.

Stage 3 begins when the body temperature drops below 33ºC or 91ºF
A weak, irregular pulse or none at all, weak breathing or none at all, unconscious. The person will require emergency care.

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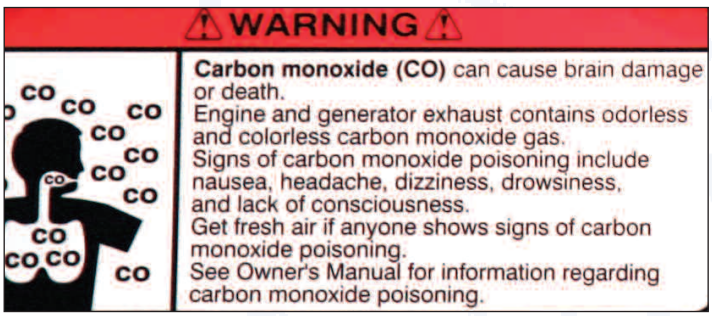
Treatment

Remove the person(s) from the source of cold exposure; get them to dry, sheltered surroundings. Replace their wet clothing with dry clothing. Wrap them up with dry blankets. Place dry coverings on them, cover their head and neck. Warm them up slowly. They may have a warm drink, such as milk; never give them stimulants such as alcohol, coffee, tea or hot chocolate. Never rub or massage the person, doing so will cause blood to leave the vital organs. **Call or display the need for assistance.**

Carbon monoxide poisoning

Fuel burning engines, appliances, hot water tanks and heaters create carbon monoxide gas. Carbon monoxide is a colourless, odourless and tasteless gas. It enters the bloodstream through the lungs and displaces the oxygen your body needs. Breathing concentrations as low as 35 parts per million ppm (0.0035% of fresh air) can cause **early symptoms to appear such as weakness, dizziness or flu like symptoms, and is often confused with seasickness or intoxication.**



Other symptoms of carbon monoxide poisoning include:

- irritated eyes
- headache
- nausea
- vertigo
- flu like symptoms

Prolonged exposure to low concentrations or very short exposure to high concentrations will cause damage to your nervous system and heart and can cause death.

Prevention:

- Stay well clear of boats ahead of you! Following a boat too closely, may lead to carbon monoxide poisoning
- Beware that a stiff tail wind may cause the gas to enter your own boat
- Always install and maintain a carbon monoxide detector in boats equipped with below deck living quarters
- Turn on Engine blowers prior to start up
- Keep hatches open to ventilate cabins
- Stay clear of exhaust ports from running engines
- Maintain and use fuel burning appliances in well ventilated areas
- Be cautious of other boats operating their engines or generator
- Be aware that CO can build up when a boat is tied up to another boat (including house boats); docked; or alongside a seawall
- Beware CO is not only a risk to boaters, but also to swimmers around boats (i.e. swim platforms and between the pontoon of pontoon boats

Treatment

- Move victim to a ventilated area
- Immediately call 911

Do not confuse carbon monoxide poisoning with seasickness, intoxication, or heat stress. If someone complains about the above symptoms move them to fresh air and investigate the problem.

Heat exhaustion, heat stroke & sea sickness

Heat exhaustion

Prevention; drink lots of water, stay in shady cool surroundings, don't stay too long in the sun!

Signs and symptoms

Include heavy sweating, paleness, muscle cramps, tiredness, weakness, dizziness, nausea and fainting.

Treatment

Give cool, non-alcoholic beverages, rest, cool shower, bath, or sponge bath, an air-conditioned environment, lightweight clothing. If left untreated may lead to heat stroke.

Heat stroke

The most important measures to prevent heat strokes are to avoid becoming dehydrated and to avoid vigorous physical activities in hot and humid weather. If you have to perform physical activities in hot weather, drink plenty of fluids such as water and sports drinks, but avoid alcohol, and caffeinated beverages which may lead to dehydration.

Symptoms

High body temperature, the absence of sweating, hot red or flushed dry skin, rapid pulse, difficulty breathing, strange behaviour, hallucinations, confusion, agitation, disorientation, seizure or coma.

Treatment

Move the victim to a shady area, remove clothing, apply cool water to the skin, fan the victim to promote evaporation, and place ice packs under the armpits and groin. Monitor the person's body temperature and continue cooling efforts until the body temperature drops to 38.3 - 38.8°C (101 - 102°F). Call 911 immediately.

Sea sickness

Sea sickness more commonly known as motion sickness is the reaction to the unfamiliar motion of the boat. The movement of the boat causes stress on the balancing portion of the brain. Your brain sees things on the boat such as walls and furniture and knows from past experience that they are supposed to be still. However, since these items are actually moving with the motion of the boat, the inner ear gets stressed and confused resulting in sea sickness. Before guests board the vessel ask if anyone has experience with motion sickness. If anyone answers yes administer prevention techniques. Even if the answer is no, going for a short tour, will allow you to assess their vulnerability to seasickness and hopefully avoid an unexpected return trip to the dock which may be miles away!

Symptoms

At first a person will become quiet and withdrawn; the person may even curl up into the fetal position. Next nausea will set in followed by vomiting.

Prevention

There are several types of pharmaceutical and non pharmaceutical solutions for prevention of sea sickness. Wearing wrist bands that apply pressure to your wrist where your pulse would normally be taken can reduce the effects of sea sickness. Chewing on ginger root is the most common herbal remedy for seasickness.

Treatment

Face forward on the deck and focus on the horizon, not the boat! Lying down on the deck in the fresh air often helps. Take a remedy before you lie down so that you will feel better after you wake up!

Running aground and collisions

Why you are grounded is not the immediate concern, how you deal with the situation is!

After the initial mental shock and realization of the physical pain that is setting into your head and chest, as a result of hitting the steering wheel, you will need to assess the situation, make decisive decisions and take appropriate action.

Should you run aground immediately shift to neutral, and put on PFD or lifejacket. Make sure everyone is accounted for. Check for leaks and mechanical damage and make the decision if it is safe to stay on the vessel. If it is not safe to stay onboard send a MAYDAY and abandon ship. To help rescuers spot you, stay with the craft whenever possible.

If the decision is made to stay onboard, check for holes in the boat and repair if possible. Tapered wooden plugs, tape, blankets, or towels can all be used to slow down or stop a leak. Attend to any injured person(s) and be sure to remove any water that has entered the boat. When required, call for or display the need for assistance.

A boat that has run aground should be left aground unless it is absolutely safe to dislodge it from the obstruction!

Hull leaks and flooding

Running over a log, submerged rock or tree limb can cause a hole or crack in the vessel. This in turn can cause a leak and if not dealt with swiftly, could result in flooding and perhaps the sinking of the vessel. The cause of the leak could be as simple as a loose fitting or cracked cooling hose.

Tapered wooden plugs or this orange sponge like device can be used to slow or stop a leak!

Regardless of the reason, when water is found to be entering the boat, immediately:

- don lifejackets or a PFD
- stop or slow down the boat, this action may reduce the flow of water entering the boat
- find the source of the leak and if possible, stop the leak
- if required use a recognized distress signal to call for or to display the need of assistance
- abandoning ship may be an option

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Swamping and sinking

When capsized:

- don a lifejacket or PFD
- account for all persons onboard
- determine the risk of another boat hitting you
- use all means possible to stay afloat
- depending on the size of the boat, flipping it over and bailing it out may be an option. If this is not an option, cling to the hull or anything else that floats
- abandoning ship may be an option
- when required use a recognized distress signal to call for or to display the need of assistance

Did you know that a wave measuring 1m high x 1m wide weighs 1000kg?

Swamping is when enough water has entered the boat unexpectedly to the point that sinking may become a reality. The passing of other boats or the wind and waves can both cause **water to crest over and into a vessel that is overloaded!** Anchoring from the stern may also allow the boat to become swamped.

To reduce heat loss climb up onto anything that floats.

Should the boat become swamped:

- don a lifejacket or PFD
- determine the risk of injury by passing boats
- when possible use manual bailers or electric pumps, bail until the boat is safely floating
- if the engine has stalled, restart it and proceed to safety
- when determined that sinking is inevitable, use a recognized distress signal to call for or to display the need of assistance.

Capsizing

Capsizing is when the boat flips over. Causes can include operating in an unsafe manner, or large waves caused by other boats or the wind.

Mechanical breakdowns

Check the primer bulb for cracks!

Proper maintenance and regular inspections will reduce the chance of breakdowns. If the cause of the breakdown cannot be rectified and you are in grave and imminent danger of running aground or drifting into danger, lower the anchor and use a recognized distress signal to call for or to display the need of assistance. **The most common cause of breakdowns is running out of fuel.** Before heading out remember the one third rule. You need one third to get there, one third to get back, and one third for reserve. When a motor is being starved for fuel or running out of fuel it will generally sputter or run faster (surge) just before it stops.

When the boat stops:

- check the fuel level
- when using a portable tank, ensure that the vent screw located on the gas cap is opened and not damaged
- if the boat is equipped with a fuel filter, check it for dirt or water
- check the fuel lines for kinks and cracks
- check oil levels, to prevent damage some motors will shut down when low on oil. Top it up and you should be ok
- check the wiring and spark plugs. Running through rough water may have caused the wiring to the spark plugs or ignition system to come loose
- check the water intake. Plastic bags, weeds, mud, and silt can clog the water intake which in turn will cause the motor to overheat and shut down

Always carry oil, spare clamps, fuel lines, wire terminals and the necessary tools to make minor repairs to the boat.

Fire

How the fire started, does not matter; how you deal with it does!

If a fire starts, you should be prepared and act swiftly. Generally, if you don't get to it within a few minutes, you're too late. You need to make a very fast and decisive decision.

Can you safely put out the fire or should you abandon ship?

If the decision is made to abandoned ship send a MAYDAY, state your location, the number of persons, the cause for the MAYDAY and that you are abandoning ship.

Grab lifejackets, survival suits and anything else that will help you stay afloat and alive in the water. Grab the flares and any other items that can be used to assist rescue teams in locating your position.

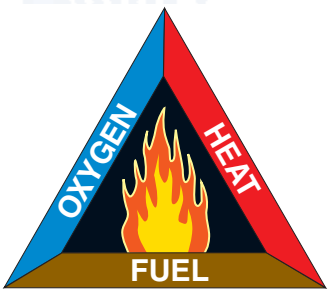
Should you decide that you can put the fire out safely then do it, don't hesitate!

- Order everyone to put on lifejackets or PFDs
- Get the fire extinguisher, activate it, and direct it at the base of the flames using short bursts and a sweeping motion from side to side to put it out
- When possible position the boat so that the fire is downwind (blowing away from you).
- When possible turn off the fuel and electrical supply
- When needed use a recognized distress signal to call for or to display the need of assistance

Remember P.A.S.S.
P. Pull pin.
A. Aim as the base of the flames.
S. Shoot.
S. Sweep side to side.

Just because the fire looks out, does not mean that it is out; spray it again until it is cold.

Never use water to put out gasoline, oil or electrical fires. Water will only spread the flammable liquids and can conduct electrical current.



Fire requires three elements oxygen, heat and fuel. Remove any one of these elements and the fire will go out!

Always read the instructions.
Always carry the appropriate number of fire buckets, axes and fire extinguishers onboard.

To prevent packing or caking, fire extinguishers containing dry chemicals should be shaken once a month.

Transporting a boat

Make wider than usual turns

Transporting a boat for the first few times can be a little intimidating and if not properly prepared can result in breakdowns or worse it may result in an accident! When towing a trailer keep in mind that the added weight of the boat will decrease acceleration, increase the required stopping distance and turning radius. Placing both hands at the bottom of the wheel will assist in reversing a trailer.

Types of trailers

To prevent the hull from sagging or warping, make sure that the trailer adequately supports the boat.

Bunk trailer

Roller trailer

Maintenance

Neglecting regular scheduled trailer maintenance can result in blown tires, damaged wheel bearings, damage to your vehicle and boat or worse an accident.

Don't forget to grease the bearings!

Getting hitched

The use of safety chains is mandatory; chains must be crossed to create a cradle. Leave enough slack in the chains to allow for safe turning.

Cross the chains

Loading

The gear and boat should not exceed 80% of the trailer's rated capacity plate. The tongue weight should be approximately 10% on the heavy side. A trailer that is too tongue heavy will cause vehicle tail drag. When the trailer tongue is too light, the vehicle may fishtail. Most times repositioning items in the boat can help solve this problem. The alternative is to reposition the boat on the trailer.

Ensure the load is secured

Launching

After successfully reaching the launching site, you may be anxious to get out on the water. Relax and take a few minutes to allow the wheel bearings on the trailer to cool down. Hot bearings and cold water do not mix well. Don't forget to use a pre departure check list.

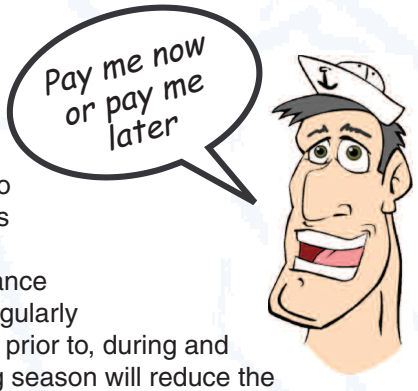
Install the drain plug

Also check that the boat ramp is safe to use and is not in a dilapidated state. Loose gravel or sand on a concrete boat ramp is dangerous and may result in the vehicle ending up in the water! Before dunking the trailer into the water ensure the trailer lights are disconnected.

Courtesy of the U.S. Coast Guard *

To avoid an accidental injury, never start your engines until the boat is in the water.

Maintenance



Unless you are quite competent or have a knowledgeable friend whom you trust, it is a good idea to hire a professional mechanic to follow the manufacturer's instructions and recommended maintenance schedule. Proper and regularly scheduled maintenance prior to, during and at the end of the boating season will reduce the chance of breakdowns on the water.

Keep in mind if you decide to take on repairs and maintenance yourself, that only quality marine grade materials should be used when making repairs on a vessel and the vessel must be seaworthy and conform to the *Construction Standards for Small Vessels*.

Happiness is getting the boat ready for an adventure!

Depression is putting the boat away for the winter!

Spare parts and tool kit

For emergency purposes spare parts and a tool kit should be kept on board.

The following are just a few items that should be included in the emergency repair kit:

Bilge pump, switch, fuses, light bulbs, spark plugs, owner's manuals, belts, hoses, clamps, duct tape, electrical tape, water proof silicone, soft wooden plugs, wire, wire connectors, wire hangers, bailers, screws, nuts and bolts, oil absorbent rags, oil, and other fluids, shear pins for propeller, wiper blades, standard screw drivers, spark plug wrench, batteries for the electronic gadgets on board, emergency portable charging battery pack, etc.

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VOYAGE 9 REVIEW

Question #1
When a person is overboard they should assume the:

A. P.A.S.S. position
B. H.E.L.P. position
C. H.E.A.T. position
D. S.A.F.E. position

Question #2
What are the first signs of hypothermia?

A. Irregular pulse and weak breathing
B. Slow and weak pulse
C. Shivering and slurred speech
D. Unconscious and no pulse

Question #3
To prevent carbon monoxide poisoning you should:

A. Never swim behind a running motor
B. Install carbon monoxide detectors
C. Maintain the exhaust system
D. All of the above

Question #4
To prevent heat exhaustion you should:

A. Drink plenty of alcohol
B. Drink plenty of water
C. Stay in humid atmospheres
D. Stay in the sun for long periods of time

Question #5
How can swamping and capsizing be avoided?

A. By maintaining a proper lookout
B. By tying up to a cleat
C. Tying the anchor from the bow
D. By wearing lifejackets

Answers review 9
1. B
2. C
3. D
4. B
5. A

Boating terms

ABAFT - In a direction towards the stern
ABEAM - At right angles to boat
ABOARD - On or within the boat
AFT - Towards the stern of the boat
AGROUND - Touching the sea bed bottom
ALL-ROUND LIGHT - A light showing an unbroken light over an arc of the horizon of 360 degrees
ASTERN - In a direction or position pointing behind a pleasure craft
ATHWARTSHIPS - At right angles to the centre line of the boat

BATTEN DOWN - Secure hatches and gear
BEAM - The width of a vessel
BIGHT - The part of the rope or line, between the end and the standing part, on which a knot is formed
BLUE FLASHING LIGHT - A blue all-round light flashing at regular intervals at a frequency of 50 to 70 flashes per minute
BOAT - A waterborne vehicle smaller than a ship. One definition is a small craft carried aboard a ship

BOW - The front of the boat, generally the pointy end
BOW LINE - A docking line leading from the bow
BOW SPRING LINE - A line used in docking to prevent the boat from moving forward or astern while made fast to a pier
BRIDGE - The location from which a vessel is controlled
BULKHEAD - A vertical partition separating compartments

CHANNEL - Water deep enough for navigation
CLEAT - A fitting to which lines are made fast
COMPASS - Navigation instrument, either magnetic (showing magnetic north) or gyro (showing true north)
CURRENT - The horizontal movement of water

DEAD AHEAD - Directly ahead
DEAD ASTERN - Directly behind
DEAD RECKONING - A plot of courses steered and distances travelled through the water, using land based objects as points of reference

DRAFT - The depth of water, which a pleasure craft requires to float freely

EBB TIDE - A receding tide

FAST - To make one object secure to another
FATHOM - Six feet
FENDER - Various devices serving to cushion the shocks and protect the side of a pleasure craft
FETCH - The distance travelled by waves
FLASHING LIGHT - A light flashing at regular intervals at a frequency of 120 flashes or more per minute
FOLLOWING SEA - An overtaking sea that comes from astern (behind)
FORE AND AFT - In a line parallel to the keel
FORWARD - Toward the bow of the boat
FOULED - Entangled, knotted or dirtied

FREEBOARD - The minimum vertical distance from the surface of the water to the gunwale and the design waterline

GALLEY - The kitchen area of a boat

GIVE-WAY VESSEL - A vessel that is required to keep out of the way of another vessel
GUNWALE - The upper edge of a boat's sides

HEAD - A marine toilet
HULL - The body of a pleasure craft exclusive of masts, sails, rigging, machinery and equipment, the boats shell

KEDGE - To use an anchor to move a boat by hauling on the anchor rode, a basic anchor type
KEEL - The centreline of a boat running fore and aft
KNOT - A measure of speed equal to one nautical mile (6076 feet) per hour; way of tying a rope (line) together

LEEWARD - The direction away from the wind
LEEWAY - The sideways movement of the boat caused by either wind or current

MASTHEAD LIGHT - A white light placed over the fore and aft centerline 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

NAUTICAL MILE - One minute of latitude; approximately 6076 feet (a statute mile = 5280 feet)

OPERATE - The action of controlling the speed and course of a pleasure craft
OPERATOR - The person in effective charge and control of a pleasure craft and who is responsible for the pleasure craft. Also called the skipper or captain of the boat

PAY OUT - To ease out a line or let it run in a controlled manner
PIER - A loading/landing platform

PLEASURE CRAFT - A boat, a ship, a vessel, or any other description of water craft that is used exclusively for pleasure, and does not carry passengers or goods for hire, reward, remuneration or any object of profit

POWER-DRIVEN VESSEL - Any vessel propelled by machinery

RIGGING - The general term for all the lines of a vessel
RODE - The anchor line and/or chain
RUDDER - A board used for steering a boat
RUNNING LIGHTS - Lights required to be shown on boats underway between sundown and sunup

SAILING VESSEL - Any vessel under sail provided that propelling machinery, if fitted, is not being used
SEA ANCHOR - Any device used to reduce a boat's drift before the wind
SIDELIGHTS - A green light on 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 fixed to show the light from right ahead to 22.5 degrees abaft the beam on its respective side. In a vessel of less than 20 metres in length the sidelights may be combined in one

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lantern carried on the fore and aft centre line of the vessel
SPECIAL FLASHING LIGHT - A yellow light flashing at regular intervals at a frequency of 50 to 70 flashes per minute, placed as far forward and as practical on the fore and aft centreline of a vessel and showing an unbroken light over an arc of the horizon of not less than 180 degrees nor more than 225 degrees and fixed to show the light from right ahead to abeam and not more than 22.5 degrees abaft the beam on either side of the vessel
STARBOARD - The right side of a boat when looking forward

STERN - The after part of a pleasure craft, the back end of the boat
STERN LIGHT - A white light placed as nearly as practical at the stern showing an unbroken light over an arc of the horizon of 135 degrees and fixed to show the light 67.5 degrees from right aft on each side of the vessel
SWAMP - To fill with water, but not sink

TIDE - The rise and fall of water
TRIM - Fore and aft balance of a boat

UNDERWAY - That a pleasure craft is not at anchor or made fast to the shore

VESSEL - Includes every description of water craft, including non-displacement craft, seaplanes; used or capable of being used as a means of transportation on water

WAKE - The disturbed column of water around and behind a moving pleasure craft, which is set into motion by the passage of a pleasure craft. The big wave created by a passing boat
WASH - The loose or broken water left behind a pleasure craft as it moves along and includes the water thrown aft by the propeller

WATERLINE DESIGN - The waterline at the recommended maximum gross load capacity. It is the point where the boat floats safely when properly loaded
WINDWARD - The opposite side of the main sail

YAW - To swing off course

Resources:

Offices of Boating Safety
1 800 267 6687

Search and Rescue:

Pacific Coast
Joint Rescue Coordination Centre Victoria
1-800-567-5111 or 1-250-363-2333

Great Lakes and Arctic
Joint Rescue Coordination Centre Trenton
1-800-267-7270 or 1-613-965-3870

St. Lawrence River
Maritime Rescue Sub-Centre Quebec
1-800-463-4393 or 1-418-648-3599

Newfoundland and Labrador Coast
Maritime Rescue Sub-Centre St. John's
1-800-563-2444 or 1-709-772-5151

Maritimes Coast
Joint Rescue Coordination Centre Halifax
1-800-565-1582 or 1-902-427-8200

Other Organizations:

Canada Border Services Agency
Border Information Service: 1-800-461-9999
Outside Canada: 1-204-983-3500 or 1-506-636-5064

National Boating Safety Line
Tel.: 1-800-267-6687

Environment Canada
Tel.: 1-877-789-7733
E-mail: weather.info.meteo@ec.gc.ca

Canadian Hydrographic Service
Tel.: 1-613-998-4931
E-mail: chsinfo@dfo-mpo.gc.ca

Industry Canada
Tel.: 1-800-328-6189

Canadian Beacon Registry
Tel.: 1-877-406-7671

Government of Canada Publications
Marine publications and regulations
Website: www.publications.gc.ca
Tel.: 1-800-635-7943

Bibliography:

Boating Safety Course and Test Syllabus
Safe boating guide

*Courtesy of US Coast Guard

The Canadian Coast Guard
The Canadian Life Saving Society
The Canadian Red Cross
The Canadian and US Power and Sail Squadrons
Capt Robert Shannon
Tony Urik (Fire Fighter)
Chapmans Piloting

This course is in memory of George Powis

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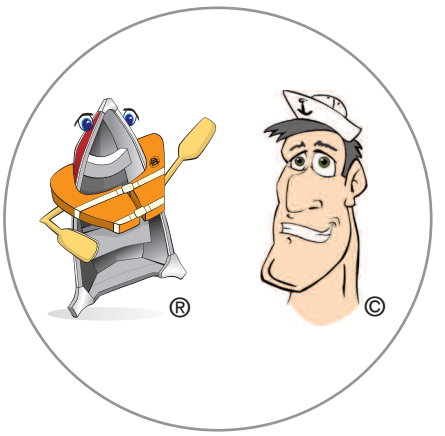

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