

PLEASURE CRAFT  
OPERATOR CARD  
STUDY GUIDE

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# Pleasure Craft Operator Card • Study Guide



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This course has been accredited by the Canadian Coast Guard strictly on the basis that it meets the minimum requirements of basic boating safety knowledge set out in the Canadian Coast Guard Boating Safety Course Standard.

## **Introduction**

There has been a public demand for boating safety education and an age limit on boat handling in Canada. Boating safety course providers have responded to this demand by requesting that the Canadian Coast Guard accredit their courses. The Coast Guard has responded by creating a course standard and by introducing new regulations pertaining to age and competency of boat operators.

This study guide has been produced to give its readers the basic knowledge necessary to acquire a Pleasure Craft Operators card. Most importantly, it will provide a measurable level of knowledge related to safe boating, and will develop skills that can enable you to have a lifetime of enjoyable boating. We will introduce you to rules and regulations. We will demonstrate what they mean and how to apply them in real life situations.

We will give you basic knowledge that will help you understand and use charts, aids to navigation, and to communicate effectively with other pleasure craft operators.

We will show you how to prepare for and avoid dangerous situations and how to protect our environment for generations to come.

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# Chapter 1

## Rules and Regulations

### Collision Regulations

One of the most difficult things to contend with when operating a boat is how to anticipate the actions of other boaters. Since people from all over the world enjoy boating, a common way of communicating has been developed.

The best way to communicate indirectly with other boaters is to develop norms and reasonable responses, as well as ways to identify other boats and what they are doing. Since it is very important for all boaters to follow this communication, it has become law under the Canadian Shipping Act.

**These laws are known as the Regulations for the Prevention of Collisions or, for short, the Collision Regulations.**

### Rules

**The Laws written in these Collision Regulations are known as Rules.** These rules apply to every vessel on any body of water.

In some cases an appropriate authority has made special rules that it feels are reasonable for their area. The Collision Regulations do not interfere with these local authorities as long as their effect does not interfere with an operator's understanding of another vessel's intentions.

Local governments may also develop lights, shapes, and sound signals for special reasons. It is important that they be clear and that they not be misunderstood to be one of these Rules.

## Traffic Separation Schemes

Local governments may also make special routes with special rules to insure safe passage of boats. These routes and rules are known as **Traffic Separation Schemes**.

When someone has built a boat that, because of special characteristics, cannot follow the regulations for lights, sounds, and shapes, they may fit ones that the appropriate authority feels is as close as possible. Examples of this could be a short mast, designed to go under a bridge that is not tall enough to put up 3 shapes, a light that has to be moved because its visibility is blocked by a special crane, or a whistle that would cause injury to a crewmember.

**With all forms of communication there are failures because not everyone knows the meaning of every word in a language.** To avoid collision, injury or damage to personal property you must take action even if it means breaking a rule. “The rule said to turn left,” is no excuse for running into a boat whose operator turned the wrong way. He may not have read the collision regulations or his boat could not stop fast enough.

## Vessel Propulsion

**There are three ways to propel a boat through the water.**

1. The first is a “**power-driven**” vessel. A power-driven vessel is a vessel propelled by machinery such as an inboard-outboard, outboard, propeller and shaft or jets. This category includes boats, seaplanes and hovercraft.
2. The next one is a “**sailing**” vessel. A sailing vessel is a sailboat that is underway but not being propelled by machinery. It includes such boats as windsurfers, dinghies, and sailboards.
3. The third way to propel a vessel is “**manually**”. This means you are making it move with oars, paddles or pedals. Examples would be a canoe, pedal boat or rowing shell.

## **Avoidance of Accidents**

**Every operator of a pleasure craft has to, at all times, keep a proper lookout by sight and hearing.**

The reason for this could be:

- to keep an eye on how deep the water is.
- to avoid a shoal.
- to avoid a swimmer in the water.

These things are difficult to see from behind the wheel. You should inform your companions that, if bad weather or fog sets in, they have to be the look out from an appointed area in the boat.

**The time to convince them to stand in the wet and the cold is not when you cannot see where you are going.**

You should also tell your companions to listen for sounds and report any to you. When you are at the wheel, the engine noise can interfere with your hearing.

A lookout can also be someone using radio, depth sounder, radar, a Global Positioning System, etc., to insure the safety of your boat. Once you or your lookout have spotted another vessel or obstacle in your area, you must determine if you could have a collision.

**You should use every means available to you to determine if a risk of collision exists.**

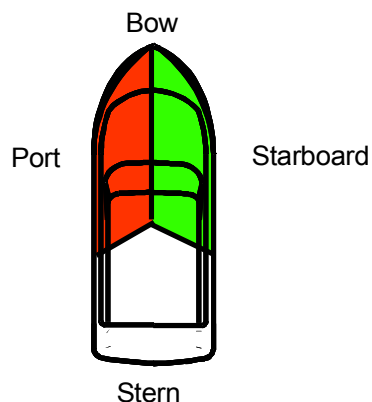
**A risk of collision** occurs when the object or vessel stays on the same bearing of your compass or radar or remains in the same place in your windshield. If the object or vessel is moving across your windshield or changing its bearing on your radar or compass, you will likely pass by safely.

## To Give Way or to Stand On

If you are the operator of a pleasure craft less than 20 metres in length or a pleasure sailing craft, you must give way to a vessel which can only safely navigate a narrow channel or fairway. There is good reason for this Rule. If a large vessel has to turn to avoid you, he could run aground. If he went into reverse to stop, his stern could move to the side causing the stern to ground or propellers to tangle in buoy chains.

If you are the operator of a pleasure craft less than 20 metres in length or of a pleasure sailing craft, you must not impede the safe passage of a power driven vessel (ship) that is using a traffic lane. Traffic separation schemes exist in order to allow safe passage of large and usually quite fast vessels through sometimes confined areas. If you are not sure of where a channel or traffic separation scheme is, it is always a good idea to stay well clear of large vessels. They cannot turn or stop very fast and you could be run down without them even knowing that you were there.

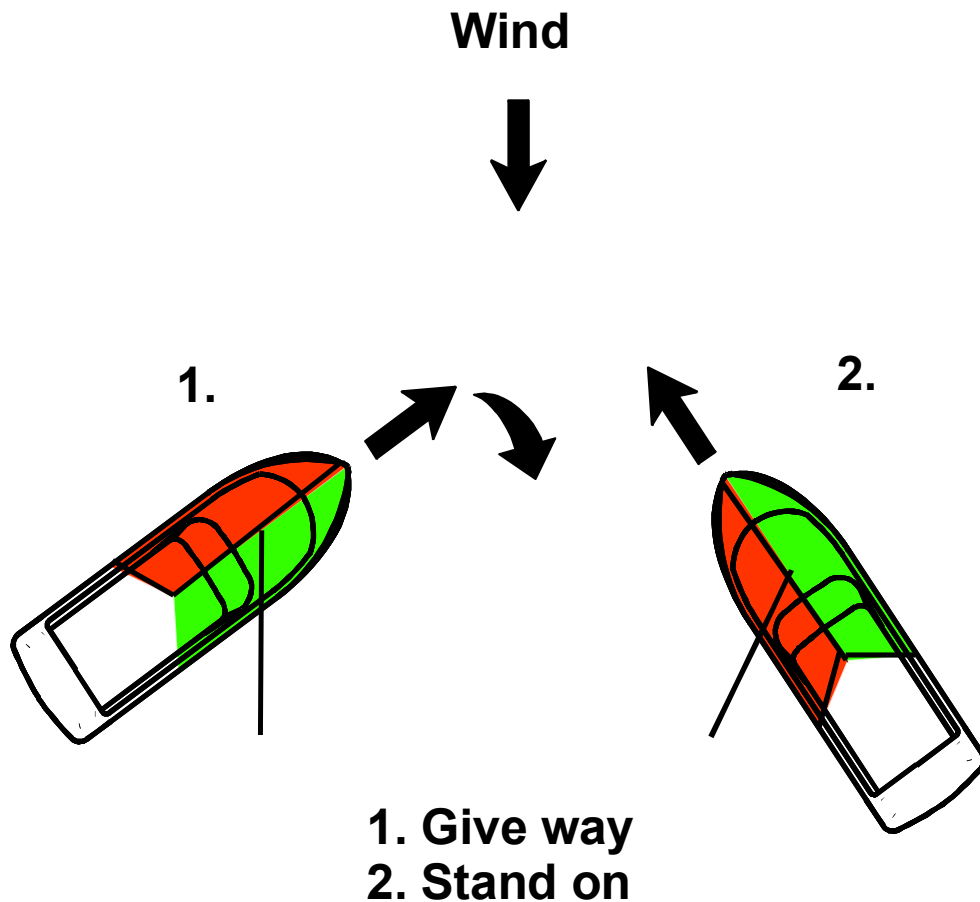
It is also very dangerous to cross in front of a ship. Your motor could quit or run out of gas. The ship could also block the wind leaving your sails in shudders. **A SHIP CANNOT STOP IN TIME.**



(1-2)



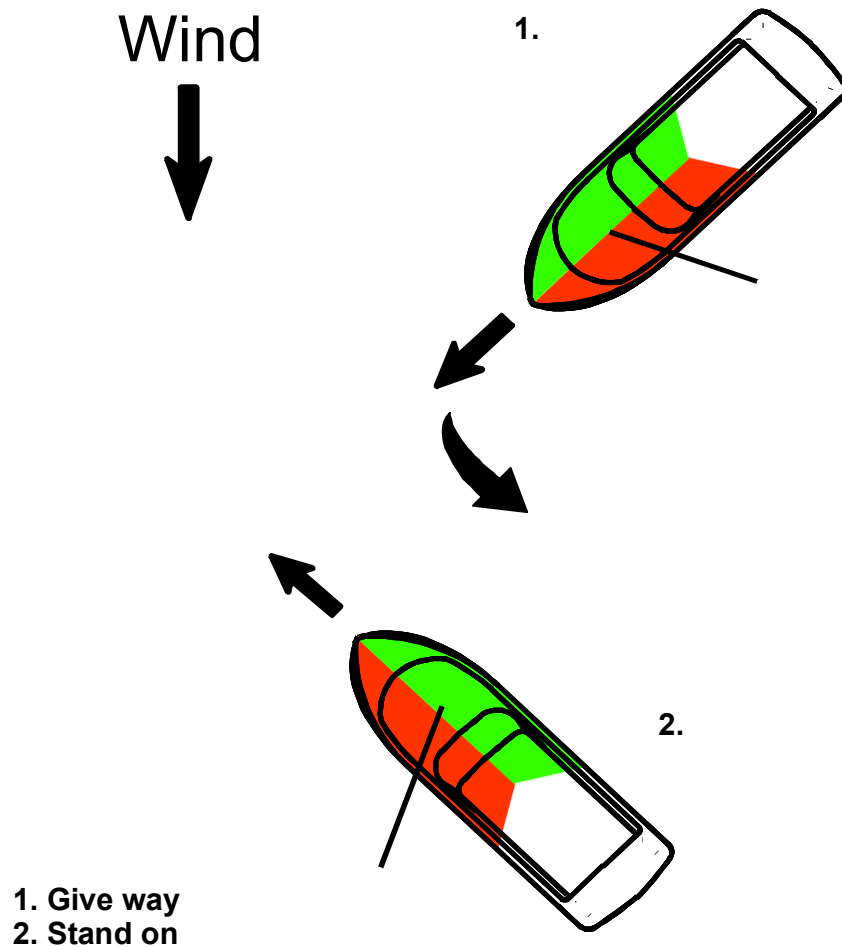
**The operator of a pleasure sailing craft, that has the wind on the port side, shall take early and substantial action to keep well clear of other sailing vessels.** It is important that you take early and substantial action so the stand on vessel knows that your intention is to alter course, so your vessel passes with the stand on vessel's stern to your port side.



(1-2)

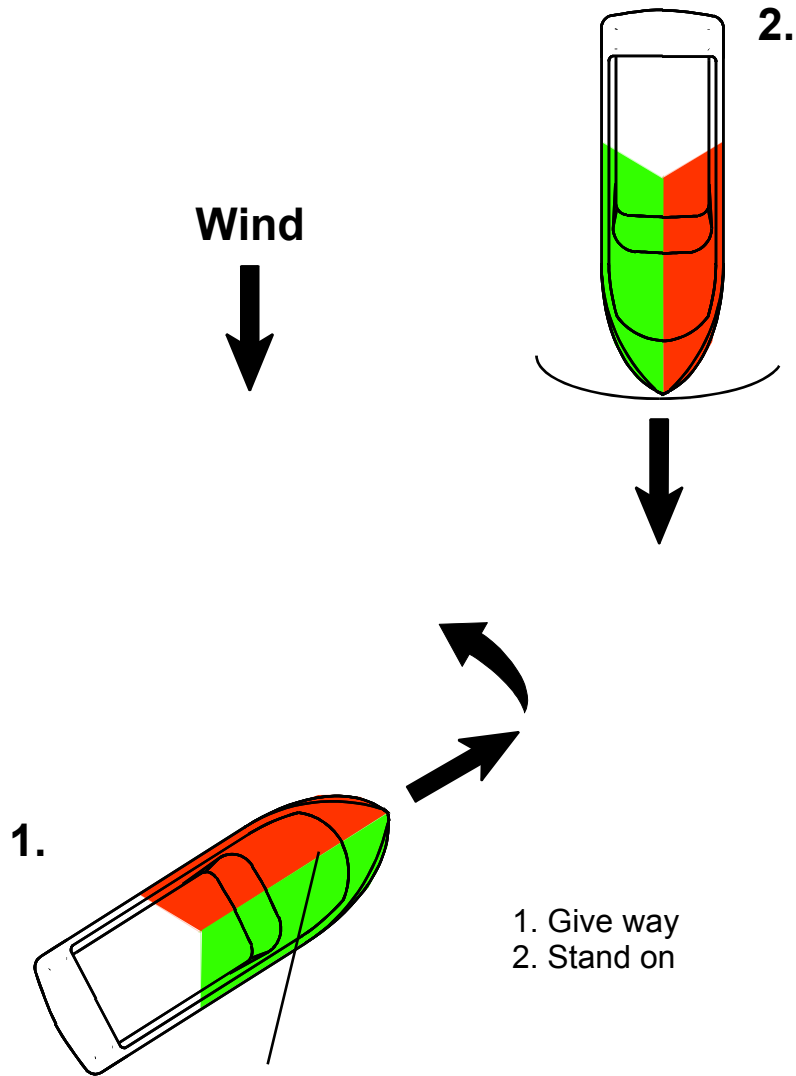
When you are the give way vessel, it is important that you communicate your intentions to the other vessel with an early and substantial alteration so that your intentions are clearly understood.

When you are sailing and see a sailing vessel to your windward with the wind on the same side as you, you are on the leeward side and the vessel on the windward side shall take early and substantial action to keep well clear.



(1-3)

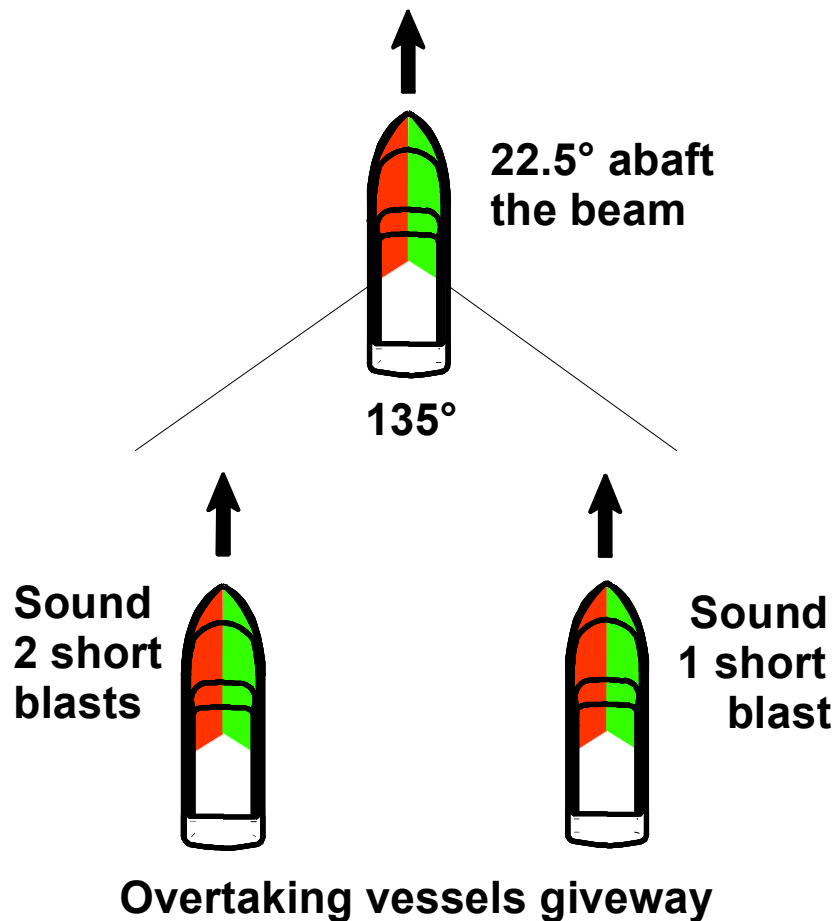
When you are sailing with the wind on your port and you cannot determine whether the other sailing vessel to windward has the wind on the starboard or port side, you shall take early and substantial action to keep well clear.



**For the purpose of these rules, the windward side is the side opposite to the side the mainsail is carried on. If the vessel is only using a spinnaker or if you cannot tell which side the wind is on, then the side the wind is blowing on is deemed to be “undetermined”.**

This definition exists so a definite rule applies and you do not have to determine an accurate wind direction.

**If you are approaching another vessel at an angle so that your approach is greater than 22.5° abaft her beam, you are deemed an overtaking vessel.**

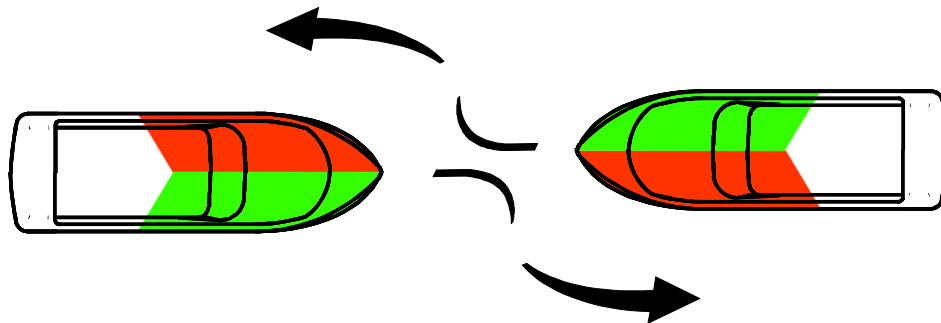


(1-5)

If you are not sure if you are an overtaking vessel, you should assume that you are and keep clear of the other boat. At night, if you can see the stern light or all round white light but not a side light, you are in this position. As you reach a point where you see the flicker of a sidelight you are reaching a point of 22.5° abaft her beam.

It is always a good idea to contact the vessel being overtaken on your marine radio. They may not know you are behind them and could make a sudden change in their course, causing a collision. You are deemed the overtaking vessel until you are well clear of the other vessel and there is no longer a risk of collision. You are required to take early and substantial action to keep clear of the vessel being overtaken.

**When two power driven vessels are meeting on an end on course, each vessel shall alter its course to starboard. The vessels will pass port to port.**

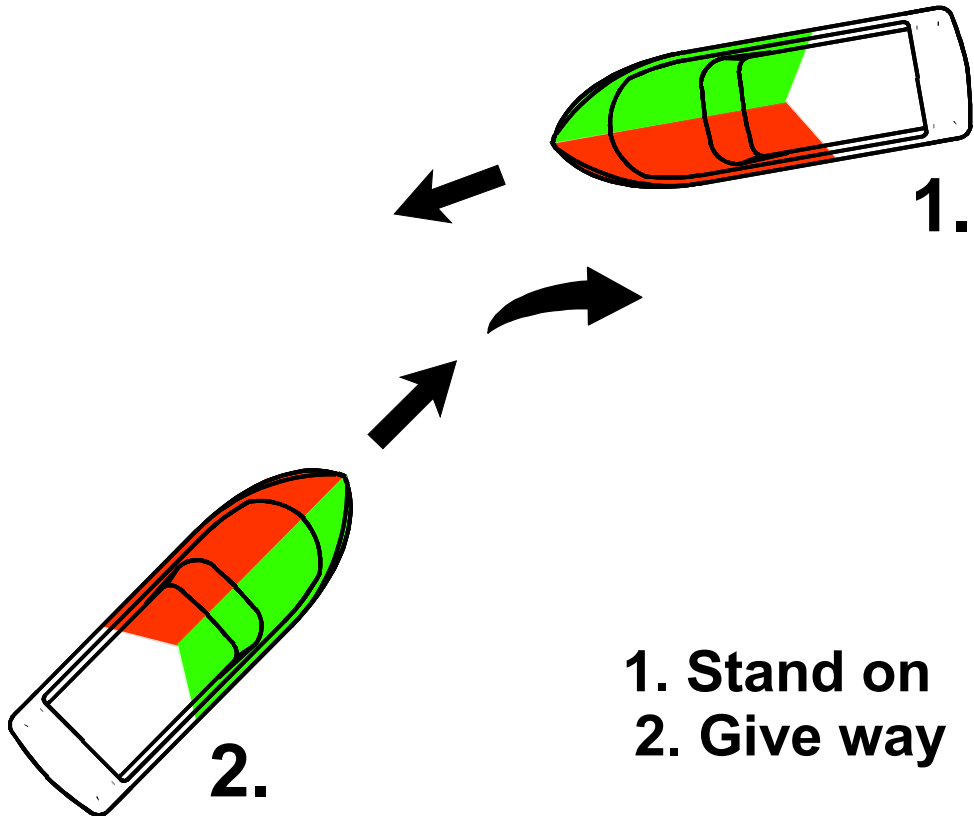


**Sound one short blast (1 second) each.**

(1-6)

At night you can tell you are end on if you can see the mast light and one or both sidelights. Do not forget that you can use your marine radio to communicate your intentions to the other vessel.

**When another power driven vessel is crossing on your starboard side you must give way to that vessel by taking early and substantial action to keep well clear. You can do so by slowing down, stopping or altering your course to pass behind. You should not pass in front of him, especially at night, when it is harder to judge distance and speed.**



(1-7)

**The vessel that the give way vessel is keeping clear of is known as the stand on vessel. The obligation of the stand on vessel is to maintain her course and speed until the vessels have safely passed.**

If the actions of the give way vessel are not enough or you feel he does not understand, the stand on vessel must alter its course or speed to avoid collision. **Never alter your course towards another vessel.**

The give way vessel cannot alter its course in order to take advantage of another regulation to become a stand on vessel.

**You are deemed give way or stand on until you have safely passed.**

**When you are operating a power driven pleasure craft, you must keep well clear of sailing and fishing vessels.**

A sailboat does not maneuver well. It has no reverse power. Sudden changes in winds could cause it to stop or capsize in your path. Sailboats are also very slow to change course. Your vessel can rob windsurfers and small sailboats of their wind and cause them to lose control.

There are many different kinds of fishing boats. People stand in small boats to fish and your wake could upset them, causing injury. You could also run over their fishing lines, which could damage your neoprene seals and bearings. You could also damage your boat hitting cables and nets on larger fishing vessels.

**As a general rule, keep clear of any boat that is less maneuverable or doing some kind of work.**

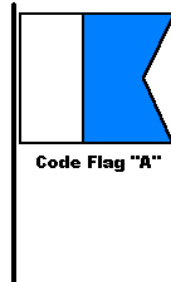
**When operating your pleasure sailing vessel, you must keep out of the way of a vessel engaged in fishing. You must also avoid other less maneuverable vessels.** Your vessel could become tangled in fishing lines, cables and nets. Worse still, you could capsize your dinghy, or windsurfer and be drowned by fishing gear.

**If your vessel is engaged in diving, you must use the day signals for your vessel.**

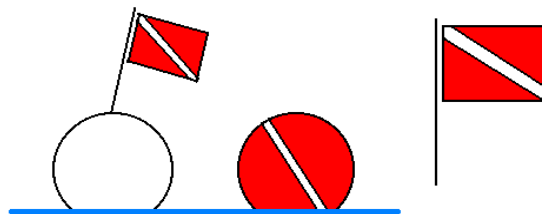
1. Black ball for anchor.  
2 Black balls for not under command.
2. Code flag "A" for a diver in the water.

3. Red and white flag and floats to mark off the area that divers are active in.

**If you see any of these markers, stay well clear of them.**



(1-8)



(1-9)

Divers should make sure the flags are large and can be seen from 360°, at a distance far enough away so that a vessel can alter its course to go around them.

**A Power driven vessel underway must keep well clear, as soon as he spots a dive boat, by taking early and substantial action to avoid accidents.**

This action will provide ample time to:

- avoid running over a diver.
- avoid severing an air hose or recovery rope.



- avoid becoming entangled in other tackle.

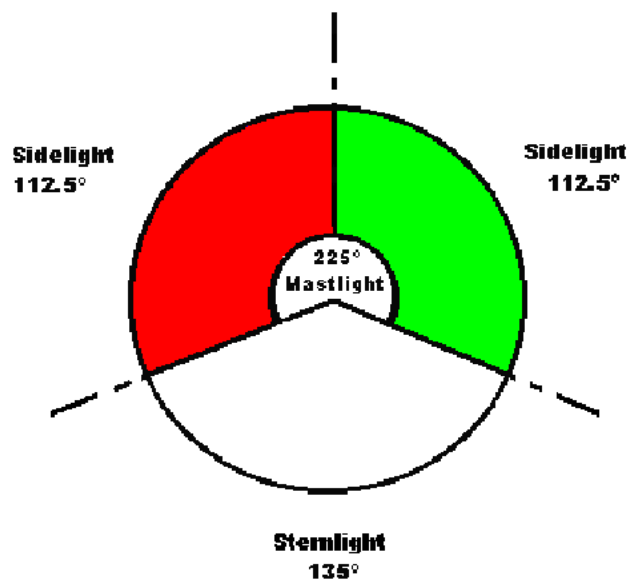
Get to know dive sights in your area and consider a boat in these places to be divers. The dive flags may be so small that you are on top of them before you see them.

Red and white flags can easily be mistaken for Canadian flags if the winds are light. If a blue and white Code flag "A" is draped against the mast, it can be mistaken for the flags of the Coast Guard, Power Squadron flag or the Fleur de Lys.

## Lights and Shapes

**In order to communicate what another vessel is doing, different lights and shapes have been accepted as norms to represent these actions.**

It is important that you understand the angles and colours of these lights so you can tell how you will leave the other vessel.



(1-10)

## Navigation Lights

### Masthead Light

The masthead light is a white light placed over fore and aft centre line of a vessel showing an unbroken light over an arc of  $225^\circ$  of the horizon.

### Sidelights

On either side of the bow are **sidelights** that shine straight ahead to  $112.5^\circ$  on each side.

On the **port side is a red light** and on the **starboard side is a green light**. These lights are placed in strategic locations or have screens to stop the lights from showing across the centre line of the vessel.

### Sternlight

On your stern, there is a white light with a screen placed so that it will show straight behind you to  $67.5^\circ$  on each side, making a total of  $135^\circ$ .

### All Round White Light

This is a white light that shows an unbroken light over the arc of the horizon of  $360^\circ$ .

- A power driven vessel, when underway between sunset and sunrise or when visibility is low, (rain, fog, hail and snow) shall exhibit mast light, sidelights, and stern light. These lights are usually wired to one switch marked Navigation Lights.
- If you have a power driven vessel of less than 12 metres in length, you may have an all round white light and sidelights in lieu of a masthead light forward, sidelights and a stern light.
- When underway, a sailing vessel shall show sidelights and a stern light in times of restricted visibility and between sunset and sunrise.
- A sailing vessel of less than 20 metres, underway between sunset and sunrise or in times of restricted visibility can display at or near

the top of the mast, combined sidelights and stern light in one lantern instead of sidelights and stern lights.

- A sailing vessel of less than 7 metres in length may, in lieu of sidelight and stern light, carry a lantern or flashlight that can be shown in time to prevent a collision.
- A manually propelled vessel may, in lieu of sidelight and stern light, carry a flashlight or lantern that can be shown in time to prevent a collision.
- A pleasure craft less than 50 metres in length, from sunset to sunrise, or in times of restricted visibility, when at anchor shall display an “all round” white light at the top or as near as possible to the top of the mast in the fore part of the vessel.

### **Sound Signaling Devices**

- A vessel of less than 12 metres in length must carry some type of sound signaling appliance (such as a hand held compressed gas horn or a whistle) capable of making a sufficient sound to avoid collisions, or attract attention in an emergency situation.
- When you are underway in a power driven vessel in areas of restricted visibility, either by day or night, you are required to sound one prolonged blast at intervals of not less than 2 minutes.
- When you are under way in a sailing vessel in an area of poor visibility, during the day or night you will sound one prolonged blast followed by 2 short blasts.
- A power driven vessel underway but stopped and not making way will at intervals of not more than 2 minutes, sound 2 prolonged blasts with a 2 second pause between them.

**Charts**  
**And**  
**Aids to Navigation**

## Chapter 2

### Aids to Navigation

**The Canadian “Aids to Navigation” System has been designed to aid vessel operators in safe navigation of our rivers and lakes.** The devices and systems that make up our navigation systems are designed to be identified from a pleasure craft at a distance far enough ahead for them to avoid dangers and obstructions and also show operators the best route for them to follow.

To help you to identify them in times of poor visibility, many are fitted with lights of different characteristics, radar reflectors and retroreflective patches.

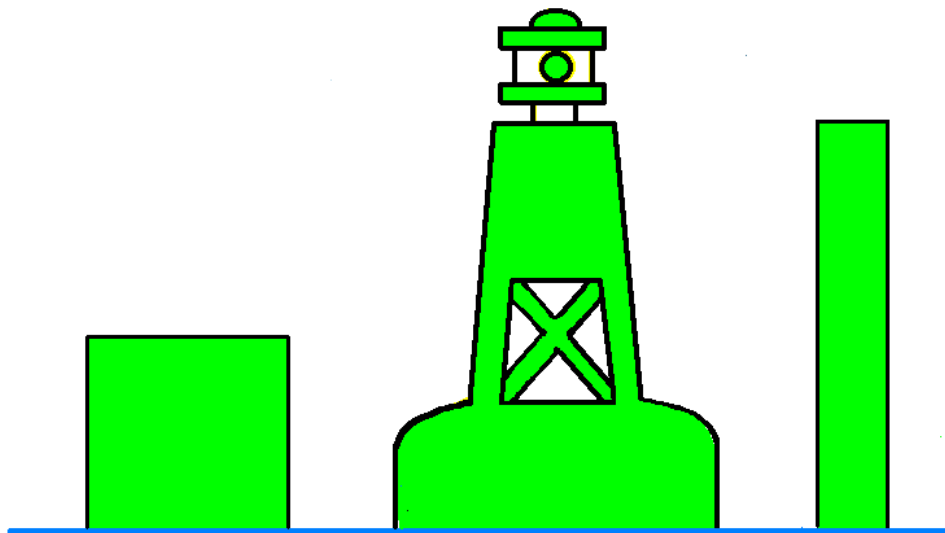
It is best to use a chart to help you identify the types of devices ahead, as well as their locations. If you don't know where these devices are, they can become another obstruction you can have a collision with.

**Note: For the purpose of these markers upstream means going away from the ocean or going into the current. Downstream means going with the current or toward the ocean.**

## Port Hand Buoy (Green)

**When proceeding upstream, you always keep a port hand buoy on your left hand side.** This buoy marks the left boundary of the channel or of some kind of danger or obstruction.

A port hand buoy is identified by its green colour. It has a flat top if it does not carry a light. If it does carry a light, it is green and flashes at 4 second intervals-(FI)4s or is quick flashing at 1 second intervals-(Q)1s. Some of the markers have a top mark of a single green cylinder. They display a letter and an odd number for reference purposes and may have green retroreflective material.

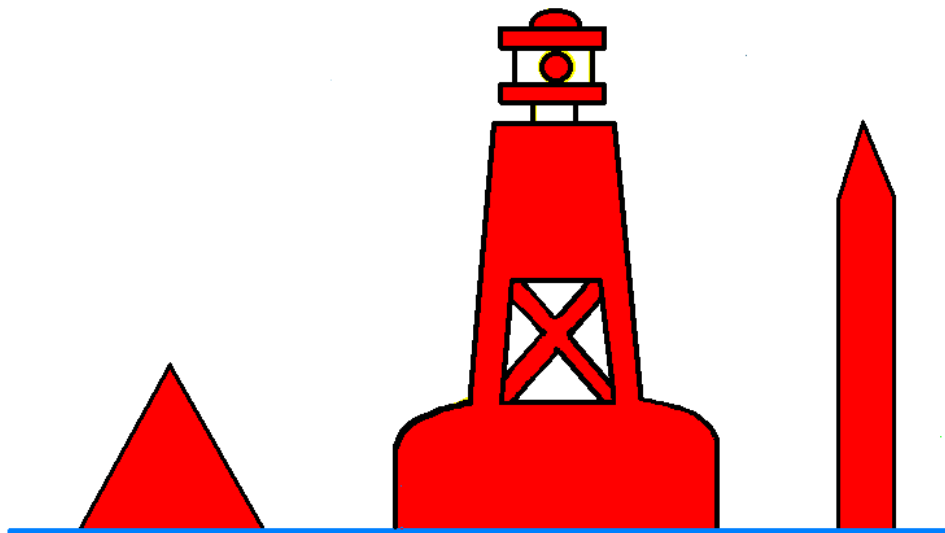


(2-1)

## Starboard Hand Buoy (Red)

**When proceeding upstream, you always keep a starboard hand buoy on your right hand side.** The starboard hand buoy marks the right boundary of the channel or of some kind of danger or obstruction.

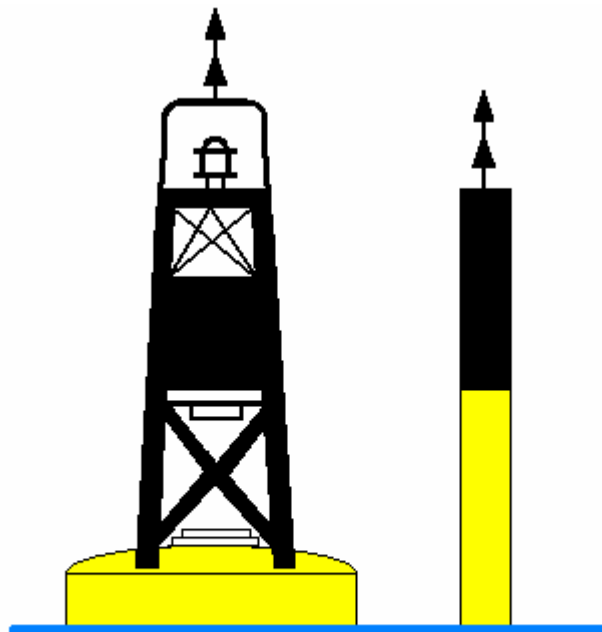
The starboard hand buoy is identified by its red colour. It has a pointed top if it does not carry a light. If it does carry a light, it is red and flashes at four second intervals-(FI)4s or is quick flashing at 1 second intervals-(Q)1s. Some of the markers have a top mark of a red cone pointing up. They display a letter and an even number for reference purposes and may have red retroreflective material.



(2-1)

## North Cardinal Buoy

**A north Cardinal buoy is positioned so that the safest course is to pass to the north of it.** The top half of the buoy is black and the bottom half is yellow. If it does not have a light it will usually be spar shaped and if it has a top mark, it is two triangles one over the other with both pointing up. If it has a light, it is either flashing every second or very quick flashing every .5 seconds. They are also lettered and may have white retroreflective material.

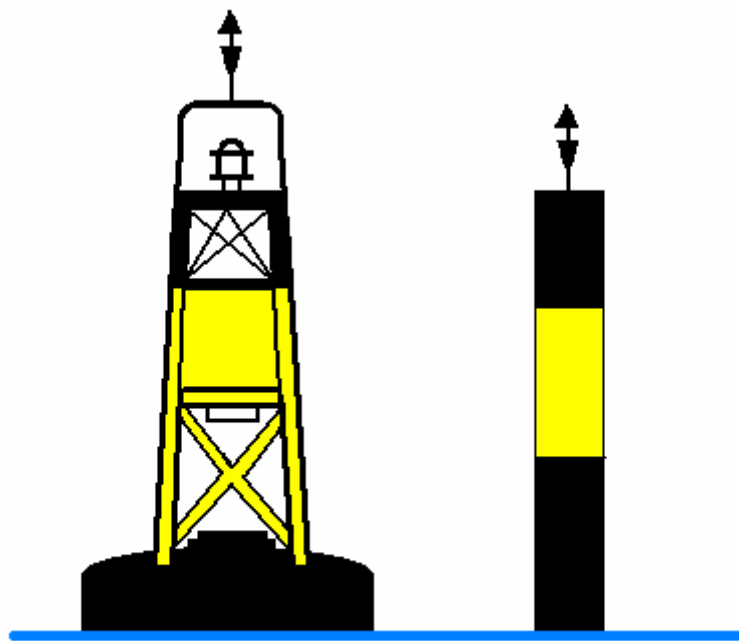


(2-13)



## East Cardinal Buoy

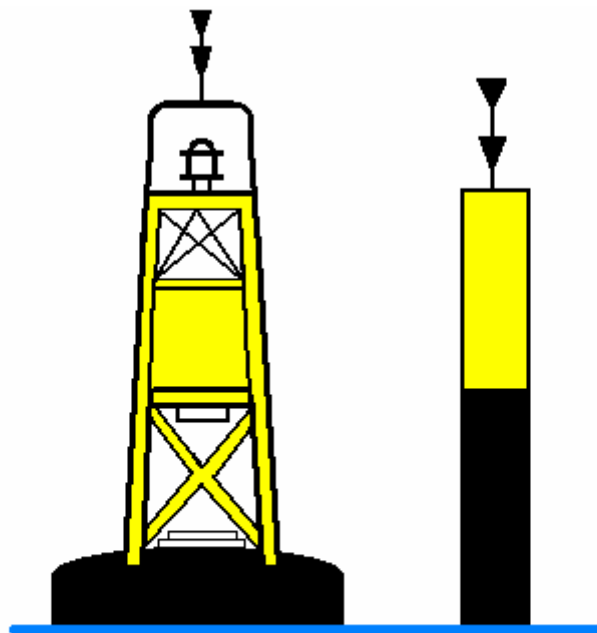
**An east Cardinal Buoy is positioned so that the safest course is to pass to the east of it.** It is yellow in the middle and has a black top and bottom. If it does not have a light it will normally be spar shaped. If it has a top mark it has two black cones, one over the other. The bottom one points down and the top one points up. If it has a light, it is white with either 3 quick flashes every 10 seconds or 3 very quick flashes every 5 seconds. They are also lettered and may have white retroreflective material.



(2-14)

## South Cardinal Buoy

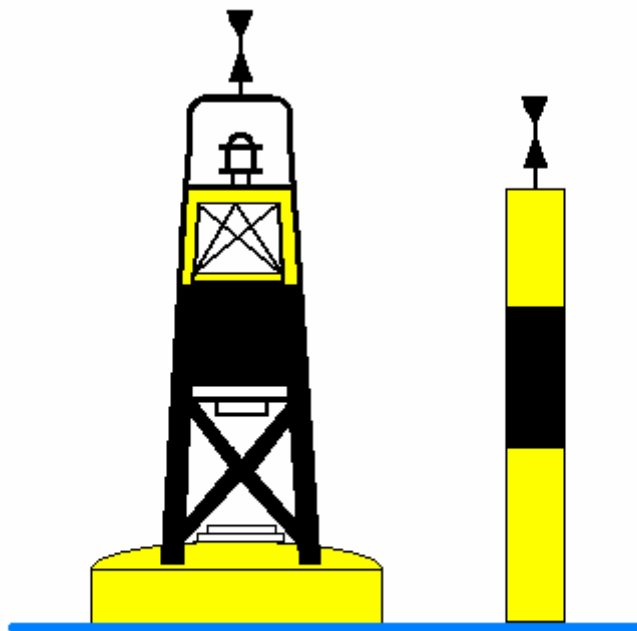
**A south cardinal buoy is positioned so that the best course is to the south.** The top half is yellow and the bottom is black. If it carries a top mark it is two black cones, one above the other, both pointing down. If it does not have a light, it is normally spar shaped. If it has a light it is a white light that either flashes six quick flashes and one long flash every 15 seconds or 6 very quick flashes and one long flash every 10 seconds. The south cardinal buoy is also lettered and may have white retroreflective material.



(2-15)

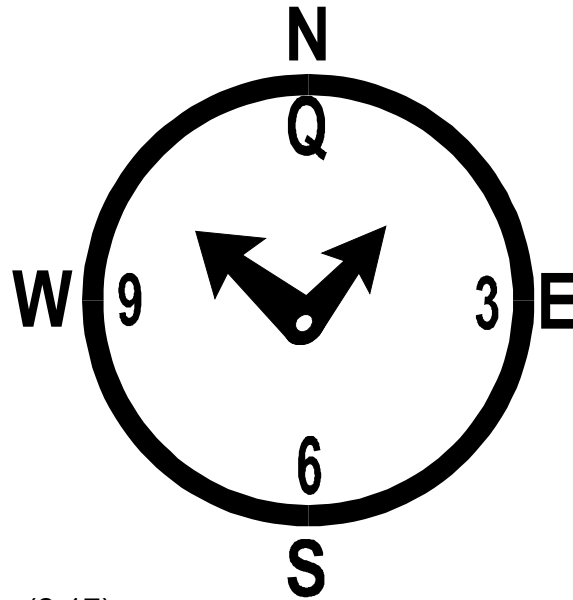
## West Cardinal Buoy

**A West Cardinal Buoy is positioned so that the best course is to the West.** The top and bottom are yellow with black in the middle. If it has a topmark it is two cones one over the other with both pointing together. If it does not have a light it is normally spar shaped. If it has a light, it flashes nine quick flashes every 15 seconds or 9 very quick flashes every 10 seconds. They are also lettered and may have white retroreflective material.



(2-16)

## Cardinal Buoys Hints



(2-17)

### Time=Number of Flashes

**East** is 3.00 o'clock=3 flashes

**South** is 6:00 o'clock=6 flashes

**West** is 9:00 o'clock=9 flashes

**North** is Quick flash=1 flash

### Black=Oil

**Up**, oil north in Alaska

**Down**, oil south in Texas

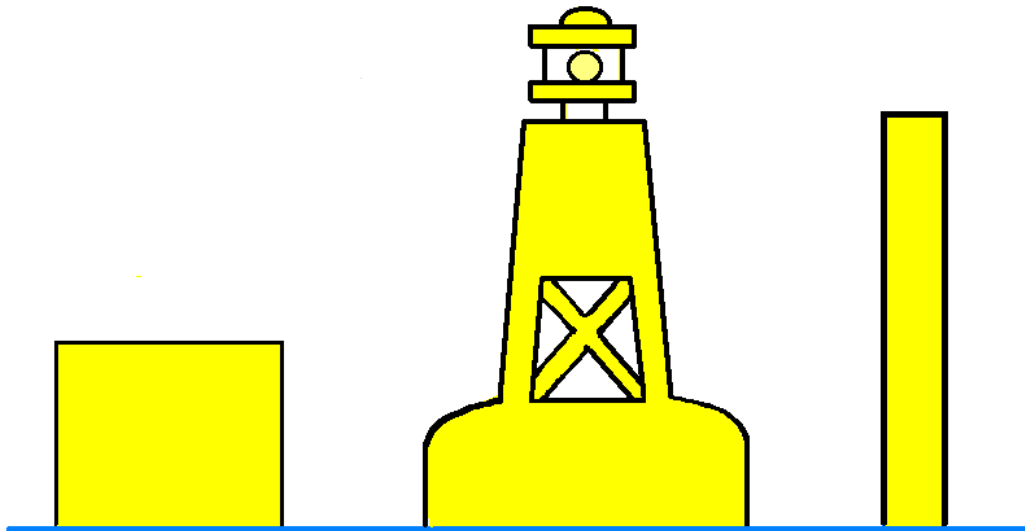
**Middle**, oil mid-west in Alberta

**East**, oils north and south

## Cautionary Buoy

A cautionary buoy marks areas of traffic separation schemes and places where operators are warned of danger such as race courses and firing ranges, underwater structures and areas where no safe through channel exists.

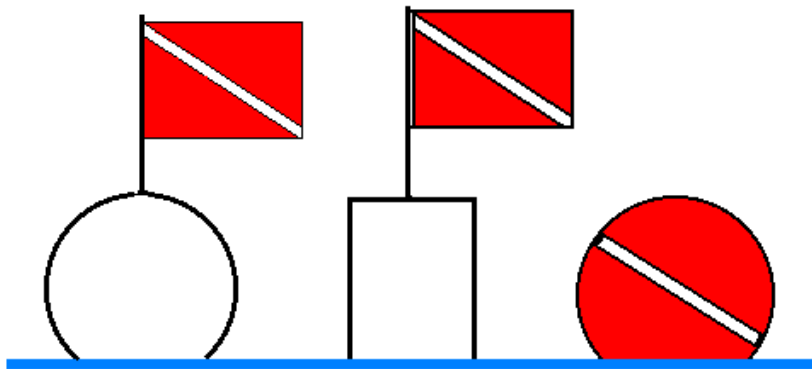
They are painted yellow and display identification letters. If they carry a topmark, the topmark is a single yellow X and if it carries a light, it is a yellow one flashing every 4 seconds. The buoy may have yellow retroreflective material.



(2-18)

## Diving Buoy

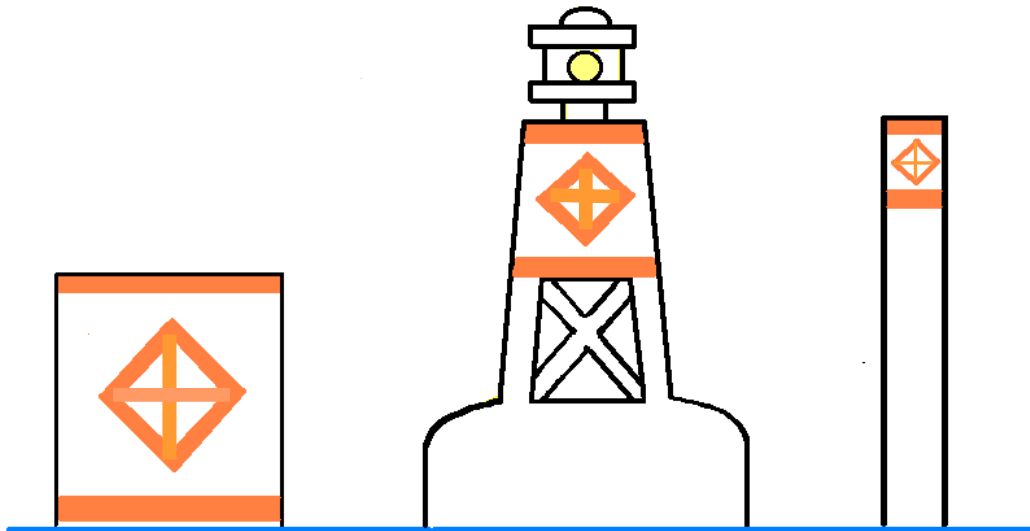
A diving buoy marks an area that scuba divers are using. It is a white marker with a flag of at least 50 centimetres square. The flag is red with a white stripe from the top at the mast, diagonally across to the bottom. If it carries a light, it is a yellow one flashing every 4 seconds. It also has yellow retroreflective material.



(2-19)

## Keep Out Buoy

**A Keep Out Buoy marks an area you are not allowed to enter.** It is white with an orange diamond and cross on two opposite sides with two stripes, around under and over the diamond. If it has a light it is a yellow one flashing every 4 seconds. It also has yellow retroreflective material.

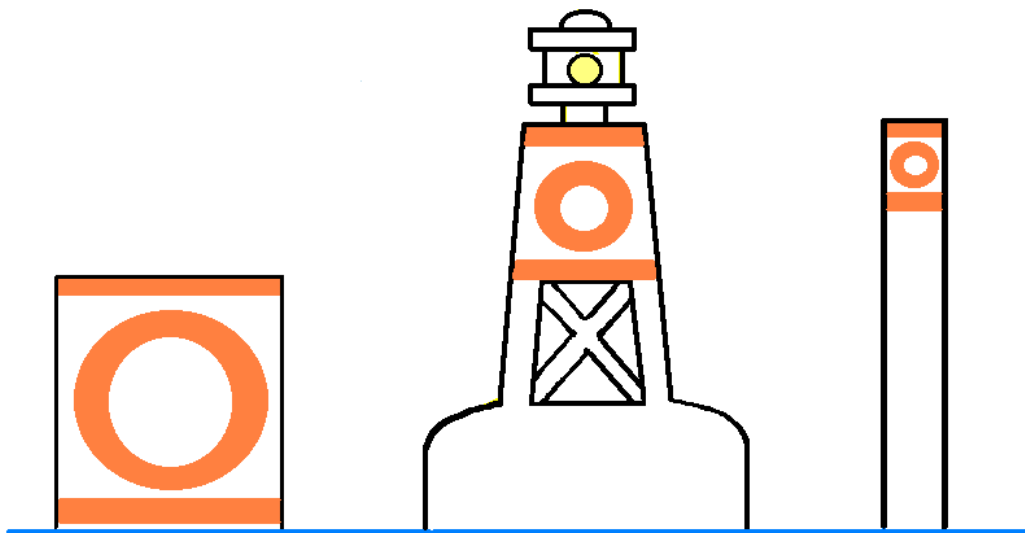


(2-20)

## Control Buoy

**A control buoy informs you of a restriction.** It is a white marker with orange circles on opposite sides. Under and over the two circles is an orange stripe.

Inside the circle is marked the nature of the restriction such as no power boats or maximum speed. If it has a light it is a yellow one flashing every 4 seconds. It also has yellow retroreflective material.

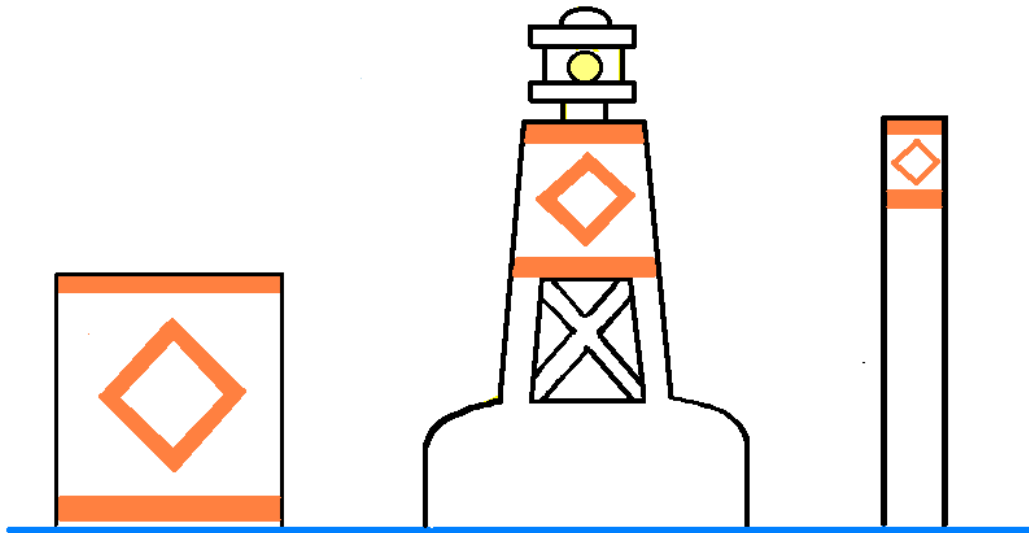


(2-21)



## Hazard Buoy

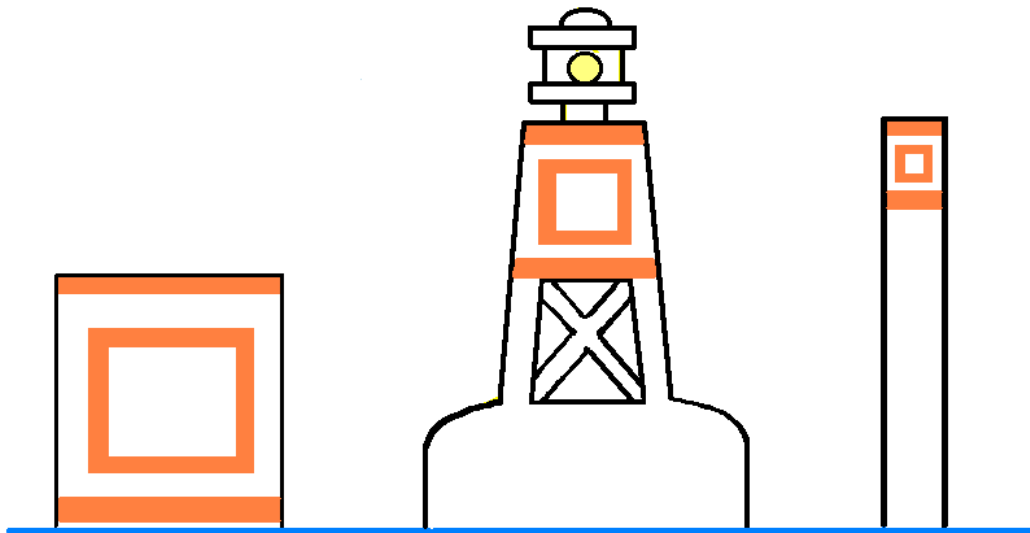
**A Hazard buoy is a white marker that marks rocks, shoals and other under water hazards.** It has an orange diamond on two opposite sides with an orange stripe above and below it. If it has light, it is yellow light that flashes every 4 seconds. It also has yellow retroreflective material.



(2-22)

## Information Buoy

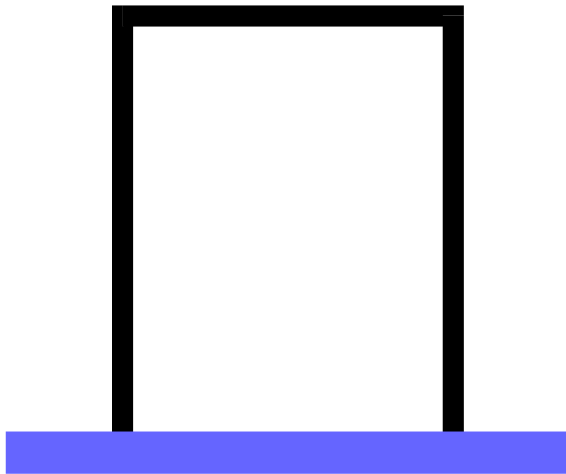
An information buoy is a white marker with an orange open-faced square on two opposite sides with an orange stripe above and below it. It displays information for boaters either in words or common symbols. If it has a light, it is yellow and flashes every 4 seconds. It also has yellow retroreflective tape.



(2-23)

## Swimming Buoy

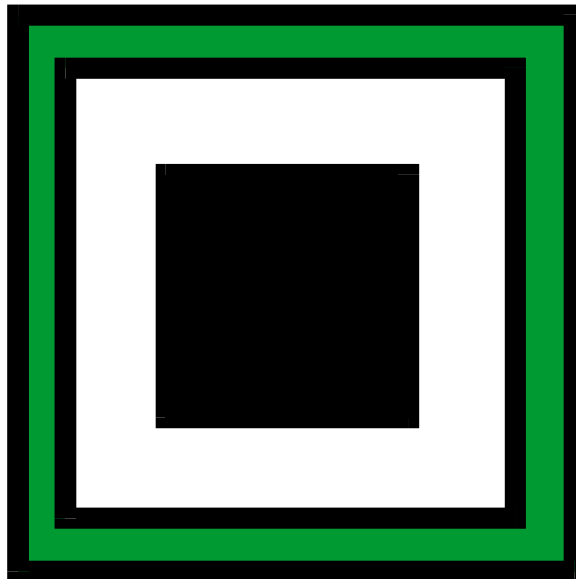
A swimming buoy is a white marker that marks the area around a common swimming area or beach. It has yellow retroreflective material and if it has a light it is a yellow light flashing every 4 seconds.



(2-24)

## Port Hand Day Beacon, green

**A port hand day beacon marks the left boundary of a channel or a danger such as a shoal.** When you are navigating up stream you keep this marker on your left side. A Port Hand day beacon has a white background with a green or black square in the middle and a retroreflective green square around its boarder. It may display an odd number made of white retroreflective material.



(2-25)

## Starboard Hand Day Beacon, red

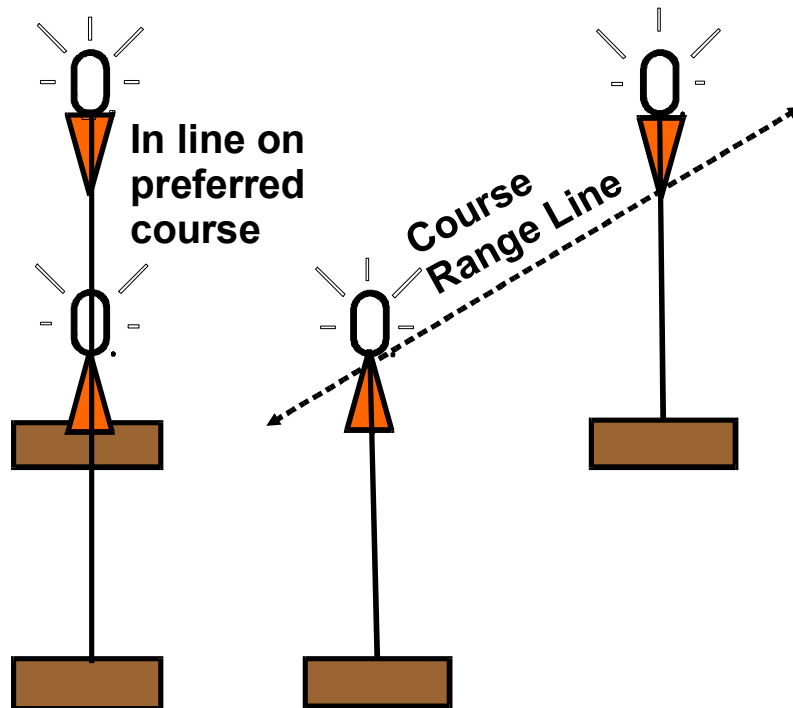
**A starboard hand day beacon marks the right boundary of a channel or a danger such as a shoal.** You keep it on your right side when you are travelling up stream. It has a white background with a red triangle in the middle and a red retroreflective triangle for a border. It may display an even number made of white retroreflective material.



(2-26)

## Range Markers

In some confined areas, it is very difficult to choose the best path to avoid obstacles. You may run into anchorage areas or shoals going into a harbour. You may have to navigate a course with abrupt changes in water depths. Range lights and markers are used to accommodate vessels in these areas. These lights are either positioned at different heights or they use higher and lower markers. You can line them up with one over the other. When they are lined up they are on the best route.



(2-27)

## Posted Command signs

In many places it is more practical to use signs instead of buoys to instruct or warn you of dangers. These signs mean the same as the buoys and include:

1. Power line hazard
2. Water intake pipes
3. No wake
4. Speed Limit
5. Low head dam ahead
6. No Anchor—Submarine cable or pipeline crossing

## Required Documents

**When you are operating a pleasure craft, not propelled by oars, you shall always have a chart on board with as large a scale as available. You must also carry all required documents.**

Such as:

- Registration
- Pleasure Craft Operators Cards for operators who require them.
- Any publications that can aid you in navigation, such as:
  - Notice to mariners
  - Sailing directions
  - Charts and nautical Publications Regulations
  - Radio aids to navigation

- Tide Tables
- (Charts for vessels over 100 registered tons or if in unfamiliar waters.)

**Charts are graphic representations of rivers, lakes and oceans used by mariners to assist in navigation. They show information such as:**

- Depth of water
- Aids to navigation
- Hazards
- Traffic routes
- Distance Scales
- Compass rose
- Longitude and latitude scales
- Directions and special notes

The shoreline around the water and the shoreline features that can aid in navigation are depicted. It also shows shoreline features that can be used as reference points. Charts are published by the Department of Fisheries, Canadian Hydrographic Service. A chart is also a good way to pick out the best fishing spots.

### **Topographical Maps**

If there is no chart available for the area you are boating in, you could get some help from a topographical map. These maps show:

#### **Areas of land**

- Natural and artificial features



- Contour lines
- Shore lines
- Islands
- Rocks

**Topographical maps cannot help you safely navigate channels and underwater hazards.**

Topographical maps are produced by Natural Resources Canada or other provincial authorities.

## **Compass**

The most important tool for navigation is a compass. A compass always points some place. Your task is to know where it is pointing and use that information to help you navigate.

To help you out, there is a picture of a compass on your chart. It is called a compass rose and it shows you the location of true north.

On the compass rose, you will find an arrow indicating magnetic north with numbers such as, 12° west 1975(1° west). This means that in the year the chart was published, magnetic north was 12° west of true north and that every year it changes 1° to the west.

In 1980, magnetic north is 17° west. The difference between magnetic and true north is known as **variation**.

Another thing that can change your compass is known as a **Magnetic Anomaly**. A local disturbance in the earth's magnetic field caused by something like a large metallic deposit under the water or near the shore.

The most difficult thing for you to calculate and that you need to understand is **deviation**. Your compass can be attracted to a metallic boat hull, electrical system or even the zipper on your jacket. The batteries in the flashlight, that you put on the dash near the compass, will affect the reading.

Metallic and or electrical devices could provide false readings. Find out what things change your compass, such as turning on your windshield wipers? If you know what affects your compass you can make the deviation constant.

The last thing that changes is the direction your boat is going. To know this and keep track, you can make a deviation card.

Use your boat, a chart and a number of markers and other reference points.

Line up your boat with two points. Take the compass reading. Compare to the compass course on your chart. The difference is the deviation. Do this for every 15° around the compass and mark it on a card to use as a reference for deviation later on. If your course is between two angles on the card you can average them.

<b>T</b>	<b>True course</b>		<b>=100°</b>
<b>V</b>	<b>Variation</b>	<b>+ →</b>	<b>= 10°west</b>
<b>M</b>	<b>Magnetic course</b>		<b>= 110°</b>
<b>D</b>	<b>Deviation +/- anomaly</b>	<b>→</b>	<b>= 10°east</b>
<b>C</b>	<b>Compass course</b>		<b>=100°</b>

**Hints:**

**Error west compass best.**

**Error east compass least.**

Going Compass to True→**Can Dead Men Vote Twice?**

**Safety  
and Small Vessel  
Regulations**

## Chapter 3

### Safety and Small Vessel Regulations

**The operator of a pleasure craft should at all times be aware that others could be in distress or in need of assistance. Always keep a watch out for signals of distress and for those in need of assistance.** Other than distress signals, you may see boats that do not seem to be underway, in areas where there is a shoal. A boat with its motor hood or compartment open or someone trying to paddle may indicate a distress situation. It is always a good idea to monitor channel 16 on your VHF Radio.

**You are obligated to stop and offer assistance when you are involved in an accident and if you come across someone who may be in danger of being lost.**

Unless there is serious risk to your vessel and passengers, you must do everything possible to bring them to safety without placing yourself in a dangerous situation.

### Safety Equipment

**The Small Vessel Regulations govern the safety equipment that is required on your vessel.** The amounts and kinds of safety equipment required depend on how many people are on board, how big your boat is, the time of day it is operated or how the vessel is being used.

**The safety equipment in your boat is the most important part of your Pleasure Craft.** Unfortunately, it is often neglected because it is not used until you need it.

Your life depends on proper maintenance of your safety equipment. You must keep it in safe operating condition.

1. Keep Personal Flotation Devices clean and dry.
2. Keep paddles and oars out of the sun and water. They can warp, the laminations can separate or dry rot can develop.

3. Keep your polypropylene rope out of the sun. The sun weakens the rope until it turns to powder.
4. Keep your flares and First Aid Kit dry and clean.
5. Change your flashlight batteries and do not leave them in the boat. Cold weather robs the batteries' energy.
6. Keep your anchor line and tow line ready to use. Do not use them to tie up with or they will take longer to get ready in an emergency.

## Required Boat Equipment

### Vessel Less than 6 metres in Length

- 1 PFD or Life Jacket of appropriate size for each person on board whose chest is less than 140 centimetres and for infants more than 9 kilograms.
- 1 buoyant heaving line at least 15 metres in length.
- 1 manual propelling device **or** 1 anchor with not less than 15 metres of cable, rope or chain in any combination.
- 1 bailer, opening of 65 cm<sup>2</sup>, volume 750 ml. **or** 1 manual pump with sufficient hose with bilge pumping arrangements.
- 1 class 5BC fire extinguisher if there is a fuel burning appliance or inboard engine and fixed fuel tank.
- 1 watertight flashlight, or 3 pyrotechnic distress signals type A, B, or C.
- 1 sound-signaling device such as a pealess whistle or a compressed gas or electric horn **or** 1 sound-signaling appliance.
- Navigation lights that meet the standards in the **Collision Regulations** if the vessel is operated between sunset and sunrise or in periods of restricted visibility.

## Vessel 6 to 8 metres in Length

- 1 PFD or Life Jacket of appropriate size for each person on board whose chest is less than 140 centimetres and for each infant over 9 kilograms.
- 1 buoyant heaving line at least 15 metres **or** 1 lifebuoy 610 or 762 millimetres attached to not less than 15 metres of buoyant heaving line.
- 1 reboarding device if freeboard more than 0.5 metre.
- 1 manual propelling device **or** 1 anchor with not less than 15 metres cable, rope or chain.
- 1 bailer, opening of 65 cm<sup>2</sup>, volume 750 ml. **or** 1 manual pump with sufficient hose with bilge pumping arrangements.
- 1 class 5BC Fire extinguisher if there is an inboard engine and fixed fuel tank.
- 1 class 5BC fire extinguisher if equipped with fuel burning appliances.
- 1 watertight flashlight.
- 6 pyrotechnic distress signals type A, B, or C if you can go more than 1 mile from shore.
- 1 sound-signaling device such as a pealess whistle or a compressed gas or electric horn **or** 1 sound-signaling appliance.
- Navigation lights that meet the standards in the **Collision Regulations** if the vessel is operated between sunset and sunrise or in periods of restricted visibility.

## Vessel 8 to 12 metres in Length

- 1 PFD or Life Jacket of appropriate size for each person on board whose chest is less than 140 centimetres and for each infant over 9 kilograms.
- 1 buoyant heaving line at least 15 metres in length
- 1 life buoy 610 or 762 millimetres attached to not less than 15 metres of buoyant heaving line.
- 1 reboarding device if freeboard is more than 0.5 metre.
- 1 anchor, not less than 30 metres of cable, rope or chain.
- 1 bailer, opening of 65 cm<sup>2</sup>, volume 750 ml.
- 1 manual pump with sufficient hose with bilge pumping arrangements.
- 1 class 10BC fire extinguisher if equipped with inboard engine and fixed fuel tank.
- 1 class 10BC fire extinguisher if equipped with fuel burning appliances.
- 1 watertight flashlight
- 12 pyrotechnic distress signals type A, B, C or D with a maximum of 6 type D if you can go more than 1 mile from shore.
- 1 sound-signaling device such as a pealess whistle or a compressed gas or electric horn **or** 1 sound-signaling appliance.
- Navigation lights that meet the standards in the **Collision Regulations**.

## **Vessel 12 to 20 metres in Length**

- 1 PFD or Life Jacket of appropriate size for each person on board whose chest is less than 140 centimetres and for each infant over 9 kilograms.
- 1 buoyant heaving line at least 15 metres in length.
- 1 life buoy 610 or 762 millimetres attached to 15 metres of buoyant heaving line and self-igniting light.
- 1 reboarding device.
- 1 anchor, not less than 50 metres of cable, rope or chain.
- bilge pumping arrangements.
- 1 class 10BC fire extinguisher if equipped with fuel burning appliances.
- 1 class 10BC fire extinguisher at each access to any space where a fuel burning appliance is fitted.
- 1 class 10BC fire extinguisher at entrance to any accommodation space.
- 1 class 10BC fire extinguisher at entrance to the engine room space.
- 1 axe
- 2 buckets, each more than 10 litres.
- 1 watertight flashlight
- 12 pyrotechnic distress signals type A, B, C or D with a maximum of 6 type D.



- 2 sound-signaling appliances according to the **Collision Regulations**.
- Navigation lights that meet the requirements of the **Collision Regulations**.

### **Vessel over 20 metres in Length**

- 1 personal flotation device or lifejacket of appropriate size for each person on board whose chest is less than 140 centimetres and for each infant over 9 kilograms.
- 1 buoyant heaving line, not less than 30 metres.
- 2 life buoys 762 millimetres attached to 30 metres of buoyant heaving line, one with a self-igniting light.
- 1 reboarding device.
- 1 lifting harness with appropriate rigging.
- 1 anchor with not less than 50 metres of cable, rope or chain.
- bilge pumping arrangements.
- 1 class 10BC fire extinguisher if equipped with fuel burning appliances.
- 1 class 10BC fire extinguisher at each access to any space where a fuel burning appliance is fitted.
- 1 class 10BC fire extinguisher at entrance to any accommodation space.
- 1 class 10BC fire extinguisher at entrance to the engine room space.

- 2 axes
- 4 buckets, each more than 10 litres.
- 1 power-driven fire pump outside machinery space with hose and nozzle to reach any part.
- 1 watertight flashlight.
- 12 pyrotechnic distress signals type A, B, C or D and a maximum of 6 type D.
- 2 sound-signaling appliances that meet requirements of the **Collision Regulations**.
- Navigation lights as required by the **Collision Regulations**.

## License

**All pleasure craft less than 20 gross tons and more than 7.5 kilowatts(10 horsepower) must be licensed.** You can get an application for a license from Canada Customs. You should document any dinghies or tenders on the license if it has less than 7.5 KW or 10 HP. If it has over 7.5 Kw or 10 HP, it must be licensed separately.

The license must be displayed on both sides of the bow above the water line and where it will not be obstructed by your bow wake when underway. These block letters must be 7.5 cm. in height and must contrast with the vessel's colour.

**The requirements for licensing are given in the Small Vessel Regulations.**

## Loading and Capacity

When you are operating a pleasure craft you must not overload the hull by exceeding the **Recommended Gross Load Capacity**. This includes the weight of people, equipment, motor assembly, steering controls, machinery, stores and fuel.

This total weight is found on a **Capacity Plate** and is indicated by an **equivalent number of adult persons**. If this plate is fitted on your pleasure craft, it is a permanent attachment.

The **recommended safe limits of engine size** is the outboard engine size recommended for the hull. It is based on the gross load capacity indicated on the capacity plate.

Place the cargo and passengers on board so that their weight is evenly distributed. Keep the load as low as possible. Lash the gear or stow it in lockers and bail out all water in the boat to prevent uncontrolled movement that could impede your boat's operation and cause injury or loss of life.

## **Life Jackets**

**Every vessel must carry a "Department of Transport Canada", personal flotation device, PFD or life jacket of appropriate size for everyone on board.**

**Department of Transport approval can be found either on a label or stamped on the front material of the Personal Flotation Device.**  
The approval does not apply if the PFD has been misused, repaired or altered.

To maintain your PFD's and life jackets use only mild soap and water. Let them dry in open air so they do not mildew. Put them away so the sun does not fade them or ruin any straps. Do not store them near a heat source. The nylon will lose its strength. Do not dry clean or use strong detergents or solvents.

***When in doubt, throw it out.***

**You can use the following test for PFD's to determine their effectiveness.**

Wade into chest deep water wearing the PFD. While floating on your back, the PFD must keep your chin out of the water so you can easily breathe.

## **Pyrotechnic Distress Signals**

**All pyrotechnic Distress Signals that must be carried on board your vessel must be approved by the Department of Transport Canada.**

**There are four kinds of pyrotechnic devices, types A., B., C., D.**

### **Type A: Parachute**

Gives very good visibility and burns for greater than 40 seconds.

### **Type B: Multi star**

Gives very good visibility but only lasts 3 to 5 seconds.

### **Type C: Hand held**

Limited surface visibility but burns for over a minute.

### **Type D: Smoke**

Burns for 3 minutes but is only visible in the daylight.

**Department of Transport Approved does not apply to pyrotechnic devices after four years from date of manufacture.** Make sure there is reason to believe some one will see it before you use it. Always set flares off down wind (leeward side) of the vessel. Always look away from flare. Burning chemicals could injure your eyes. Read instructions ahead of time and know how to use them. You may have to use them in the dark.

## Distress Signals

**All Pleasure craft operators should know the following signals, or any signal that closely resemble the following, that indicate distress or need of assistance.**

*When in doubt, check it out.*

## International Distress Signals

- A. A gun shot or explosive at one minute intervals.
- B. Continuous sounding of a sound signaling appliance.
- C. Rockets, shells or throwing red stars at short intervals or one at a time.
- D. Any SOS **•••---•••** made by any signaling method.
- E. Spoken words "May Day" over a radio telephone (VHF Radio)
- F. International Code signal N over C.
- G. A square flag above a ball or something resembling a ball
- H. Flames on a vessel (burning tar or oil barrel, etc.). A vessel on fire.
- I. Handheld or parachute flare showing red light.
- J. Orange smoke.
- K. Slowly raising and lowering ones arms stretched out to their sides.
- L. Radio-telegraph alarm signal.
- M. Emergency position-indicating radio beacon signal.
- N. Approved signals transmitted by radio communication as well as survival craft transponders.
- O. An orange tarp with a black square and circle for identification from the air.
- P. A dye marker.
- Q. A square or something resembling a square shape.
- R. A high intensity white light flashing at regular intervals of 50-70 flashes a minute.

**You are prohibited from using these signals for any reason other than the need for assistance.**

## **Radar Reflector**

**If you operate a pleasure craft that is constructed mainly of non-metallic materials and that is less than 20 metres in length, you must carry a passive radar reflector at a height of not less than 4 metres above the water line if practicable.**

If the vessel is over 20 metres in length or its small size makes compliance impractical, it is exempt from carrying a radar reflector in daylight and when environmental conditions are favourable. Your vessel is also exempt if operation is away from Radar Navigation and in limited traffic conditions.

## **Usage Limitations (Boating Restriction Regulations)**

**In many areas the Minister or other provincial authorities have made regulations for the purpose of limiting the usage of certain bodies of water, prohibited vessel types, standardized speed limits and maximum engine power limits specific to certain waters in Canada.** These limitations can be posted either on control buoys or posted signs. You must follow the instructions on these signs, indicating boating restrictions.

However, a power driven vessel may operate in an area where it is prohibited if it is the only transportation of a person who's cottage is within this area, or if you are earning a living by fishing in this area.

You must not post your own restriction signs without the permission of the minister. All authorized signs are marked Canadian Coast Guard and Garde Côtière Canadienne and logo at the lower edge in black.

These signs also prohibit other usage such as:

**Maximum Horse Power or Kilowatts**



**Speed**



**NO Water Skiing**



**No Power Driven Vessels in Direction of Arrow.**





**No Power Driven Vessels North of this Area.**



## **Collision Regulations (Safe Speed)**

**All vessels must at all times travel at a safe speed.** This means that your speed must not interfere with your ability to stop or otherwise avoid a collision. Sometimes, safe speed for a pleasure craft operator means tied to the dock or at anchor.

It is up to you to decide what safe speed is. You should take into consideration situations that impair your ability to navigate such as visibility, traffic density, vessels at work such as fishing, wind speed, waves, tides, currents and how familiar you are with the area and its hazards. High speed requires that you be more attentive because of less reaction time. You must be able to make decisions and follow through successfully in changing conditions in time to avoid collisions.

You must also consider what danger you are to others and the possibility of property damage.

- stay well clear of divers, swimmers and wildlife so as not to create a hazard, threat, stress or irritant.
- avoid creating wake and wash damage to wetlands, boats and docks or small boats such as dinghies and canoes, grounded vessels, wrecks, dredges, and vessels that are towing.

**Always use courtesy, common sense and abide by the Collision Regulations when sharing a waterway.**

**When operating a pleasure craft in limited visibility, not in sight of other vessels, you must always travel at a safe speed using the proper sound signals.** If you hear or see a vessel ahead or detect one by radar, you will reduce speed to base steerage (lowest speed you can safely control the vessel) and alter your course to starboard. Call the other vessel on your radio (they may not see you) to aid in your safe passage of the other vessel. They may also give you other information that can help.

**According to the *Criminal Code of Canada*, you must not operate your vessel in a way that is dangerous to the public.** According to the *Collision Regulations*, you must always consider **safe speed** and

insure that the course you are navigating is not endangering others. You must always take care in the handling of your pleasure craft.

**The *Criminal Code of Canada* specifies that, when you are towing someone, you must always have a responsible person acting as a spotter on board your vessel. You must never tow anyone after dark.** You must have an extra seat available for the person you are towing. This means that you cannot use a personal watercraft that is designed for less than three persons. The person being towed should be wearing a PFD. If the PFD is not being worn by the person being towed, it must be on the vessel towing them.

**According to the *Criminal Code*, you must not, knowingly, operate an unseaworthy pleasure craft.** If you are not experienced at looking after a boat, then you should have it checked out at regular intervals by someone who is. Most vessels have check lists with their warranty to maintain the vessel in a fit manner. Always follow the manufacturer's advice and keep your vessel in top operating condition.

**The consumption of alcohol, drugs and controlled substances impair an operator's ability to safely operate a pleasure craft.** This is further intensified by the sun, wind, sound and motion of the boat. Penalties for impaired operation of a vessel are provided under the Criminal Code of Canada. You could also be charged with Drinking out of Residence. You cannot operate a pleasure craft while impaired.

**Always remember that over 40% of boating fatalities included the consumption of alcohol.**

**The operator or anyone else on board cannot send a false message.** This is a very serious offence because you could endanger others by your actions. If the Coast Guard is en route to a false message, it could interfere in the response time to another occurrence. Not only is it dangerous, it is also costly and could endanger the safety of the people responding in severe weather or restricted visibility.

**You must not interfere with any equipment used for the safe navigation of vessels.** To do so could endanger life and property of people who are depending on them for safe navigation.

**Never tie up to a navigation aid.** Your vessel could block the view of it or cause it to be moved from its location. A vessel could run over you because he thought he was clear of the marker. At night many people navigate very close to markers in order to check their numbers.

**Never alter, move, remove or conceal a signal or buoy.** Remember they communicate specific messages to other operators that help them to safely navigate. To alter signals or buoys could cause an accident.

## **Man Overboard**

**Long before it happens, your friends and family should plan for a man overboard.** The time to learn is not in the middle of the night, in a thunderstorm with freezing water.

- Plan your rescue using what is available on your vessel. If it does not work out find something that will.
- You will need buoyant heaving line or life buoy and line and other things for someone to reboard the vessel.
- Practice until you have it down to less than one minute and again when any new people are on board.
- Show them what to do and how to use the safety equipment.
- Make sure someone else knows how to operate the boat in case it is you who is overboard.
- Make sure they know how to make a sling or use the life ring as a ladder.
- Know to drive around the Man Over Board and approach from down wind as well as shut motor off while bringing you back into the boat.

## **Breakdown**

**When you have some kind of equipment failure on your vessel, alter the speed of the craft as appropriate or stop, anchor or return**

**to shore.** Investigate the problem. If you have the tools, materials and the ability to correct the situation without further endangering the safety of your vessel, then do so. If you feel you need assistance, radio for help or exhibit distress signals. You can always cancel the distress if everything works out all right.

## **Hull Leaks**

If you spend a lot of time in a boat sooner or later your boat will develop a leak. When it does, locate and repair or slow the leak as much as possible. Pump or bail any extra water. If you can not get ahead of the water using hand held bailer, manual or bilge pumps, call for help or exhibit distress.

You should always carry tools and materials to stop hull leaks.

Most leaks have something to do with your boats drive system and cooling or exhaust systems and rudders steering post. Very rarely is a leak a hull breach, unless you have had a collision.

**Remember you cannot sink if you are caught on or deliberately drive onto a shoal or beach.**

The materials you should carry include the following:

1. Wooden blocks with cloth stapled on one side with deck screws started.
2. Silicone
3. Wooden wedges
4. C clamps
5. Wooden pegs, dowels and plugs, including one the size of drive shaft and rudder post, for inboards.
6. Spare Hoses
7. Gear Clamps

8. Grease gun

9. Mallet or hammer, Red Robertson screwdriver or the screwdriver that is appropriate for the deck screws, a slot screwdriver for the gear clamps, moving spanner or adjustable wrench.

10. Rubber gasket material.

- To repair hull leaks, smear silicone (modern replacement for tar) on the block with cloth, on the cloth side. Screw, wedge, or clamp block down to stop leaks. For small leaks, pound pegs and dowels with silicone into them.
- If you hit and lose your rudder or drive shaft in an inboard, you can shove steering post and shaft size plugs into holes, tighten string box or stern tube and grease.
- If you break a hull fitting and can not stop it with a valve, shove a plug coated with silicone in and seal with wedge, C clamp or a gear clamp.
- If a hose breaks, shove a plug into it and tighten a gear clamp around it or use replacement or new hose.
- If you break or get a hole in an exhaust pipe, you can wrap it in gasket material and tighten several gear clamps around it.

### **Capsizing, swamping, sinking or running aground**

If you are ever operating a pleasure craft that capsizes, swamps, sinks or runs aground, the best things you can do to help yourself are:

- Make sure everyone is accounted for and that they have all put on PFD's.
- Always stay with the boat. The boat is easier to spot than a person swimming in the water.

- Use whatever means you can to attract attention. It is best to use a whistle or sound signaling appliance instead of yelling.
- When the boat capsizes, try to get as far out of the water as possible.
- If the boat swamps, try to bail it out and try to stay out of the water or at least keep your upper body out.
- If your vessel sinks, hold on to anything that is still floating such as a gas can, cushions, lumber and drink coolers. A gas can or cooler can hold a large part of your upper body out of the water.
- If you run aground, check for leaks right away and stop them if at all possible.

**Remember:** The best thing to do is to go back to the spot where you hit. The boat will not sink if you are hard aground (stuck).

Make sure there are no leaks if you are planning to free the vessel. Otherwise, wait for help.

## **Hypothermia**

When a person is exposed to low environmental conditions, their body temperature will drop below normal. This is known as hypothermia.

Hypothermia can be caused by immersion in water that has a temperature less than 37°C. Exposure to wind and cold air in wet clothing or continued exposure to low temperatures will also cause hypothermia.

Personal factors that decrease a person's chances or the rate they will suffer from exposure are:

- Very young, elderly or poor health.
- Lack of food.
- Fatigue
- Alcohol, tobacco or drugs.

The best way to avoid hypothermia while you are boating is to only use your boat in warm weather and at moderate speed. As your vessel speeds up, chances of hypothermia increase from the wind chill factor. If you operate in cold weather and cold water you should:

1. Take extra clothing.
2. Wear windproof clothing.
3. Keep head and neck covered.
4. Avoid getting wet.
5. Eat high-energy foods.
6. Drink a lot of liquids.
7. Limit time out.
8. Do not smoke or drink alcohol.

**Signs that a person is suffering from exposure should always be watched for.**

**Mild:** shivering, slurred speech or withdrawn but conscious with normal breathing and pulse.

**Moderate:** Confused, sleepy, irrational, uncoordinated, violent shivering or no shivering at all. Breathing slow and shallow and pulse slow and weak.

**Severe:** Asleep or unconscious, weak, irregular or absence of pulse or breathing.

**When you find that someone is suffering from hypothermia you need to:**

1. Prevent further loss of body heat by removing the person from the source of cold.
2. Obtain medical help as quickly as possible. Radio for help and



or put out distress signals or head straight to port.

3. Move them as little as possible.
4. If needed, provide Rescue Breathing.
5. Remove wet clothes and use blankets, etc. to keep them warm.
6. Protect them from wind.
7. Give them warm drinks to help warm internal body cavity. Never give alcohol.

If you find yourself in cold water, a life jacket or PFD will help hold your body heat in. If you are alone hold your arms tight to your sides and across your chest. Pull your knees up and keep your legs pressed together. This position will help slow down loss of body heat from armpits, groin and chest. It is know as the **Heat Escape Lessoning Position** or **HELP**. If possible get up on any rock or floating object and hold as much of your body out of the water as you can.

If you are in a group in the water, **huddle** together. Press the sides of your chests together, lock your arms around each other's bodies and press your legs together.

**To prepare for the possibility of being subjected to hypothermia, you should consider the following:**

1. Dry Suit.
2. Wet Suit.
3. Immersion Suit.
4. Survival Suit.
5. Exposure coveralls.
6. Many layers of light clothing covered with waterproof outer layer and a hat.

## Getting Ready for a Trip

Every responsible person should prepare a trip plan before leaving port. This plan should contain the necessary information to initiate a search and information to aid in the search in case of emergency.

Your trip plan should include:

1. Name and number of vessel.
2. Type of vessel (sail or power).
3. Name, address and phone number of owner.
4. Number of persons on board.
5. Size, type and colour of vessel.
6. Engine type and brand.
7. Any distinguishing features of vessel.
8. Radio type and call sign as well as channel monitored, if any.
9. Safety equipment on board, including flares, lifejackets and life rafts.
10. Description of trip, including any stops, departures, estimated arrival time and proposed route.
11. Instructions in case of emergency and phone numbers for rescue centres.

Before heading out you should file with someone responsible, who understands the instructions that should be followed in case of emergency.

During your cruise, update and inform the individuals of any changes in the trip plan in order to avoid any unnecessary emergency actions.

## Pre-Departure Checklist

You should always use a Pre-Departure Checklist to help you avoid situations that could lead to emergencies.

You can use the list to make sure you have all your safety equipment, lots of fuel, food, water, camping gear, extra flashlights, and clothing. Have your engine, ropes and tackle checked before every trip. You do not want to come back because you forgot your charts and GPS. Before leaving you should explain to your passengers that they must keep their hands and feet inside the vessel, especially when leaving or docking.

Arms, hands and legs can easily be broken, cut or crushed between a boat hull and a dock. **Do not try to hold a boat off if it is going to hit the dock.** You are not as strong as the motor, wind or momentum of the boat.

You should also learn to tie and untie ropes so that your hand is never between the rope and the cleat or ballard that you are securing to or letting go from. Ropes can easily crush your hands, cut them open or pull off your fingers.

## Safety Equipment

It is important that people on board a pleasure craft always wear a PFD or lifejacket to prevent drowning.

Life Jackets and PFD's are safety equipment and because of that must be kept in good condition and used for that purpose only. Do not use them for cushions and bumpers. They will be damaged or tied in a knot when you need them. **A life jacket is not approved if it has been damaged or repaired. This includes straps and ties.**

**You should choose the life jacket or PFD that is best for you.** A life jacket should right an unconscious person face up in the water.

1. Buy the best you can afford.
2. Look for retroreflective materials, attached whistle and even a self-igniting light on your jacket.

3. They should be appropriate for the size of the person, adult or child size. It should fit snugly so it won't float up around your head. You should still be able to move your arms and legs freely.
4. You should always choose your life jacket or PFD to fit the job it is supposed to do. You will be more likely to remember to wear it.

**You should also store your life jackets or PFD in a well-ventilated, dry, easily accessible location. You do not want to crawl up under the deck of a burning or sinking vessel. You want to get it on A.S.A.P.**

### **How to Put on Personal Flotation Device in the Water**

1. Spread the device open with the inside facing up out of the water.
2. Rotate the device so as to look at the neck opening.
3. Extend both arms through the arm openings.
4. Lift arms overhead.
5. Position the device around the upper body, and
6. Fasten the device to fit snugly.

### **Emergency Kit**

**You should always carry a special kit on your boat in a watertight container that floats. It should include:**

1. Flash light and extra batteries.
2. Whistle.
3. Knife (serrated).
4. First Aid Kit.

5. Food and water.
6. Candles and matches.
7. Extra Clothing.

**This equipment should always be carried in an easily accessible location. Everyone on board should be shown where to find the following items and should understand their necessity:**

1. Location of PFD's and life jackets.
2. Techniques for putting a jacket on, both in and out of the water.
3. Importance of wearing PFD's or life jackets.
4. Location of emergency kit.
5. Their roles in emergencies.
6. Effects motion, sunlight, waves, wind, sound and alcohol have on them.
7. Importance of keeping oneself low on the centre line and a sturdy hand hold on the boat.
8. The importance of keeping your hands, head and legs inside the boat.

## **Refueling**

**When refueling your pleasure craft you should go through the following steps:**

1. Moor or tie up craft.
2. Shut off engines.
3. All people not needed for fueling should get off craft.
4. Extinguish all flames.
5. No smoking.

6. Switch off all cellular phones and electrical equipment.
7. Close all windows and doors, hatches and ports.
8. Remove portable tanks to fill.
9. Ground nozzle against fill pipe.
10. Be careful not to overfill or spill.
11. Clean up any spills.
12. Open hatches and ports, windows and doors and turn on the engine blower for at least 4 minutes.
13. Check for any fuel vapors before starting engine.

## **Anchors**

It is important to have your anchor ready to use at all times. Make sure you have lots of rope that is in good condition and that is not tangled. The rope should be large enough around to pull the anchor up comfortably. A thin rope is strong enough but it is harder to get a good grip on. The rope should not be polypropylene because the sun could damage it. It will be too weak and break when you need it most. Secure the rope to the anchor and to the boat. It will not do you much good if you throw your anchor and rope away. Avoid getting loose clothing and jewelry caught in the anchor, chain or your windlass.

You should consider anchoring in severe weather, poor visibility or when you are disabled in order to avoid dangerous developments.

If your boat is allowed to drift onto a shoal, the waves can push it up the shoal until the boat rolls over.

**Weather  
and our  
Environment**

## Chapter 4

### Weather and our Environment

**Before you set out on the water it is a good idea to know what the weather is going to be like. Check the weather forecast so as not to put the craft and people on board at risk.**

1. People's observations and by talking to locals who may be familiar with local weather patterns.
2. Newspapers.
3. Radio and radio telephones
4. Television news and weather channels.
5. Environment Canada

**Common terms used by Atmospheric Environment Service or Environment Canada are :**

1. Light winds.
2. Moderate winds.
3. Strong winds.
4. Small craft warning.
5. Gale warning.
6. Storm warning.

**For explanations of these terms see Marine Terminology on page 80.**



You should also take into consideration the temperature of the water and the size of the body of water and your boat, before deciding the weather is safe to venture out in.

It is important to consider how these conditions will affect your craft and what kind of clothing and supplies you will need to avoid putting your friends and family at risk.

**You should also be aware that besides cold and hypothermia the following can also negatively affect you health and your ability to operate your pleasure craft.**

**1. Heat exhaustion and heat stroke are caused by the body's inability to maintain normal body temperature.**

This is a very common injury while boating. It is caused by :

- a. Long exposure to heat such as an engine room.
- b. Overexposure to the sun.
- c. Lack of fluids to replace those lost by the body.
- d. Exercise or hard labour in a hot environment.

**To help prevent heat exhaustion and heat stroke you should :**

- a. Drink lots of fluids (not alcoholic).
- b. Wear a hat and other clothing.
- c. Moderate your work and play.

**2. The motion of your boat can also cause you :**

- a. to become fatigued and fall asleep.
- b. cause you to get motion sick or sea sick.

- c. Make it difficult to move around the craft.

It is best to remain seated on a moving boat. If you feel sick, keep your eyes on the horizon. Make sure you get lots of sleep before you head out on the water.

### **3. Sunlight can cause you to :**

- a. Become ill and overheated.
- b. Become dehydrated.
- c. Sun burn.
- d. The glare can affect your eyesight and hide dangers.  
The glare on a windshield or off the waves or looking into direct sunlight may stop you from seeing something in the water.

#### **To help cut down on the effects of the sun :**

- a. Drink lots of water.
- b. Wear a hat and clothes.
- c. Keep your windshield clean.
- d. Wear sunglasses.
- e. Operate at a safe speed.

### **4. Waves**

#### **Waves can cause you to :**

- a. Lose your balance and fall.

- b. Hide things in the water like a fallen windsurfer, swimmer or navigation aid.
- c. Misjudge the time it takes to stop or dock your vessel.
- d. Misjudge the speed of your vessel.
- e. Cause spray that blocks visibility.
- f. Swamp or capsize your vessel.
- g. Move you off your course.

**5. Wind can effect the people in may ways such as :**

- a. Misjudge speed.
- b. Impair sounds such as foghorns.
- c. Cut down on your hearing.
- d. Cause many noises such as whistling and vibrations in rigging and tackle.
- e. Cut down on your response time while docking or anchoring.
- f. Move you off your course.
- g. Put extra pressure on rigging and tackle making it dangerous to adjust or alter.

**6. Sounds can also cause :**

- a. Fatigue because of vibrations of engines and water against the hull.
- b. Engines, whistles, and other loud equipment can cause hearing damage.

- c. Impairing your ability to communicate effectively on the vessel.
- d. Cover up sounds such as other boats and signals.

### **7. The use of alcohol causes you to :**

- a. Have problems moving around the boat.
- b. Become fatigued.
- c. Dulls your reflexes and response times.
- d. May cause you to take dangerous risks because your judgement is off.
- e. Magnify the impact of all the other factors that make it difficult to operate a pleasure craft.

## **Exterior Situations**

**Other things that can cause problems for you while navigating in dangerous places are situations that are exterior to your pleasure craft such as :**

### **1. Low Head Dam**

A low head dam is a dam that controls the water level but still has water flowing over it. You should keep clear of these dams at either the top or the bottom. The currents could carry you over the top especially if you were not aware of its being there.

To approach it from the bottom is dangerous because circular motion of the current is caused by the water flow hitting the river bed and still water. This causes your vessel to pitch violently or capsize. A similar situation exists on breakwalls during times of high wave action.

When operating a vessel in an area with any kind of dam, be aware that at any time they could discharge large volumes of water. Hydro electric dams are especially prone to this, causing your vessel to be capsized or smashed against rocks.

**It is illegal to dive, jump, scuba dive or swim within 40 metres of a dam.**

## **2. Rapids**

Rapids are very dangerous to navigate because they affect your steering and can cause your drive to cavitate. This can cause your vessel to be carried over waterfalls or smashed against rocks or the river bed.

## **3. Sudden Winds**

Sudden winds can blow you off your boat or your boat off its course. They can cause tackle and rigging to swing and cause injury. Your boat may hit something such as a dock or marker.

It can blow you onto a shoal or shoreline. It can drive rain, snow, and hail so hard that you can not see where you are going or where you are.

## **4. Tides**

It is very important to understand tides if you are operating in an area subject to them.

Tides can cause :

- a. Your vessel to be carried in or out to sea.
- b. Abnormal wave conditions when moving against the waves.
- c. Strong undertows and currents.

- d. Vessel to be left aground or capsized at the dock if not tied properly. When the keel of your vessel touches ground, the centre of gravity raises causing it to roll.

## **5. Currents**

Currents can be very difficult to navigate in. They can cause your steering to be difficult especially when going with the current. They can increase or decrease your over the bottom speed and impair your ability to stop your vessel. They can carry you away from where you want to be. If waves are blowing against them, the currents can cause abnormally high waves that can capsize your vessel.

## **6. White Water**

White water is very dangerous and is best stayed away from. It can carry you away, capsize your vessel or drive you into a rock or river bed. It can also hide obstacles and carry away your boat and safety equipment if you fall out.

## **7. Overhead Cables**

Overhead cables are very dangerous, not only can your masts hit them but they can electrocute you. If you are operating in an area with overhead cables always keep a look out upwards.

## **8. Underwater Cables**

The danger for most cables is the possibility of catching it with your anchor. Always be careful to anchor away from these cables. In some places cables are between islands with shallow water so you can hit them with your propeller. Always be careful and look for signs telling you where the cables are. If you catch one in your anchor, cut the line. If you hit one with a propeller, inform your power company and stay away.

## **9. Bridges**

Bridges can be very dangerous because you can hit the piers or posts that support them. You also have to look out for the water clearance and remember water goes up and down so, just because you went under in the fall last year does not mean you can pass under in the spring of this year. You also have to be aware of blindspots so keep your vessel to the starboard going upstream and use a safe speed. Do not forget that people love to jump off bridges or fish from them. Let them know you are coming with a sound signal.

## **10. Rapid Build up of High Waves**

Sudden waves can cause :

- a. You to fall because of sudden movement.
- b. You to be washed on a shoal or rocks.
- c. To lose sight of shore, vessels or navigation aids.
- d. You to be carried away from your course.
- e. Cause you to lose sight because they are breaking on your windshield.
- f. Cause your anchor to slip or your lines to break.
- g. To smash your boat into the dock.
- h. Swamp or capsize you.
- i. Cause your rigging and tackle to swing causing injury.

**Marine Terms  
And  
Definitions**



## Marine Terms and Definitions

**Abaft** : To the rear of a given reference point or toward the stern.

**Abeam** : A position 90° to left or right of a person's location or the centre line of a ship.

**Ahead** : In front of a boat or in advance of its course.

**Astern**: To be operating reverse propulsion or a position or direction behind your vessel.

**Beam** : The width of a boat at its widest point. An angle or direction away from your vessel.

**Bow** : The forward part of a boat.

**Draft, draught** : The depth of water required to float a boat. A measurement from the water line to the lowest protrusion on the vessel.

**Fender, bumper** : A device use for preventing damage or absorbing shock.

**Gale warning** : A wind with a sustained level of at least 34 knots but not more than 47 knots as defined by Environment Canada.

**Hull** : The body of a pleasure craft. The frame and outer shell of such a pleasure craft, exclusive of masts, sails, rigging, machinery and equipment.

**Light winds** : A wind with a sustained level of less than 15 knots as defined by Environment Canada.

**Moderate winds** : A wind with a sustained speed of at least 15 knots but not more than 19 knots as defined by Environment Canada.

**Operator** : The person who is in charge of the pleasure craft or responsible for the control of it.

**Pleasure Craft** : A vessel, ship, boat or other watercraft used for recreational activities without reward, remuneration or profit.

**Please be advised that these rules and regulations also apply to vessels for hire carrying less than 12 passengers.**

**Port** : The port side is the side of your vessel on your left when you are facing forward.

**Small Craft warning** : Sustained wind speed between 20 and 33 knots as defined by Environment Canada.

**Starboard** : The side of your boat to your right when facing forward.

**Stern** : The rear end or after part of a vessel.

**Storm Warning** : A wind with sustained winds between 48 and 63 knots as defined by Environment Canada.

**Strong Winds** : Wind speeds between 20 and 33 knots as defined by Environment Canada.

**Underway** : Means that a vessel is not aground, anchored or tied to shore.

**Wake** : The track of a boat made up of water caused to move by the way of the vessel.

**Wash** : Water or waves thrown behind by oars, propellers, paddles, and jets.

# Summary

## Summary

The information in this study guide provides you with the knowledge you will require to write our examination. Successful completion of our examination qualifies you for a Pleasure Craft Operators Card.

You must know that the following regulations and codes apply when you are operating a pleasure craft.

1. Canada Shipping Act
2. Boating Restriction Regulations
3. Charts and Nautical Publication Regulations
4. Small Vessel Regulations
5. Collision Regulations
6. Criminal Code of Canada
7. Contraventions Act

To violate or contradict any rules or regulations as defined under the contraventions act are offences that lead to fines, drivers license suspension or imprisonment.

It is your skills and knowledge that are the best protection for your passengers and pleasure craft. It is up to you to see that everyone has an enjoyable boating experience.

**It is now time to write your test. Follow the link to apply to write your test.**

[www.boatcard.ca](http://www.boatcard.ca)