

This online study guide has been approved by Transport Canada strictly on the basis that it meets the requirements of the Standard for Pleasure Craft Operator Testing over the Internet (TP 15080E) and the *Boating Safety Course test and Syllabus* (TP 14932E). This approval does not represent confirmation of authorship by the course provider.



freecourse.ca

Chapter 4

AIDS TO NAVIGATION

Aids to navigation are systems, structures, or devices that are external to a vessel and that:

- Help a vessel operator to determine his/her position and course;
- Warn of dangers or obstructions; and/or
- Indicate the location of the safest or preferred route.



A buoy, for example is an aid to navigation. Aids to navigation include many types of buoys as well as day beacons, range markers, and lighthouses.

The seven chapters of this study guide contain the information that you must know to pass a Transport Canada Boating Safety Test in order to obtain your Pleasure Craft Operator Card (PCOC).

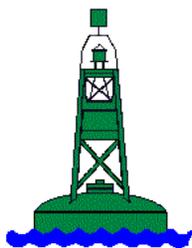
This chapter contains the following sections:

- 4.1 [Lateral Buoy System](#)
- 4.2 [Standard Day Beacons](#)
- 4.3 [Fairway & Isolated Danger Buoys](#)
- 4.4 [Cardinal Buoy System](#)
- 4.5 [Special Purpose Buoys](#)
- [Chapter 4 Review Quiz](#)

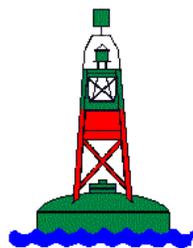
4.1 LATERAL BUOY SYSTEM

Lateral buoys indicate safe routes by marking the left and right sides of the deepest safe water. There are four types of lateral buoys:

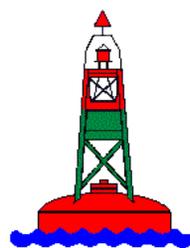
1. Port-hand (left-hand) buoys
2. Starboard-hand (right-hand) buoys
3. Port (left) junction buoys; and
4. Starboard (right) junction buoys.



Port-hand
buoy



Port
junction buoy

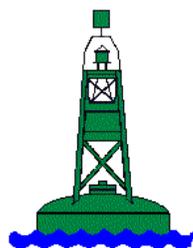


Starboard
junction buoy

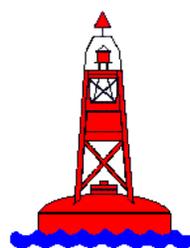


Starboard-hand
buoy

Port-Hand (left-hand) and Starboard-Hand (right-hand) Buoys



Marks the left-hand side of a channel or a danger on the left-hand side.



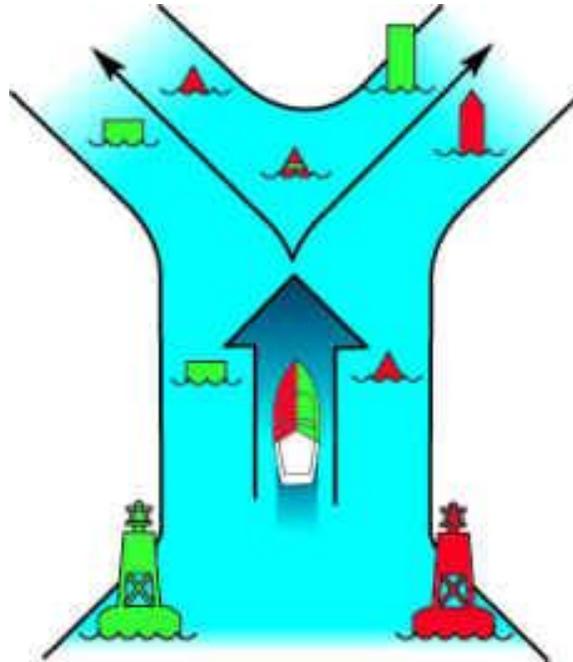
Marks the right-hand side of a channel or a danger on the right-hand side.

The port-hand (left-hand) and starboard-hand (right-hand) buoys serve much the same purpose as painted lines used on highways to mark the left and right hand sides of lanes. Similarly, left-hand and right-hand buoys mark the left- and right-hand sides of a channel or of deep, safe water (or a danger on the left- or right-hand side of the channel). Like the lines on a road, these buoys mark the safe left- and right-hand limits. Venturing outside the limits is unsafe.

But where is the left-hand or right-hand side of a channel? After all, sometimes we are heading upstream and sometimes we are heading downstream; and of course the left-hand and right-hand buoys stay put; they do not wander about or switch sides.

By international convention, the left side of a stream, channel, or river is the side that is on one's left when facing upstream (and the right side is the side on one's right when facing upstream).

When travelling upstream, port-hand, or left-hand, buoys (i.e.: green-coloured buoys) should always be kept on the port-hand (left-hand) side of the vessel. Similarly, starboard-hand (right-hand) red-coloured buoys should be kept on the starboard (right-hand) side of the vessel. The reverse, of course, is true when travelling downstream.



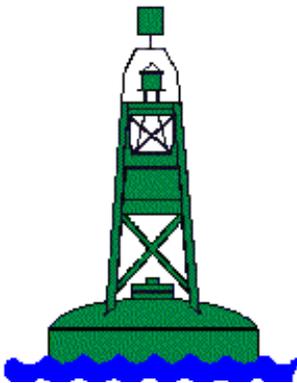
A simple way to remember on what side to leave lateral buoys when travelling upstream or downstream is to use the mnemonic (new-mawnik) code “**red, right, return**”, which means “**keep red buoys on the right-hand (starboard-hand) side of your boat when returning upstream**”.

What Does the Term “Upstream” Mean?

Traditionally, the term **upstream** means any direction that is moving up-river, into a harbour, or toward a coastline. In general, upstream can usually be interpreted as meaning a direction moving from an area of open water into a more restricted area.

During daylight, a pleasure craft operator can identify a buoy's type and purpose by its shape and colour. Buoys that are equipped with lights can also be identified by the light's colour and the timing of its flash cycle.

Port-Hand (left-hand) Buoys

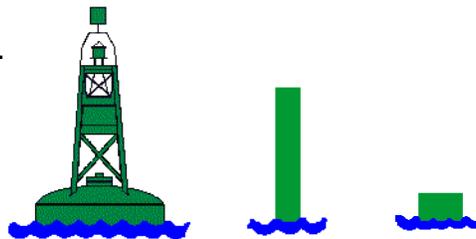


Port-hand (left-hand) buoys are green in colour and mark the left-hand side of a channel or a danger on the left-hand side of a channel. When travelling upstream, a port-hand (left-hand) buoy should always be kept on the port (left) side of the vessel. A port-hand buoy is flat on top.

- If it carries a topmark, it is a single green cylinder.
- If it is equipped with a light, the light is green in colour and operates on either an (F1) 4s pattern (single flashes 4 seconds apart) or a (Q) 1s quick-flash pattern (single flashes 1 second apart).
- This buoy is identified by letters and odd-digit numbers.

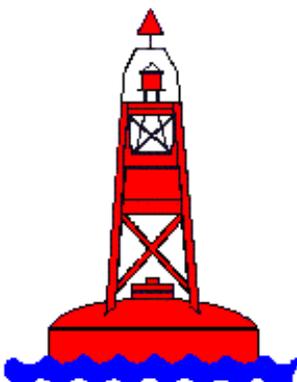
Note: Floating buoys are held in place by cables or chains attached to anchors. There are three basic models of floating buoys:

- Light buoys
- Spar buoys
- Cans



Light buoy Spar buoy Can

Starboard-hand (right-hand) buoys



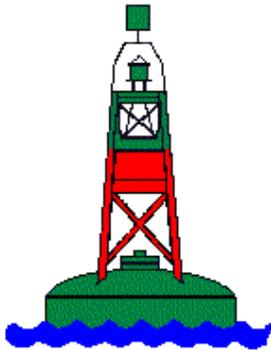
Starboard-hand (right-hand) buoys are red in colour and mark the right-hand side of a channel or a danger on the right-hand side of a channel. When travelling upstream, a starboard-hand (right-hand) buoy should always be kept on the starboard (right) side of the vessel. A starboard-hand buoy is pointy on top.

- If it carries a topmark is a single red cone pointing upward.
- If it is equipped with a light, the light is red in colour and operates on either an (FI) 4s flash cycle (single flashes 4 seconds apart) or on a (Q) 1s quick-flash cycle (single flashes 1 second apart).
- This buoy is identified by letters and even-digit numbers.

Bifurcation (Junction) Buoys

Bifurcation buoys (also called junction buoys) are used at junctions (where one channel splits into two channels). Naturally, one of the two channels will be wider, deeper, and safer. It is called the main channel. The purpose of the bifurcation (junction) buoy is to indicate which channel is the main channel.

Port-hand Bifurcation Buoy (Port Junction Buoy)



Left-hand bifurcation buoys (also called left-hand junction buoys) are green in colour with a red horizontal band across the midsection. Junction buoys are used to mark a junction where one channel splits into two. You may travel on either side of this buoy. But **to enter the preferred or main channel, keep a port (left) junction buoy on the port (left) side of your vessel when travelling upstream.**

Starboard-hand Bifurcation Buoy (Starboard Junction Buoy)



Right-hand bifurcation buoys (also called right-hand junction buoys) are red in colour with a green horizontal band across the midsection and are used to mark a junction where one channel splits into two. **To enter the preferred or main channel, keep a red (right) junction buoy on the starboard (right) side of your vessel when travelling upstream.**

4.2 STANDARD DAY BEACONS

Standard day beacons are often referred to as “**fixed aids**”, meaning that they are affixed to (attached to) a structure or to a pole on land or to a structure or a pole permanently erected in water.

Standard day beacons are so named because they are unlighted and, thus, they are visible only during daylight hours. Standard day beacons serve *exactly* the same purpose as lateral buoys; thus there are four standard day beacons:



Port-hand
day beacon



Port junction
day beacon

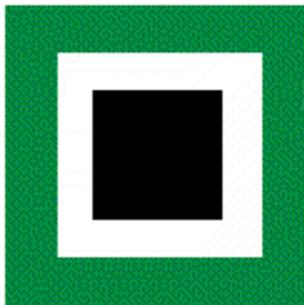


Starboard junction
day beacon



Starboard-hand
day beacon

Port-hand (Left-hand) Day Beacon



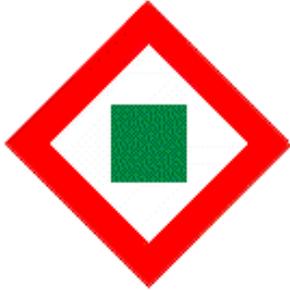
A **port-hand (left-hand) day beacon** is a fixed aid that marks the port (left) side of a channel or the location of a danger on the left-hand side and, thus, must be kept on the vessel's port (left) side when proceeding upstream or into a harbour. It is marked with a black- or green-coloured square centred on a white background surrounded by a square-shaped green-coloured reflecting border. This beacon may display an odd-digit identifier number made of white-coloured reflective material.

Starboard-hand (Right-hand) Day Beacon



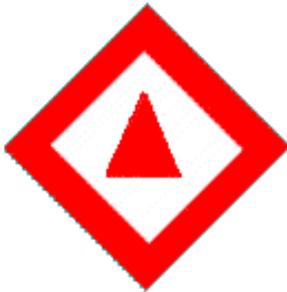
A **starboard-hand (right-hand) day beacon** is a fixed aid that marks the starboard (right) side of a channel or the location of a danger on the right-hand side and, thus, must be kept on the vessel's starboard (right) side when proceeding upstream or into a harbour. It is marked with a red-coloured triangle centred on a white background surrounded by a triangle-shaped, red-coloured reflecting border. This beacon may display an even-digit identifier number made of white-coloured reflective material.

Port (left) Junction Day Beacon



A port (left) junction day beacon marks a point where a channel divides. This beacon may be safely passed on either side. If the preferred or main channel is desired, then this day beacon should be kept on the port (left) side of the vessel when travelling upstream.

Starboard (right) Junction Day Beacon



A starboard (right) junction day beacon marks a point where a channel divides. This beacon may be safely passed on either side. If the preferred or main channel is desired, then this day beacon should be kept on the starboard (right) side of the vessel when proceeding upstream.

Range Day Beacons

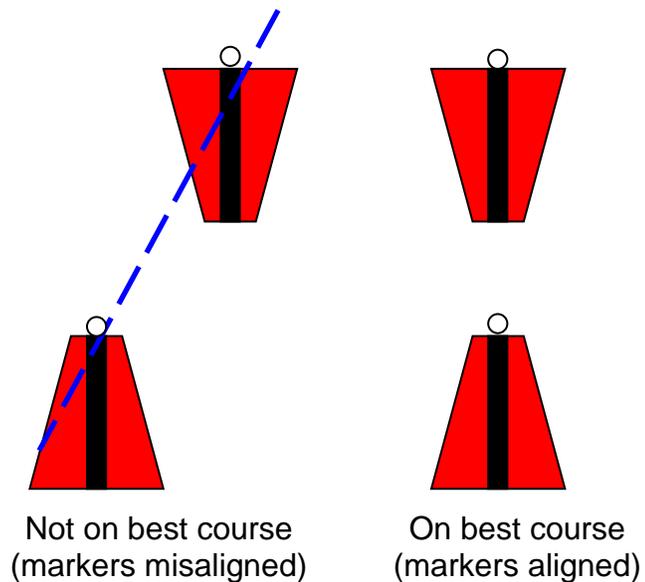
Range day beacons (see example at right) are fixed aids, which are used by a vessel to navigate through a channel or to stay on a safe approach when going into a harbour.

The lower beacon in a pair of Range Day Beacons



Photo by Chris Wilson

Range day beacons are constructed so that there is an upper marker and a lower marker. One navigates through the channel by maintaining a course that keeps the markers aligned top and bottom with each other as you follow a line that approaches them. When the two markers are kept lined up vertically, you are on the recommended course.

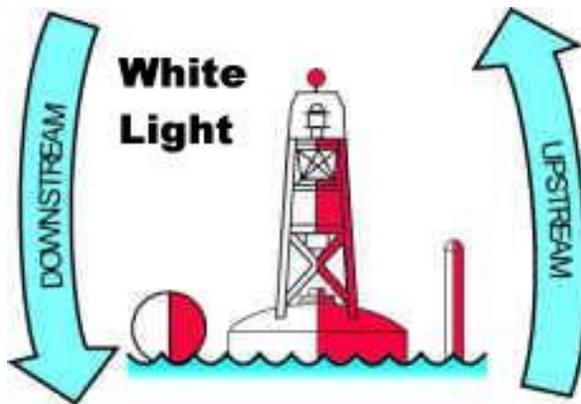


4.3 FAIRWAY AND ISOLATED DANGER BUOYS

In addition to the buoys described above, the lateral system includes **fairway buoys** and **isolated danger buoys**.

Fairway Buoy

A fairway buoy is used to mark safe water and is usually used to mark a channel entrance, the centre of a shipping channel, or a landfall. This buoy indicates that



there is safe water to pass on either side but it should be kept to the port (left) side of your vessel when proceeding upstream or downstream. It is painted half in red and half in white. If it is equipped with a light, it is white in colour and operates on a flash cycle (flashing Morse Code “A”, which is a short flash, then long flash, repeated 10 times per minute).

Isolated Danger Buoy

An isolated danger buoy is used to mark an isolated danger such as a rock, shoal, or a wreck. The buoy is moored on or above the danger and has

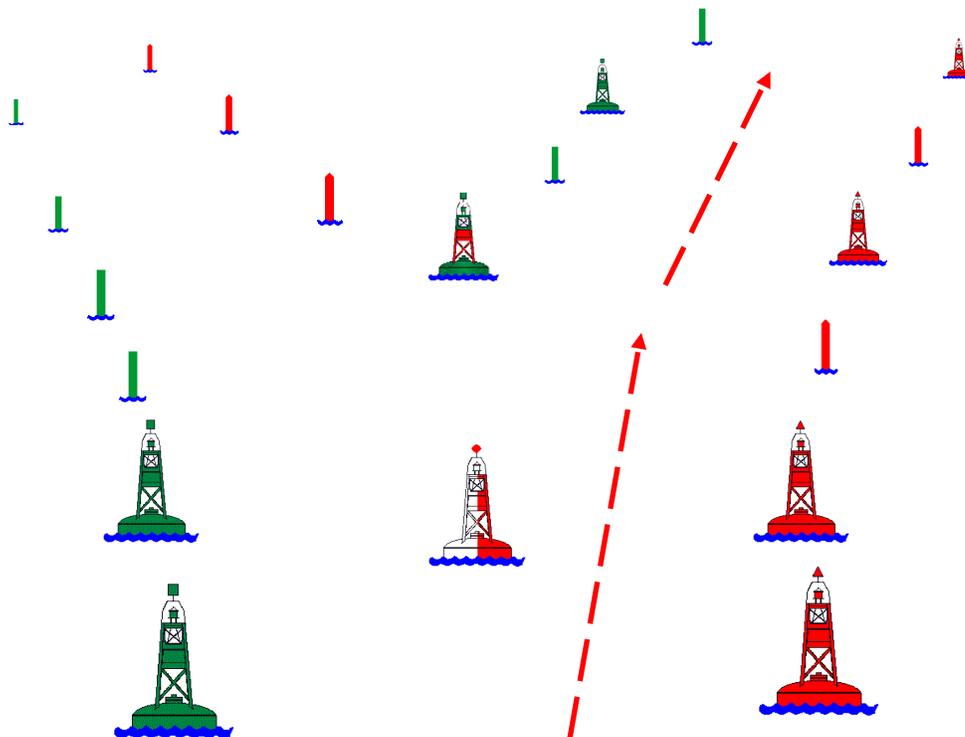


navigable water all around it. To be safe, stay well away from this type of buoy. Consult your marine chart for details on the nature of the danger (dimensions, depth, etc.). This buoy is painted black with a horizontal red – coloured band midway up. If equipped with a light, it will be white in colour and will operate on a flash cycle (giving two flashes every 4 seconds).

Below is an example of how buoys are used to mark channels and junction. The middle of the channel is marked with a fairway buoy. The point at which the channel divides into two channels, called a junction, is marked by a bifurcation (junction) buoy.

Junction buoys are used to indicate which channel is the main channel. In the example below, a port junction buoy has been installed at the junction to indicate the main channel. When travelling upstream, one employs the rule of “red, right, return” and enters the preferred channel (to the right in this case) in order to keep the port (left) junction buoy on the port (left) side of your vessel.

In other words, by obeying the rule of “left, right, return”, junction buoys force you into the main channel.



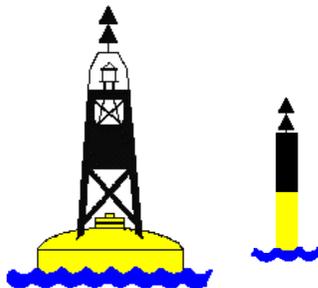
4.4 CARDINAL BUOY SYSTEM

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

Main Characteristics of cardinal buoys

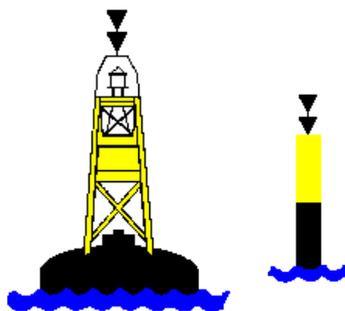
- Coloured yellow and black
- White lights - flash characters indicated below (if equipped)
- Two conical top marks: directions of points have significance
- Black-coloured top mark cones point to the black portion(s) of the buoy
- Lettered - no numbers
- White-coloured retro reflective material

North Cardinal Buoy



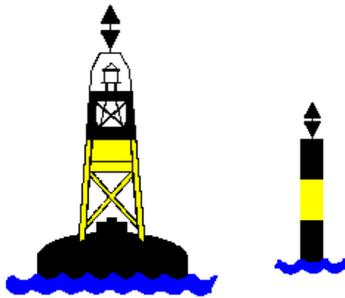
A north cardinal buoy is always positioned so that the safest water lies geographically to the north (i.e.: dangerous water lies to the south). The top half of the visible portion is black and the bottom half is yellow. If present, the top mark is two stacked cones, black in colour, both pointing up (thus, the top marks imitate a needle pointing north on a compass). If this buoy is equipped with a light, the light is white in colour and operates on either a (Q) 1s quick flash cycle (single flashes one second apart) or on a (VQ) 0.5s very-quick flash cycle (single flash every half second). If the buoy does not carry a light, then the buoy is normally spar shaped.

South Cardinal Buoy



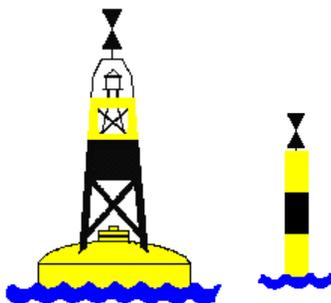
A south cardinal buoy is always positioned so that the safest water lies geographically to the south (i.e.: dangerous water lies to the north). The top half is yellow and the bottom half is black. If present, the top mark is two stacked cones, black in colour, both pointing down (i.e.: just like a needle pointing south on a compass). If this buoy is equipped with a light, then the light is white in colour and operates on a ((Q6)+LFI)15s cycle (six single flashes one second apart and one 3-second flash, every 15s) or a ((VQ6)+LFI)10s (six single flashes one half second apart and one 3-second flash, repeated every 10s). If the buoy does not carry a light, then the buoy is normally spar shaped.

East Cardinal Buoy



An east cardinal buoy is positioned so that the safest water lies to the east (i.e.: dangerous water lies to the west). This buoy is black in colour except for a broad horizontal yellow band around its midsection. Its top mark consists of two stacked black cones; the top one pointing up, the bottom one pointing down. Its light is white in colour and operates on a (Q3) 10s cycle (three flashes one second apart, repeated every 10 seconds) or a (VQ3)5s cycle (three flashes one half second apart, every 5 seconds). If the buoy does not carry a light, then the buoy is normally spar shaped.

West Cardinal Buoy



A west cardinal buoy is positioned so that the safest water is located to the west (i.e.: dangerous water lies to the east). This buoy is yellow in colour except for a broad horizontal black band around its midsection. Its top mark consists of two stacked black cones; the top one pointing down, the bottom one pointing up. Its light is white in colour and operates on a (Q9) 15s cycle (nine flashes one second apart, every 15 seconds) or a (VQ9) 10s cycle (nine flashes a half second apart repeated every 10 seconds). If the buoy does not carry a light, then it is normally spar shaped.

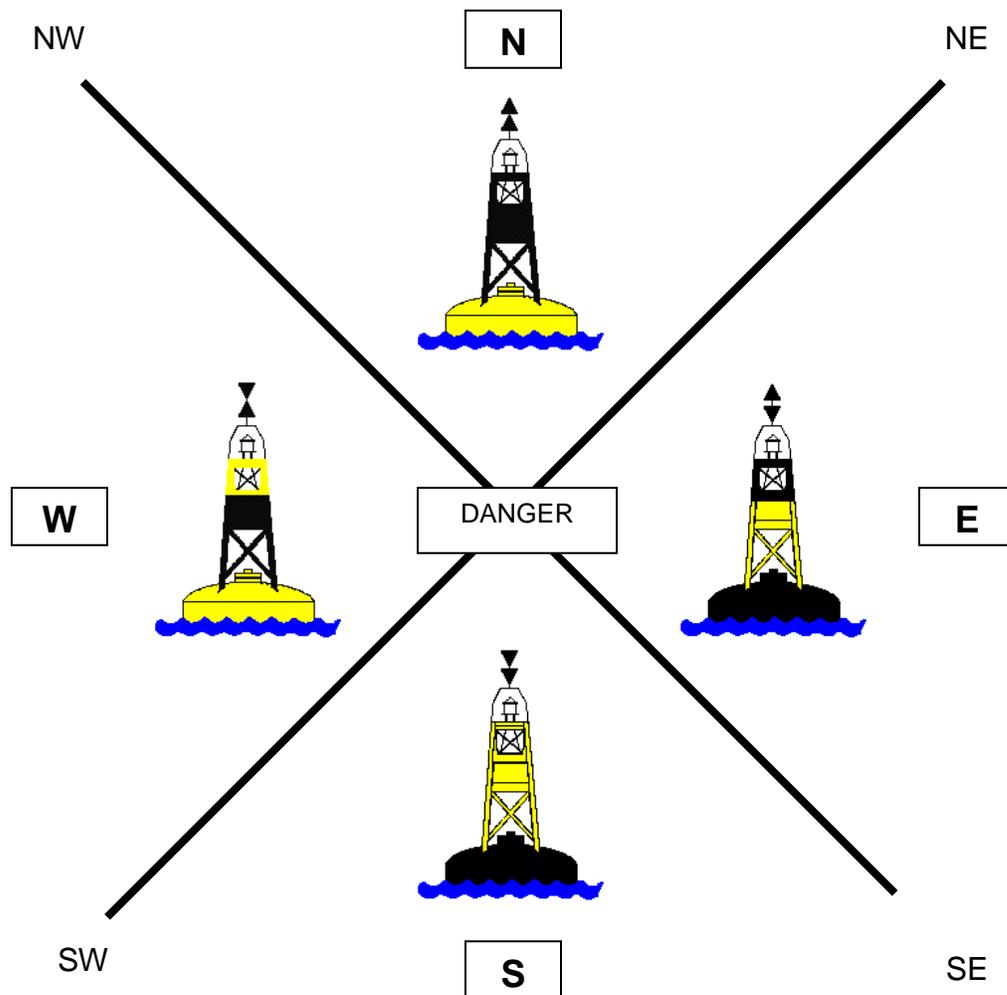
To remember the top marks for cardinal buoys, note how they are arranged. On a west cardinal buoy, the top marks are arranged so as to allow one to draw a “w” through the top marks. Similarly, note how the top marks on the north cardinal buoy are arranged to imitate a compass pointing northward.



The top marks also co-ordinate with the colour scheme on the buoys. On a North cardinal buoy the top marks point up, thus the top of the buoy is black. On an East cardinal buoy the top marks point toward the ends, thus the ends are black. And on a West cardinal buoy the top marks point toward the middle, thus the middle is black. Thus, even if a buoy has been run over by a ship (breaking off the top marks) one can still identify the buoy via its paint scheme.

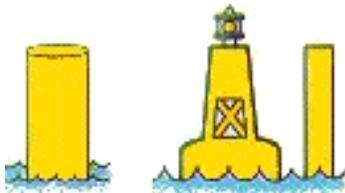
REMEMBER

With cardinal buoys, **safest water lies in the direction indicated by the buoy.**
Water in other directions should be considered unsafe.



4.5 SPECIAL PURPOSE BUOYS

The shapes of the following special purpose buoys have no special significance. They may be lettered but they are never numbered. Cautionary, scientific, and anchorage buoys may display a yellow-coloured, “X”-shaped top mark. If a special purpose buoy has been equipped with a light, the light will be yellow in colour.



A **cautionary buoy** is a yellow-coloured buoy that is used to mark features such as traffic separations as well as dangers such as firing ranges, underwater pipelines, race courses, seaplane bases, underwater structures, and areas where no through-channel exists. This type of buoy displays identification letters. If it carries a top mark, the mark is a single yellow “X”. If it carries a light, the light operates on a flash cycle, (F1) 4s, (i.e. flashing once every 4 seconds).



An **anchorage buoy** marks the perimeter of designated anchorage areas. One should consult the chart for anchorage depths to ensure that the anchorage can accept your vessel’s draft.



A **mooring buoy** is used for mooring or securing vessels. Be aware that another vessel may be secured to this type of buoy. This is the only type of buoy to which you may be moored.



An **information buoy** displays by means of words or symbols information about a locality, marina, or campsite. This type of buoy is white in colour and displays information within a hollow orange square with two horizontal orange bands, one above the square and one below. Information about a locality is displayed with black symbols inside the square. If this buoy carries a light, the light is yellow in colour and operates on a flash cycle, (F1) 4s, (one flash, repeated every 4 seconds).



A **hazard buoy** marks local water hazards such as rocks and shoals. This type of buoy is white in colour and is marked with a hollow orange diamond symbol with two horizontal orange bands, one above the diamond and one below. Information concerning the hazard is indicated by a black symbol displayed inside the orange diamond. If it carries a light, the light is yellow in colour and operates on a flash cycle, (F1) 4s, (i.e. flashing once every 4 seconds).



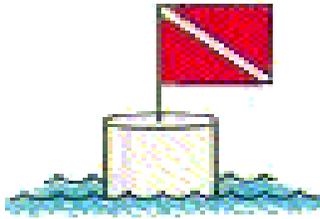
A **control buoy** is used to mark an area where a restriction has been placed on boating. The restriction may be a speed limit or a wake and wash restriction. This type of buoy is white in colour and is marked with a hollow orange circle with two horizontal orange bands, one above the circle and one below. A black symbol displayed inside the orange circle indicates the type of restriction that is in effect. If this buoy carries a light, the light is yellow in colour and operates on a flash cycle, (F1) 4s, (i.e. flashing once every 4 seconds).



A **keep-out buoy** is used to mark an area in which boats are prohibited. It is white in colour and is marked with a hollow orange diamond symbol the interior points of which are joined by an orange cross. It also has two orange, horizontal bands, one above and one below the diamond-shaped symbol. If it carries a light, the light is yellow in colour and operates on a flash cycle, (F1) 4s, (i.e. flashing once every 4 seconds).



A **scientific buoy**, also called an ODAS buoy (for Ocean Data Acquisition System), collects meteorological and other scientific data. The hazard represented is the buoy itself.



A **diving buoy** is used to mark areas where scuba or other type of diving is in progress. This buoy is white in colour. It carries a red flag not less than 50 cm square with a white diagonal stripe extending from the tip of the hoist to the bottom of the fly. If the buoy is equipped with a light, the light operates on a flash cycle, (F1) 4s, (i.e. flashing once every 4 seconds).



Swimming buoys are used to mark the perimeter of a swimming area. A swimming buoy is white in colour and carries no markings. If it carries a light, the light is yellow in colour and operates on a flash cycle, (F1) 4s, (i.e. flashing once every 4 seconds).

Other aids to navigation that a boater will encounter include **command signs** and **warning signs**, either posted on a pole in the water or on a buoy in the water or posted on a sign constructed onshore. The types of commands and warnings that one may see posted on these signs include:

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



Warning sign for low-head dam hazard

End of Chapter 4



Chapter 4 Review Quiz

The questions included in the following quiz are not sample questions taken from actual tests. They are provided merely to acquaint you with the breadth and depth of knowledge required to pass a Transport Canada Boating Safety Test. Merely memorizing these questions and answers will not be adequate preparation to pass the Boating Safety Test; you must acquire an understanding of the material contained in all seven chapters of this free course. Every topic in this course is a potential test question.

Questions

Select the response that best answers the question.

1. **What is an aid to navigation?**
2. **What is the purpose of port-hand (left-hand) and starboard-hand (right-hand) buoys?**
3. **What colour are port side lights on a boat?**
 - a.) red
 - b.) white
 - c.) blue
 - d.) green
4. **What colour are port-hand (left-hand) buoys?**
 - a.) Red
 - b.) Red with a green horizontal band
 - c.) Green
 - d.) Green with a red horizontal band
5. **Under the lateral buoy system, you can tell what side of a channel a buoy is on by its:**
 - a.) Colour
 - b.) Shape
 - c.) Colour and flash cycle of the top light
 - d.) All of the above
6. **What does the term “upstream” mean?**
7. **What is the convention one should employ for identifying the right-hand side of a stream, channel, or river?**
8. **What does a starboard-hand (right-hand) buoy mark?**
9. **When proceeding into a harbour or upstream, on what side of your pleasure craft should you keep starboard-hand (right-hand) buoys?**

- a.) Right-hand side
- b.) Always astern
- c.) Always forward
- d.) Left-hand side

10. What does the mnemonic (new-monic) code “red, right, return” stand for?

- a.) Turn right on red
- b.) Keep red buoys on your right when returning upstream
- c.) Keep red buoys on your right when returning downstream
- d.) Always keep red buoys on the right when moving upstream or downstream

11. What is a bifurcation (junction) buoy?

12. What does a port-hand (left-hand) bifurcation buoy look like?

- a.) Green
- b.) Green with a red band across the middle
- c.) Red
- d.) Red with a green band across the middle

13. In terms of buoys, what should be done when travelling in the upstream direction?

14. On what side of your craft should you keep a port junction buoy if you wish to stay in the main or preferred channel when going upstream?

- a.) East side
- b.) West side
- c.) Port side
- d.) Starboard side

15. Is this boat going upstream? Or downstream?



16. What does a west cardinal buoy indicate?

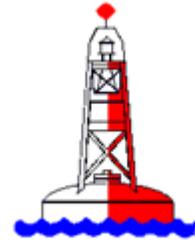
- a.) That hazardous water lies to the east
- b.) That the safest water lies to the east
- c.) The east side of a channel
- d.) None of the above

17. What colour is the light on a port-hand light buoy?

- a.) White
- b.) Yellow
- c.) Green
- d.) Red

18. A buoy painted with red and white vertical stripes is a:

- a.) Hazard marker
- b.) Starboard-hand buoy
- c.) Fairway buoy
- d.) Control buoy

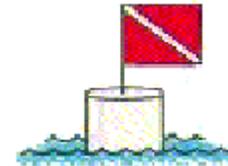


19. What do range day beacons indicate?

- a.) Location of firing ranges
- b.) A set distance
- c.) The preferred or safest route through a channel
- d.) A moorage

20. A white buoy flying a red flag with a white diagonal stripe indicates:

- a.) The first leg of a race course
- b.) Diver down – slow down and steer clear
- c.) Ski slalom course – slow down and steer clear
- d.) Fish hatchery – proceed slowly



21. Under what statute can you be charged if you moor your pleasure craft to a navigation buoy?

- a.) Small Vessel Regulations
- b.) Collision Regulations
- c.) Boating Restriction Regulations
- d.) Criminal Code of Canada

22. What does an isolated danger buoy look like? What does it mark? How does one navigate around an isolated danger buoy?

23. What does an anchorage buoy look like? What does it mark?

24. Is there any type of buoy to which a pleasure craft can tie up?

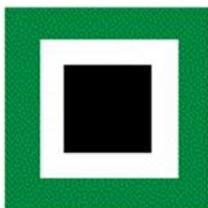
25. What does a Cardinal buoy mark?

26. There are four types of Cardinal buoys. How can topmarks be used to identify the type of a Cardinal Buoy?

27. What is a fixed aid?

28. What is the purpose of standard day beacons (fixed aids)?

29. Is this an aid to navigation? If yes, what type is it and what does it indicate?



30. What kind of buoy is this and what does it indicate?



31. What kind of buoy is this and what does it indicate?



32. What kind of buoy is this and what does it indicate?



33. What do swimming buoys look like? What do they mark?

34. What is a command sign?

ANSWERS

1. Aids to navigation are systems, structures, or devices deployed on water or on land (i.e.: external to a vessel) that:
 - Help a vessel operator to determine position and course;
 - Warn of dangers or obstructions; or
 - Indicate the location of the safest or preferred route.



2. The port-hand (left-hand) and starboard-hand (right-hand) buoys serve much the same purpose as painted lanes lines on highways; i.e. they mark the left and right hand sides of the road (or in the case of boats, they mark the left and right hand sides of a channel or of deep, safe water). Like the lines on a road, the buoys mark the safe left-hand and right-hand limits; venturing outside the limits is unsafe.
3. A
4. C
5. D
6. Traditionally, the term upstream means any direction that is moving up-river, into a harbour, or toward a shoreline. Upstream can also be interpreted as a direction moving from an area of open water into a more restricted area.
7. By international convention, the left side of a stream, channel, or river is the side that is on one's left when facing upstream (and the right side is the side on one's right when facing upstream).
8. A starboard-hand (right-hand) buoys marks the right side of a channel or a danger on the right-hand side of a channel (when facing upstream).
9. a; when travelling upstream, a starboard-hand (right-hand) buoy should always be kept on the starboard-hand side (right-hand side) of the vessel.
10. B
11. Bifurcation buoys (also called junction buoys) are used at junctions (where one channel splits into two channels). Naturally, one of the two channels will be wider, deeper, and safer; it is the main channel. The purpose of the bifurcation junction buoy is to indicate which channel is the main channel.

- 12.b Port (left) junction buoys (bifurcation buoys) are green in colour with a red horizontal band across the midsection. Junction buoys (bifurcation buoys) are used to mark a junction where a channel divides. You may travel on either side of this buoy. But to enter the preferred or main channel, keep a port (left-hand) junction buoy on the port (left-hand) side of your vessel when travelling upstream.
13. When travelling upstream, one should keep green-coloured port-hand (left-hand) buoys on the left (port) side of one's vessel (and right-hand (red-coloured starboard-hand) buoys on the right side of the vessel.
14. C
15. Upstream ("red, right, return")
16. A
17. C
- 18.c Fairway buoy. This buoy indicates that there is safe water to pass on either side but it should be kept to the port-hand (left-hand) side of your craft when proceeding upstream OR downstream.
19. C
20. B
21. D
22. This buoy is painted black with a horizontal red stripe midway up. An isolated danger buoy is used to mark an isolated danger such as a rock, shoal, or a wreck. The buoy is moored on or above the danger and has navigable (safe) water all around it.



23. An anchorage buoy is all yellow in colour with a black anchor painted on it. This buoy marks the perimeter of designated anchorage areas. One should consult the chart for anchorage depths to ensure the anchorage can accept your vessel's draft.
24. A mooring buoy is used for mooring or securing vessels. This is the only type of buoy to which you may be moored.
25. Cardinal buoys indicate the direction in which safest water lies.

26. The conical topmarks on top of Cardinal buoys are arranged to identify the type of buoy. For instance, on a west cardinal buoy, the top marks are arranged so as to allow one to draw a “w” through the topmarks. Similarly, note how the topmarks on the south cardinal buoy are arranged to imitate a compass point southward.



27. Standard day beacons are also referred to as “fixed aids”, meaning that they are attached or affixed to a structure or pole on land or affixed to a pole or structure permanently erected in or adjacent to water. Day beacons are so named because they are unlighted and, thus, they are visible only during daylight hours.
28. Standard day beacons (fixed aids) serve exactly the same purpose as lateral buoys; thus there are four standard day beacons:



Port-hand
day beacon



Port junction
day beacon



Starboard junction
day beacon



Starboard-hand
day beacon

29. Yes, this is an aid to navigation (a system, structure, or device that is external to the vessel and aids with navigation). Specifically, this is a Port Hand (left-hand) day beacon. It is used to mark the left-hand side of a channel or a danger on the left hand side of a channel. When proceeding upstream, this mark must be kept on the left-hand side of your craft.
30. This is a hazard buoy. This buoy is used to indicate a local water hazard, such as a waterfall, rapids, or a low-head dam.
31. This is a Control buoy. This buoy is used to mark an area where a restriction has been placed on boating.
32. This is an Information buoy. This buoy displays by means of words or symbols information about a locality, such as what is on shore (marina, campsite, restaurant, washing facilities, etc.).

33. Swimming buoys are all white in colour and carry no markings. Stings of swimming buoys are used to mark the perimeter of swimming areas. No boat may enter a swimming area.

34. A command sign, also called a warning sign, can be posted either posted on a pole in the water or on a buoy in the water or posted on a sign constructed onshore. The types of commands and warnings that one may see posted on these signs include:

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

