

2 Cautions in the Use of Aids to Navigation

1. Mariners are cautioned not to rely solely on buoys for navigation purposes. Navigation should be by bearings or angles from fixed aids on shore or other charted landmarks and by sounding or through the use of satellite or radio-navigation systems, whenever possible.
2. Most aids to navigation are not under continuous observation and mariners should be aware that failures and displacements do occur. The Canadian Coast Guard does not guarantee that all aids to navigation will operate as advertised or in the positions advertised at all times. Mariners observing aids to navigation not operating, out of position, operating at reduced service, showing improper characteristics, damaged or missing are responsible for reporting such problems to the nearest Canadian Coast Guard [Marine Communications and Traffic Services Centre](#) immediately or to the closest Canadian Coast Guard office.
3. Aids to navigation are subject to damage, failure and moving off position, which may be caused by ice, storms, vessel strikes, and power failures. Ice and storm damage may be widespread and require considerable time to repair. Damage to an isolated aid may exist for a long time without being discovered and reported. Floating aids and pier lights in or near the water which are exposed to particularly rigorous strain during ice movement are at the greatest risk of damage.
4. Mariners are cautioned that aids to navigation may fail to exhibit their advertised characteristics. Lights may be extinguished or appear at a reduced intensity and audible signals may not function due to ice, collisions, mechanical failure, and, in the case of bell and whistle buoys, calm water. The shape of an aid to navigation may be altered by ice formation or damage. The colour of an aid to navigation may be altered by freezing spray, marine growth, or fouling by birds. AIS aids, transponders, or shore-based systems may fail, and errors may be introduced by some electronic navigation systems.
5. Buoy positions shown on nautical charts should be considered as approximate positions. There are a number of limiting factors in accurately positioning buoys and their anchors. These factors include prevailing atmospheric and sea conditions, tidal and current conditions, seabed conditions, and the fact that buoys are moored to anchors by varying lengths of chain and may drift about their charted positions within the scope of their moorings.
6. Since moving ice is liable to move buoys from their advertised positions, mariners should proceed with extreme caution under these circumstances.
7. Mariners are reminded that because of differences in horizontal datum (i.e. NAD 27, NAD 83, WGS84), grids on charts of an area may vary from one chart to another. When plotting the positions of aids to navigation by the latitude and longitude method, the results should be checked against other available information.
8. In some instances, it is necessary to establish a buoy in close proximity to or on a navigational hazard (e.g. shoal, reef or ledge). In these instances, the buoy symbol may be slightly offset on the chart in the direction of the preferred navigable water so that the existing hazard depicted on the chart will not be overprinted by the buoy symbol. Such offsets will be indicated on the chart by means of an arrow.
9. Mariners are cautioned not to navigate too closely to a buoy and risk a collision with it, its mooring, or with the underwater obstruction which it marks.
10. Many lights are equipped with sun switches. These lights, both on shore and on most buoys, may be unlit between sunrise and sunset. Mariners unable to see these lights during daylight hours should not assume that the equipment is malfunctioning.

11. Atmospheric conditions can have a considerable effect on light transmission and the visibility of lights. For example:
 - (a) The distance to a light cannot be reliably estimated from its apparent brightness.
 - (b) It is difficult to distinguish between a white light and a yellow or blue light seen alone at night, except at a short distance.
 - (c) Under some atmospheric conditions, white and yellow lights take on a reddish hue.
 - (d) Alternating lights with phases of different luminous intensity may change their apparent characteristics at different distances because some phases may not be visible.
 - (e) When observed from similar distances, lower intensity lights are more easily obscured by conditions of low visibility than more powerful lights. Coloured lights may appear to be a lower intensity than white lights and are more quickly lost under unfavourable circumstances.
 - (f) Ice, frost, moisture, or dirt may form on lantern windows during cold weather or over time and more particularly this may reduce their visibility and could cause coloured lights to appear white.
 - (g) A light exhibiting a very short flash may not be visible at as great a range as a light exhibiting a longer flash.
12. The mariner should not rely solely on colour when using a sector light, but should verify the vessel's line of position by taking a bearing on the light. On either side of the line of demarcation, between white and red, and also between white and green, there is always a small arc of uncertain colour.
13. When the arc of visibility of a light is cut off, for example by sloping land, the bearing at which it appears or disappears will vary with the observer's distance and height of eye.
14. The sighting of a light may be adversely affected by different situations, such as a strongly illuminated background, a colourful, or a changing background.
15. Audible aids to navigation. In view of the varying distances at which a fog signal can be heard at sea, and the frequent occurrence of fog near, but not observable from, a fog signal, mariners are cautioned that:
 - (a) When approaching land in fog, they should not rely implicitly upon these fog signals, but should always take soundings, which in nearly all cases will give sufficient warning of danger.
 - (b) Distance from a fog signal should not be judged by the power of the sound. Under certain atmospheric conditions, the sound may be lost at a very short distance from the signal. These conditions may vary within a very short period of time. Mariners should not assume that a fog signal is not in operation because they do not hear it, even when in close proximity.
16. Visual aids to navigation provided by the Canadian Coast Guard are for the purpose of assisting marine navigation. Hunters, snowmobilers and ice fishers are cautioned that aids to navigation installed for marine navigation purposes cannot be relied upon after the close of the marine navigation season. Such aids may stop operating without warning and will not be re-commissioned by the Canadian Coast Guard until the next opening of marine navigation season.
17. Mariners should be aware of the type of AIS aid to navigation they are using. Physical AIS aids are broadcast from a traditional aid, so their actual positions are reported, and they may be flagged as off position. Virtual AIS aids are broadcast from remote stations, and there are no associated traditional aids at their broadcast position. A Synthetic (Predicted) AIS aid is broadcast from a remote station as a signal placed over the position of a traditional fixed aid and its position will remain static if the associated aid is moved, damaged, or destroyed. AIS aid to navigation types may be differentiated by their information displays.

Continuous Improvement

The Canadian Coast Guard continuously strives to improve efficiencies in the provision of the Canadian aids to navigation system. In some instances, these efficiencies are achieved through the use and implementation of new products and technologies. These include but are not limited to changes in the use of plastic buoys rather than steel, the use of LED lanterns, and electronic aids. Mariners are advised that every effort has been made by the Canadian Coast Guard to ensure that new equipment provides safe and reliable aids to navigation systems. If there are any concerns, please contact the Superintendent, Aids to Navigation in your region.

Atlantic Region

The lights on the South Coast of Newfoundland from Cape St. Francis on the Avalon Peninsula to Cape Anguille on the shore of Cabot Strait and certain lights in Notre Dame Bay, Bonavista Bay, Trinity Bay, Conception Bay and Bay of Islands are exhibited all year. All other lights under the control of the Canadian Coast Guard are maintained in operation whenever navigation in the vicinity is open. Lights used solely as harbour lights are not exhibited when the harbour is closed, although general navigation may remain open. Lights which are primarily for the benefit of fishermen are maintained only during the fishing season. In any case where there is reasonable doubt whether the light is required, it is kept in operation. During the winter, some lighted buoys are replaced with winter spars so that it should not be assumed that there are no aids present even though the lights in a given area have been extinguished for the season. The details of all changes in aids to navigation will be described in Navigational Warnings.

Navigational buoys at St. John's are listed as being in operation year round. While every effort is made to adhere to this period, mariners are cautioned that ice movement may result in the buoys being lifted and in some cases replaced by winter spars between January and April.

Due to potential ice conditions on the East Coast, lights on year round floating aids to navigation in these waters may be temporarily removed until ice conditions subside. Mariners are advised to use extreme caution when navigating the East Coast waters during this season.

The lights in the Bay of Fundy and along the Southwestern and Eastern coasts of Nova Scotia, the coast of Cape Breton Island, including the Bras d'Or Lakes, the coast of Prince Edward Island, and along the Northumberland Strait, and Chaleur Bay to the Québec border, are exhibited year round.

Exceptions to the aforementioned lights are those lights listed as “seasonal” in the “Remarks” column of the *List of Lights, Buoys and Fog Signals*.

Due to difficulties in maintaining buoys through the winter months as a result of freezing spray and drift ice and the buoys being displaced or set adrift, the lifting of buoys in the upper part of the Bay of Fundy and along the Nova Scotia coast and Cape Breton Island including the Bras d'Or Lakes and in the Gulf of St. Lawrence and Northumberland Strait to the Québec border commence lifting November 15 and continue throughout the fall months depending on navigation activity in each area. Some of the buoys in Mahone Bay and the Bedford Basin are lifted beginning November 15 annually. A certain number of summer buoys are replaced by winter spar buoys. (Those buoys are indicated in the “Remarks” column of the *List of Lights, Buoys and Fog Signals*). Details on changes made to fixed and floating aids for the winter season are published every fall in a Navigational Warning by the Atlantic Region and disseminated by means of a radio broadcast when changes occur.

Buoys marking the deep water channel to the Strait of Canso will remain on position unless otherwise advised by Navigational Warnings.

Some summer buoys are replaced by winter spar buoys.

Central Region

Fixed lighted aids and fog signals are exhibited year round, except for lights with the annotation “seasonal” in the “Remarks” column of the *List of Lights, Buoys and Fog Signals*. Seasonal lights are maintained approximately from April 1st to December 20th.

All other lights under the control of the Canadian Coast Guard are maintained in operation whenever navigation in the vicinity is open.

The majority of ranges and some fixed aids have an emergency mode. To identify which lights are equipped with an emergency mode, please refer to the “Remarks” column of the *List of Lights, Buoys and Fog Signals*. Consequently, range lights showing a **F** fixed characteristic in the main mode will show an isophase light characteristic **ISO 1s (0.5 s flash; 0.5 s eclipse)**, with a reduced output in emergency mode.

Moreover, some range lights in restricted channels are equipped with a secondary light. This is a third light, which is neither the main light visible in line of range nor the emergency light. Most of these lights have different characteristics from those of the main or emergency light. This secondary light (for reference or positioning) is often visible over 360 degrees or for a given sector. Complete information concerning this light is available in the *List of Lights, Buoys and Fog Signals*.

Some floating aids are permanently replaced by new plastic or steel year-round lighted spar (YRLS) buoys moored for a two to four-year period, and left in the water year-round. Three models of four-season YRLS buoys are deployed in the St. Lawrence shipping channel. These models come in 3 sizes: 1.3 m, 1.0 m and 0.7 m, each designed for optimal use in different water conditions and depths.

These buoys can withstand very severe ice conditions. Although a lantern is present year-round on them, light service cannot be guaranteed in winter, particularly in the presence of ice. The YRLS buoys reported to be extinguished during this period will therefore not be prioritized and the light service may only be restored during the spring buoyage.

Details on changes made to aids to navigation are advertised via Navigational Warnings and available on the [e-Navigation Portal \(canada.ca\)](http://e-Navigation Portal (canada.ca)).

For the winter season, many lighted buoys are replaced by winter spar buoys. Mariners are invited to contact the appropriate MCTS centre or to consult the [e-Navigation Portal \(canada.ca\)](http://e-Navigation Portal (canada.ca)) to obtain updates on the seasonal buoy tending activities and operations status report in their area.

The commissioning of seasonal aids may be delayed if weather and/or ice conditions preclude buoy tender operations. Mariners are urged to take every precaution and not to rely solely on aids to navigation.

Western Region

The lights and buoys along the Pacific coast are maintained in operation throughout the year. Details on changes made to fixed and floating aids are published in a Navigational Warning by the Region and disseminated by means of radio broadcast when they occur.

In the spring, freshet conditions on the Fraser River cause the positions of floating aids to be unreliable. Displaced buoys on the Fraser River may be temporarily removed from service, in which case mariners will be advised by a Navigational Warning.

The commissioning of seasonal aids may be delayed if weather and/or ice conditions preclude buoy tender operations. Mariners are urged to take every precaution and not to rely solely on aids to navigation.

NOTE:

Most floating seasonal aids are removed at the end of the navigational season, but a small percentage are left in the water during the winter. Mariners, who use channels marked by such buoys before the official opening of the navigational season, are cautioned that these buoys may not be in their advertised positions due to storms and shifting ice caused by winter conditions. After the position and the condition of the aids have been verified, a Navigational Warning will be issued to advise mariners that the aids have been checked and that the channels in each local area are open for navigation. Such Notices may be promulgated over the Coast Guard VHF radio network, or may appear in the monthly edition of *Notices to Mariners*.

Arctic Region

All lit aids and RACONs are seasonal. Please refer to the *List of Lights, Buoys and Fog Signals* for details.

In general, buoys are commissioned in the summer as early as ice conditions will permit and are lifted during the fall prior to the winter season. However, buoys in the Simpson Strait and near Cambridge Bay are left in the water, unattended, towards the end of the navigation season, and are re-commissioned only the following summer.

The establishment and discontinuance of floating aids to navigation in the Mackenzie River system, in Kittigazuit Bay, Kugmallit Bay, near Tuktoyaktuk and in the Great Slave Lake, are determined by prevailing ice conditions. Mariners are cautioned that floating aids are subject to displacement by ice and will be decommissioned and/or abandoned at the closing of the season as sea and ice conditions dictate.

Authority: Canadian Coast Guard