

7A Voyage Planning for Vessels Intending to Navigate in Canada's Northern Waters

1 Purpose

This notice is intended to assist mariners, owners and operators of vessels intending on navigating in Canada's northern waters in preparing for, and executing, a safe voyage.

The recommendations and information provided in this notice are complementary to any other legal obligation of the owner, operator, master and all who have an interest in the vessel, and to the exercise of due diligence and good seamanship practices that are required from the master of a vessel.

2 Background

The Canadian Arctic is full of challenges to maritime navigation due to its climatic conditions, low temperatures, hazardous and variable ice conditions and geography. The region is remote and vast, making repair, rescue or clean-up operations difficult. Roads, airstrips and ports, are few and far between and search and rescue resources are limited. Emergencies can draw resources from other needed services such as icebreaking and community re-supply. In addition, the Arctic is environmentally sensitive and slow to recover from damage, so the impact of a pollution incident could have heavy consequences. The mariner must also keep in mind that most of Canada's Arctic waters have not been surveyed to modern standards.

Consequently, Arctic navigation requires ship crews with specialized knowledge. A safe Arctic voyage starts with a detailed voyage plan that takes into account the Arctic's unique conditions, navigational challenges and hazards along with the ship's capabilities and operational limitations.

The IMO Resolution A.1024(26), *Guidelines for ships operating in polar waters* recognizes that ships operating in the polar environments are exposed to unique risks. The guidelines are intended to address the additional provisions deemed necessary to take into account the climatic conditions of polar waters. As such it is recommended that these guidelines are considered when planning a voyage to Canadian Arctic waters.

3 Voyage Planning

Regulations¹ require the master of a ship, before proceeding to sea, ensure that the intended voyage has been planned using the most recent editions of the charts, documents and publications and take into account International Maritime Organization (IMO) Resolution A.893(21), *Guidelines for Voyage Planning*.² Particularly relevant to Arctic navigation, the voyage plan shall, among other things, anticipate all known navigational hazards and adverse weather conditions; and avoid, as far as possible, actions and activities that could cause damage to the environment. Passenger vessels should also take into account IMO Resolution A.999(25) *Guidelines on voyage planning for passenger ships operating in remote areas* and Transport Canada's *Guidelines for the Operation of Passenger Vessels in Canadian Arctic Waters.*" (TP 13670)"

The following highlights some of the issues and sources of information that should be considered when planning a voyage in Canada's northern waters.

4 Charts and Notices

At present, less than 10% of Arctic waters are surveyed to modern standards. In addition, the mariner must be aware of the horizontal datum used for the chart. GPS positions can only be plotted directly on NAD 83 (equivalent to WGS 84) charts. For charts with other datums, the appropriate correction must be applied. Some Arctic charts do not have a reference datum and therefore no available corrections. In such cases, alternative sources of positional information should be used such as radar and visual lines of position when possible. It is always recommended that more than one means be used to fix a position.

¹ [CSA 2001, Charts and Nautical Publications Regulations, 1995 and SOLAS Regulation V/34](#)

² <http://www.tc.gc.ca/media/documents/marinesafety/a2res893.pdf>

As always, mariners must use up-to-date nautical charts and nautical publications to plan each voyage.³ This includes making use of annual and monthly Notices to Mariners⁴ and northern Canada Sailing Directions⁵. Of particular note, given the challenges in Canada's northern waters of charting, confirming chart anomalies, and servicing aids to navigation, mariners must ensure that all Navigational Warnings (broadcast and written) and NAVAREA warnings that are in force in the area are taken into account. Further information can be obtained from the Canadian Coast Guard (CCG)⁶.

5 Ice Advisory Service, NORDREG Reporting, and Sails Plans

The CCG operates an ice advisory service for the support of vessels navigating in Canada's northern waters during the navigation season. Vessels can obtain up-to-date information on ice conditions, advice on routes, aids to navigation and icebreaker support, when available and considered necessary, by contacting NORDREG CANADA. Weather, ice advisories, forecasts and synoptic ice charts are also broadcasted daily. Vessels subject to the *Northern Canada Vessel Traffic Services Zone Regulations* must report to NORDREG as required by the regulations.

Vessels not required to report to NORDREG should, as a minimum, file a Sail Plan with a responsible person. This person should be instructed to call the Joint Rescue Coordination Centre if the vessel becomes overdue. In circumstances where it is not possible to file a Sail Plan with a responsible person, a Sail Plan may be filed by telephone, radio or in person, with an MCTS Centre. While at sea, masters and operators who have filed a sail plan are encouraged to file a daily position report during long trips. After completion of the voyage, the vessel must close (or deactivate) their sail plan. Forgetting to do so can result in an unwarranted search.

The CCG publication "Radio Aids to Marine Navigation"⁷ should be consulted for further information including details on the NORDREG Zone, reporting, radio frequencies and times for ship/shore communications and broadcasts.

6 Ice Navigation in Canadian Waters

The CCG publication "Ice Navigation in Canadian Waters"⁸ indicates the necessary precautions to be taken by ships navigating in Canadian ice-covered waters. The document provides masters and watchkeeping officers with the necessary information to achieve an understanding of the hazards, navigation techniques, and response of the vessel. It includes information on passage planning for routes in ice-covered waters and principles of high latitude navigation. Every ship of 100 tons gross tonnage, or over, navigating in Canadian waters in which ice may be encountered, is required to carry and make use of this publication.

7 Contingency Planning

Two groundings in the 2010 Arctic shipping season served as a reminder on the importance of contingency planning and risk assessment. As stated in the IMO Guidelines for Voyage Planning (A.893(21)), the detailed voyage plan should include, among other things, "contingency plans for alternative action to place the vessel in deep water or proceed to a port of refuge or safe anchorage in the event of any emergency necessitating abandonment of the plan, taking into account existing shore-based emergency response arrangements and equipment and the nature of the cargo and of the emergency itself." Access to emergency support services is very limited in Canadian Arctic waters. The shipowner may want to prearrange for emergency support prior to the voyage.

³ <http://www.charts.gc.ca/charts-cartes/index-eng.asp>

⁴ <https://www.notmar.gc.ca/index-en.php>

⁵ <http://www.charts.gc.ca/publications/sailingdirections-instructions-nautiques-eng.asp>

⁶ <http://nis.ccg-gcc.gc.ca/public/rest/messages/en/search>

⁷ <http://www.ccg-gcc.gc.ca/Marine-Communications/Home>

⁸ <https://www.ccg-gcc.gc.ca/publications/icebreaking-deglacage/ice-navigation-glaces/page01-eng.html>

8 Arctic Waters Pollution Prevention Act

Canada has a specific legislative and regulatory regime in place for its Arctic waters to address the unique risks and hazards of Arctic navigation and prevent pollution. The *Arctic Shipping Pollution Prevention Regulations* (ASPPR) deal with construction and operational aspects of navigating in the Arctic, including the need for Ice Navigators. When voyage planning, it is essential that a ship's ice class be assessed against the ice conditions that will or may be encountered on the voyage. The ASPPR contains the Zone/Date System (Z/DS), which is a system dividing the Arctic into 16 Safety Control Zones, each with fixed opening and closing dates for ships of various ice capabilities (Polar Ice Classes). The Arctic Ice Regime Shipping System (AIRSS) was introduced as a more flexible system that uses the actual ice conditions to determine whether entry is allowed in an ice regime. Details of Canada's requirements and additional guidance for ships operating in its Arctic waters can be found on Transport Canada's website.⁹

9 Ice Navigator

It is important to note (and plan for) the need for an Ice Navigator when navigating inside a zone beyond the dates allowed under the ASPPR. While an Ice Navigator is required to be on board a vessel in some cases¹⁰ and the Zone Date or Arctic Ice Regime navigation control schemes observed, it is always recommended that persons experienced in ice navigation be on board all vessels operating in Arctic ice-covered waters.

Authority: Transport Canada

⁹ <http://www.tc.gc.ca/eng/marinesafety/menu.htm>

¹⁰ <http://www.tc.gc.ca/eng/marinesafety/menu.htm>