

International Ice Patrol

Guardians on the Grand Banks.

by CDR LISA MACK
Commander
U.S. Coast Guard International Ice Patrol

Ice Patrol History

International Ice Patrol was established by international convention as a direct result of the 1912 sinking of the *Titanic*. Since 1913, with the exception of wartime, the U.S. Coast Guard has maintained an ice patrol that monitors 500,000 square miles of ocean in the North Atlantic.

Until 1941, iceberg detection relied on visual sightings from patrol cutters. As aircraft performance improved, the Ice Patrol integrated aircraft into reconnaissance operations. After 1960, surface patrol craft took a secondary role to aerial reconnaissance, and the AN/APS-135 side-looking airborne radar became the primary iceberg detection tool in 1983. The AN/APS-

Ice Patrol in a Changing World

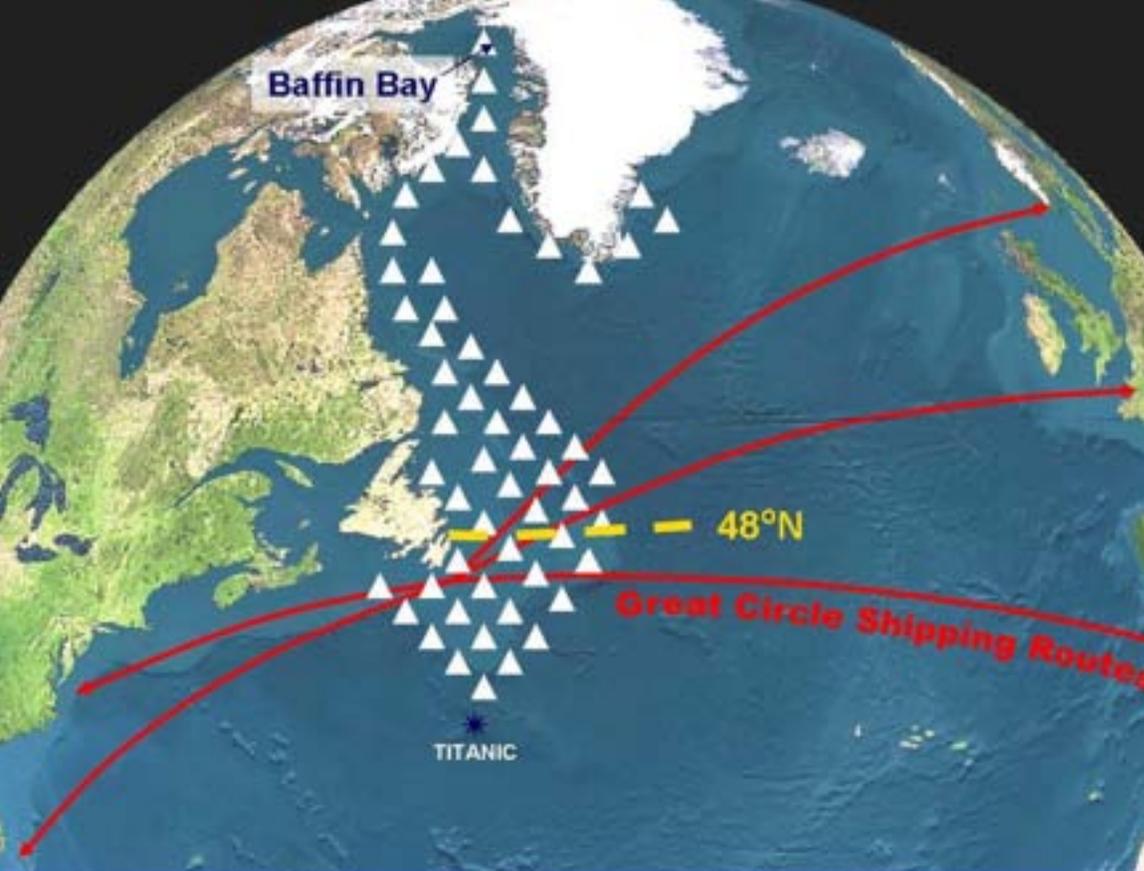
The maritime shipping industry has changed dramatically in the last century. Modern cruise ships are longer, have significantly more gross tonnage, and are capable of greater speeds than the *Titanic*. While the number of vessels displacing over 100 tons has almost quadrupled since 1914, automation and technology have allowed smaller crews to handle these larger vessels. Navigational aids have become more precise, and improvements in communication—especially satellite communication—allow much more data to be shared with vessels at sea.

In addition to changing vessel capabilities, the environment is changing. The annual sea ice minimum in the Arctic

has reduced dramatically, potentially opening previously inaccessible areas to shipping and oil and gas mining and changing the frequency and precision of necessary iceberg location information.

In response, Ice Patrol is working with its Canadian partners to integrate an updated iceberg drift and deterioration model into current processes. In addition, potential reconnaissance improvements include new data sources (including satellite data), resources, and sensors. These improvements are priorities for both services and key elements in moving toward a common data system within the North American Ice Service.





Maritime traffic between Europe and North America typically follows “great circle” routes that cross the Grand Banks. The white triangles represent the average potential extent of annual iceberg limit. These shipping lanes are the only location in the world where icebergs endanger a major shipping route. USCG graphic.

137 forward-looking radar was added a decade later, and in 2009 reconnaissance aircraft transitioned to the HC-130J equipped with the ELTA-2022 360-degree radar that provides identification capability even when visibility is poor.

Ice Patrol Today

Maritime traffic between Europe and North America typically follows routes that are intersected annually by an average of 500 icebergs. This is the only location in the world where icebergs endanger a major shipping route, and Ice Patrol provides accurate and timely iceberg information to assist transatlantic mariners in avoiding them.

Ice Patrol receives numerous iceberg reports from aircraft and mariners and collects its own ice sightings, sea surface temperatures, and weather information year-round. Ice information is evaluated for accuracy and timeliness and entered in a computer model, which uses current, temperature, and wind data to model iceberg drift and deterioration and estimate the “iceberg limit.” Ice Patrol then distributes an ice bulletin and ice chart showing the iceberg danger area.

Partnerships

In supporting the maritime transportation system, Ice Patrol partners with several organizations. For example, Ice Patrol has a close working relationship with the Canadian Ice Service, which shares a synchronized iceberg database that provides backup capabilities for each service. The private companies C-CORE and Provincial Aerospace Limited also share reconnaissance and research and development data with Ice Patrol.

Additionally, Ice Patrol, the Canadian Ice Service, and the National Ice Center entered a collaborative agreement called the North American Ice Service

with the vision of becoming the unified source of ice information for North America. Toward this end, the Canadian Ice Service and International Ice Patrol are harmonizing their ice-

berg charts to produce one North American Ice Service chart. Ice Patrol will be responsible for the chart from February through August, when icebergs generally threaten transatlantic mariners, and the Canadian Ice Service will produce the chart during the remaining months of the year.

Risk of Iceberg Collision

Iceberg collisions as recent as 2010 serve as a reminder that icebergs still pose a threat to shipping, and the need for iceberg information is still critical to balancing safety and mobility in the North Atlantic.

The Ice Patrol has greatly expanded the scientific understanding of iceberg drift and deterioration while protecting life and property at sea and facilitating transatlantic commerce.

Finally, in nearly a century on the job, Ice Patrol has established the enviable safety record that not a single ship heeding the published limit has collided with an iceberg.

About the author:

CDR Mack is a graduate of the U.S. Coast Guard Academy and holds an M.S. in oceanography from the University of Washington. She has experience in polar and domestic icebreaking. Prior to taking command of the International Ice Patrol, she served as chief of the Mobility and Ice Operations Branch at U.S. Coast Guard headquarters.