

# IceNav

## Safer Ice Navigation



Shipping in the Canadian Arctic has been ongoing for decades. The region is rich with natural resources such as oil, gas and minerals, and its remoteness makes shipping the only viable means of transportation for cargo. Additionally, the 50,000 people that live in the Canadian Arctic count on seasonal resupply shipping to receive commodities from southern Canada that are too large or too costly to be sent by plane.

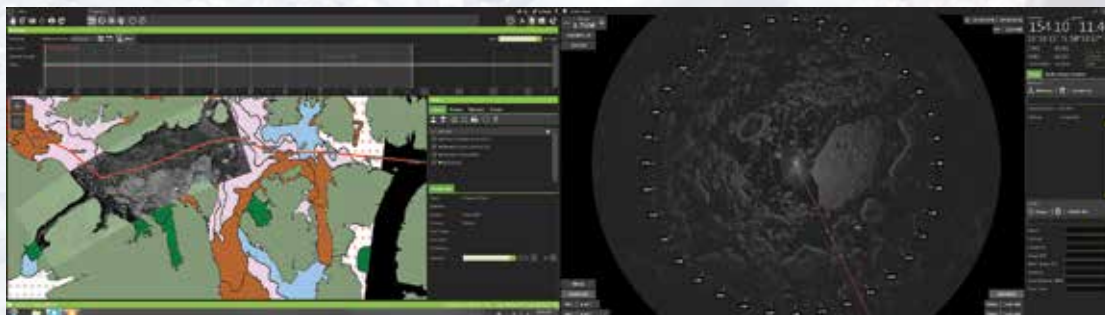
Fednav, a Montreal-based bulk shipping company, has been involved in the Canadian Arctic for more than 60 years. Recent improvements in technology and vessel design, as well as in ice information products, have created new opportunities for the shipping industry. Indeed, after years of seasonal shipping only, Fednav's icebreaking cargo vessel the *MV Arctic* started operating year-round to the Raglan mine, in northern Quebec, in 1998. Since then, the *MV Umiak I* and the *MV Nunavik*, which are the world's most powerful icebreaking bulk carriers, have been added to the fleet and also ship year-round, unescorted, to the Canadian Arctic and sub-Arctic. To operate successfully in the Arctic requires self-sufficiency far beyond what is needed in more temperate climates. This has been true since the earliest days and remains so today.

Historically, marine traffic in the Arctic was dictated by the retreat or advance of the ice pack.

Today, with climate change causing the ice cover to melt, media headlines trumpet the imminent boom in polar shipping. Climate change, though, has also caused the Arctic climate to become less predictable, making things more complicated than what is often presented in the media. Ice hazards such as icebergs, old ice and pressured ice are omnipresent and they tend to be difficult to track and forecast.

As the climate evolves, though, thankfully so do technologies. Mariners no longer rely only on their own observations, or support of aircraft reconnaissance and low-resolution satellite imagery. New tools are now available to help mariners see beyond the horizon and transit more safely through the ice.

IceNav is a computer-based support tool for ice navigation, conceived and developed to provide mariners critical data in order to enhance safe navigation in Arctic waters. Originally developed in 1995 by Enfotec, a subsidiary of Fednav, and recently completely revamped, IceNav is a dual-display computer system that allows vessels to receive, display, manipulate and share ice information products such as ice charts, weather forecasts and satellite imagery in a user-friendly interface. Up-to-date ice information helps the crew to make strategic decisions that can then result in reduced delays and fuel consumption. IceNav's enhanced ice detection radar, the other







component of the system, provides the user with a high-resolution view of the ice cover ahead of them and has proved to be an essential tool for tactical navigation.

The ability to display series of raster or vector ice charts and satellite imagery in a multi-layer interface is highly useful as a shore-based tool for planning purposes. Using historical data displayed in IceNav in time

series, Enfotec can assess ice conditions in a given area and evaluate shipping feasibility for future shipping projects.

With its multiple usages, IceNav has established itself both as a mission-critical and a strategic planning tool for Fednav's Arctic operations.

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