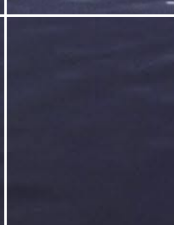
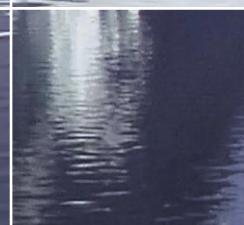
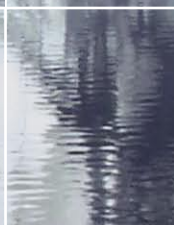
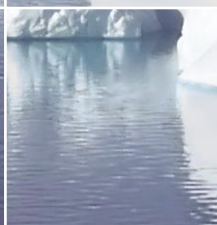
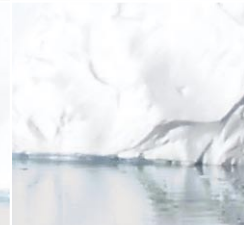
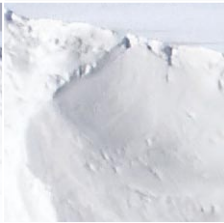
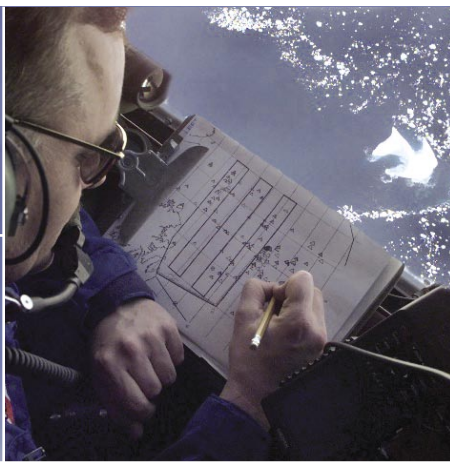
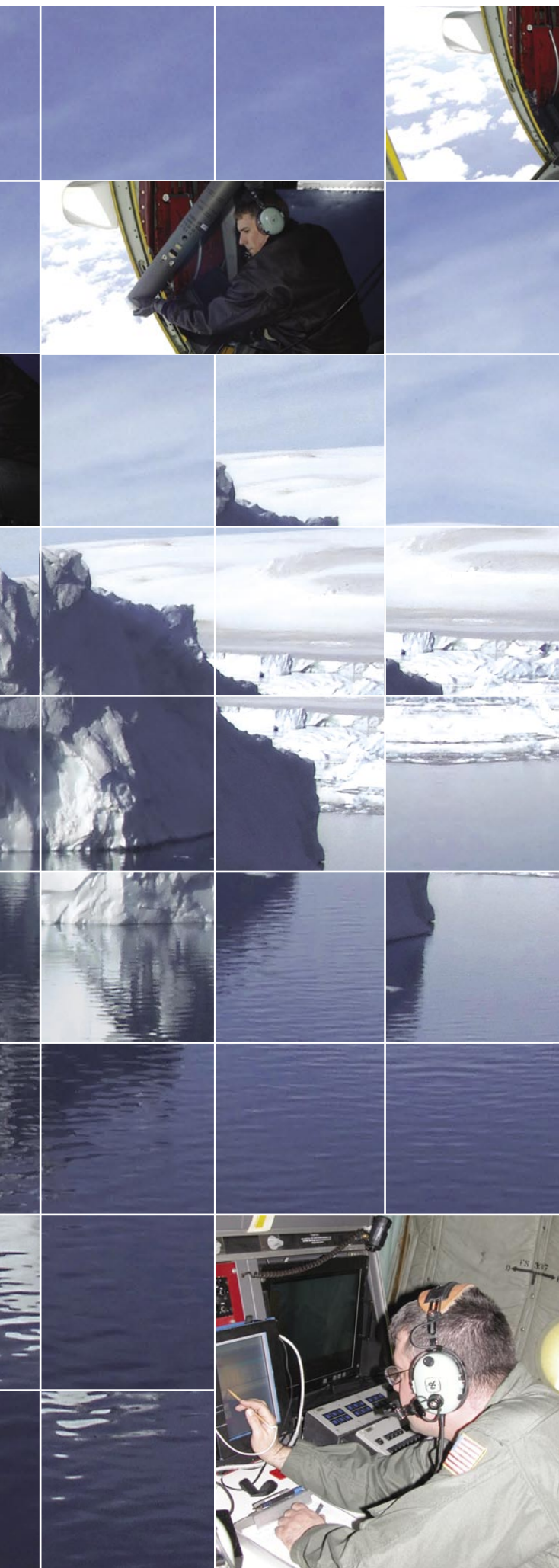


ENERGY



THE ICE- BREAKERS



Saving lives in the shipping lanes of the North Atlantic

By Moira Baird



FOR NEARLY 100 YEARS, the International Ice Patrol (IIP) has hunted, tracked and charted icebergs drifting through the transatlantic shipping lanes of the Atlantic Ocean. The internationally funded patrols were established after the sinking of the Titanic in April 1912. More than 1,500 people died when the world's largest passenger ship sank after hitting an iceberg during her maiden voyage.

Ice patrols started the same year with a pair of US navy ships patrolling the Grand Banks off Newfoundland, the easternmost province of Canada. And those patrols continue today with Hercules C-130 airplanes flown by members of the US Coast Guard, which took over ice duties in 1914. "Our roots are in the sinking of the Titanic," said the IIP's Commander Scott Rogerson. "The sole purpose of our job is to keep something like that from happening again." The Titanic struck the iceberg about 500 miles south of St John's, Newfoundland, and ever since the ice patrol has commemorated the loss of the ship and her passengers with a memorial service, during which wreaths and bouquets of flowers are dropped into the ocean.

The IIP's mission is to map the "limit of all known ice," effectively drawing boundaries around a huge patch of ocean where ships are likely to encounter icebergs. Coast guard planes patrol 500,000 square miles of water between the northerly latitudes of 48 degrees and 40 degrees – roughly between the northeast coast of Newfoundland and the city of Philadelphia on the US eastern seaboard.

Iceberg hunting season typically begins in mid-February and runs until July or early August. Coast guard planes, outfitted with both side-looking and forward-looking radars, fly in grid patterns between 6,000 feet and 8,000 feet above the North Atlantic.

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Once an iceberg crosses the 48th parallel, the ice patrol takes notice. "That's where we start to be concerned about their threat to maritime shipping," said Commander Rogerson. "We feel confident that if there's ice

out there we're going to find it. Unfortunately, we find that we only have good visibility on the Grand Banks about 30 per cent of the time."

Despite that narrow window of visibility, the human eyeball is a useful back-up to the electronic sensors. Observers looking out of the C-130 windows can sometimes spot an iceberg that went undetected by radar.

And while radar often accurately pinpoints an object in the ocean, it can't always distinguish between ice and a fishing vessel.

"Their profile is similar," said the commander. "A visual inspection can also determine the size and shape of an iceberg. For example, a large iceberg that is the size of a small gym is going to last a whole lot longer than a small iceberg that might be the size of a small house. So we need to know that. If the radar doesn't tell us that, the humans in the windows can supplement that."

On average, the ice patrol expects an average of 250 icebergs per season, but the actual count varies widely. In 2005 and 2006, a combined total of just 11 icebergs were tracked south of the 48th parallel; in 2002 and 2003, the ice patrol averaged 900 icebergs per season. Last year, 324 icebergs were spotted.

"It's not uncommon to have lighter years offset by far more dangerous years," said Commander Rogerson. "It only takes one iceberg and one ship at the same place at the same time and that's going to be a problem."

The Grand Banks – often described as the stormiest, foggiest,



A wreath is dropped into the ocean at the annual memorial service for the *Titanic*.

most dangerous part of the North Atlantic – is home to Iceberg Alley, the route most icebergs typically follow as they drift southward towards the Caribbean and melt into the ocean.

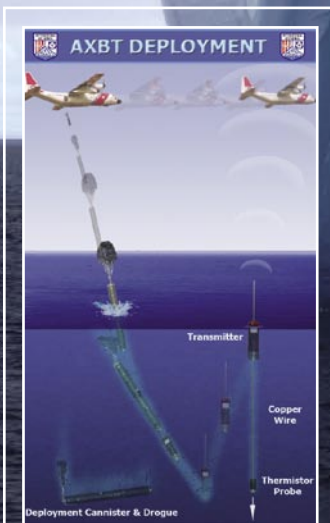
Their two-year journey begins at the West Greenland glaciers, where up to 15,000 icebergs break away from the main ice sheet annually and slowly drift south. The Labrador Current carries most of these icebergs through the Grand Banks.

There, the icebergs cross international shipping lanes and drift near a trio of

offshore oil fields that pump crude from the seabed. Icebergs pose a threat to ships as well as to the oil rigs and production platforms at the Hibernia, Terra Nova and White Rose oil fields operated respectively by ExxonMobil, Petro-Canada and Husky Energy, a Hutchison company.

Dealing with ice is part of daily operations in these oil fields during iceberg season. The Hibernia platform, which sits on top of a concrete pedestal, was designed to withstand a collision with a one-million tonne iceberg. At Terra Nova and White Rose, the production ships are equipped to disconnect quickly from the seabed if an iceberg drifts too close.

While the ice patrol leaves ice management to the oil companies, it does collect ice data from them. St John's-based Provincial Aerospace Ltd monitors icebergs and sea ice in the Newfoundland oil patch and feeds this information to the IIP. The ice patrol also works with other agencies, including the



To help collect data, the ice patrol deploys oceanographic buoys to track ocean currents and uses satellites to measure water temperature.




Canadian Ice Service and the US National Ice Centre, and uses a synchronised database to share iceberg sightings.

Computer modelling is also used to forecast where an iceberg might drift once it is spotted. The ice patrol deploys oceanographic buoys to track ocean currents and uses satellites to measure water temperature. "Over time, we get a real good picture of what the ocean is doing as it is moving the icebergs further to the south," said Commander Rogerson. Sea surface temperatures, winds, wave heights and currents are punched into the model to predict where the iceberg will drift.

The system certainly seems to work. Since the Titanic tragedy, not a single life has been lost due to a collision with an iceberg on vessels in waters covered by the IIP. But why not simply destroy them? The answer is that blowing up an iceberg is not as easy as it sounds. According to the IIP, a 1,000 pound charge of conventional explosives would be needed to break up approximately 70,000 cubic feet of ice (a growler weighing 1,960 tons) and a hundred such charges would be needed for the destruction of an average berg.

But even in today's high-tech era of radar, sensors and satellites, ships can still hit trouble. In 1993, the year the ice patrol tracked about 1,700 icebergs, three ocean-going ships hit icebergs and in 2004 a fishing vessel smashed its bow when it collided with an iceberg head-on.

"The Grand Banks of Newfoundland is one of the most dangerous regions of the world in terms of shipping because you have oil rigs, icebergs, high seas, low visibility, transatlantic shipping and fishing vessels," said the commander "Even with today's technology, icebergs remain a threat." 

HUSKY PULLS ITS WEIGHT

HUSKY ENERGY, the Calgary-based operator of the White Rose oil field on the Grand Banks, has nine exploration licences off the East Coast of Canada. They are all located in an area known as the Jeanne d'Arc Basin, where Husky has produced light crude oil from White Rose since November 2005.

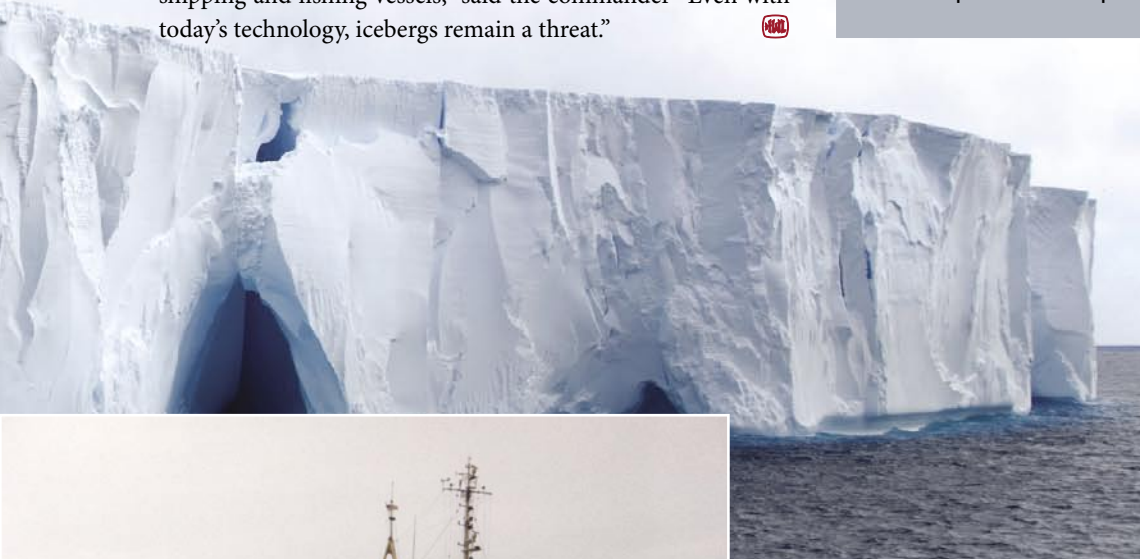


The smallest of the three oilfields in production off Newfoundland, the 250-million-barrel White Rose is expected to almost double in size with the development of a trio of nearby satellite fields. The first of these is called North Amethyst, and Husky expects to begin development drilling this summer, pending regulatory approvals. It's scheduled to pump the first oil by late 2009 or early 2010.

This summer, Husky is also planning early-stage exploration activity – collecting seismic data for White Rose, its three satellites and five exploration licences. Seismic surveys use sound waves to help map what lies beneath the seabed and to locate potential drilling targets.

Husky is also a partner in the Terra Nova oilfield in offshore Newfoundland.

Last year, Husky acquired three exploration licences in offshore Greenland. There, the company holds the majority ownership interest in two of the licences, and is partnered with Greenland's state oil company, Nunaoil AS. In the third parcel of seabed, known as West Disko, the company has teamed up with Esso Exploration Greenland and Nunaoil.



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