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Ice-free Arctic waters open up new opportunities and dangers

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I was the mate on watch on an 890-foot crude oil tanker leaving Valdez, Alaska. It was summer, and we had a pilot onboard while transiting Valdez Arm. Off Columbia Bay, the outbound lane was filled with icebergs, bergy bits and growlers. The captain, an old-timer who'd been to sea since the 1940s, looked at the ice-filled water from the wheelhouse window and said, "We don't want to rip a hole in the side by hitting a big chunk of ice, mate — so keep a good lookout."

After getting permission from the Valdez Vessel Traffic Center, on the pilot's recommendation and the captain's orders, we came left into the less icy inbound lane. When we let the pilot off near Bligh Reef, the skipper, helmsman and I — aided by the lookout and chief mate on the bow — continued to work the ship through several more miles of large ice concentrations.

As we passed the last visible ice a hundred feet off our starboard side, we all let out a deep breath and continued our transit south.

That was the first time I experienced navigating in ice-filled waters. One thing that struck me that day was how ice, unlike most other hazards to navigation, is an elusive, ever-changing danger. I learned that sea ice can be hard to see even in daylight, moves with the wind and currents, and can present a poor, undefined radar target.

Many mariners have never worked in ice-filled shipping lanes. That may soon change. For the last 30 years, the U.S. government's National Snow and Ice Data Center (NSIDC) has analyzed satellite photos to monitor the melting of the ice in the Arctic Ocean. In 2007, the NSIDC announced that the Arctic sea ice had retreated to levels never seen since satellite monitoring began. Then, on Aug. 25, 2008, the experts at the NSIDC made an announcement that reverberated throughout maritime circles worldwide — the fabled Northwest and Northeast Passages were both open.

The Northwest Passage runs from the Atlantic Ocean through Baffin Bay between Greenland and Canada, about 1,000 miles along the coasts of Canada and Alaska, through the Bering Strait between Russia and Alaska, and then to the Pacific Ocean. The Northeast Passage, around 2,000 miles, runs from the Atlantic Ocean along the coast of Norway, Sweden, Finland, and Russia to the Chukchi Sea and down through the Bering Strait as well. The Bering Strait, near Nome, Alaska, is the only Pacific entrance — and is considered

the bottleneck of both routes.

The main reason the Northwest and Northeast Passages have been sought is that they cut thousands of miles off a typical trip from Asia to Europe. Open water in the Arctic Ocean means that shipping companies could save huge amounts of fuel, avoid the tolls for going through the Suez or Panama Canal and eliminate the need to transit though high piracy areas like the Gulf of Aden or the Malacca Strait.

By some estimates, up to 25 percent of the world's untapped oil and natural gas reserves, as well as large gold and diamond deposits, can be found in Arctic regions. In May 2008, officials from Russia, Denmark, Canada, the United States and Norway met to discuss plans for oil drilling in the Arctic Ocean. Open water would also make it possible for mining ships like the 600-foot *MV Peace in Africa*, owned by diamond giant DeBeers, to start mining the bottom.

There's no doubt that both companies and countries ultimately stand to make billions of dollars. My concern is that in the frenzy for oil, gold or shorter sea routes, maritime safety will take a back seat to economics.

I know from experience that working in ice-filled waters is stressful, and I can imagine the strain and mental exhaustion on a crew transiting a thousand miles of bergy waters. The International Maritime Organization (IMO) and U.S. Coast Guard recognize that a significant percentage of accidents at sea are the result of mariner fatigue. That's why I think that the Standards of Training, Certification and Watchkeeping (STCW) Code's minimum rest requirements (46 CFR 15.1111) should be increased for vessels working in Arctic waters — with no more than 10 hours of watch per day allowed. I also believe it should be mandated that additional crewmembers be added accordingly in these areas, to ensure that well-rested lookouts, mates and engineers are on watch at all times.

Every mariner knows that reliable, up-to-date charts are essential for safe navigation. Unfortunately, accurate charts for large swaths of the northern sea route along Russia's Arctic Coast are not available, and even Russia has admitted that mapping the route is "far from finished." A number of current Canadian Northwest Passage charts use surveys dating back to the 1800s, and some areas have never been surveyed. Charts for the entire northern routes need to be completed and/or updated. Then, additional aids to navigation should be placed by the Coast Guard along the large stretches of the northern passages where there are now few or no lights, day shapes and buoys marking dangerous hazards or navigational points of reference.

The lack of accurate charts is not the only impediment to safe navigation in Arctic waters. Icebergs and other floating ice pose a real threat to Arctic shipping. That's why I think that real-time, on-site monitoring of ice concentrations along the northern passages is necessary, not only by satellite and ship observations, but by shore-based installations as well. Additional temporary Coast Guard outposts along the sparsely populated stretches of the passages, similar to the two temporary outposts the U.S. Coast Guard placed near Barrow, Alaska, last summer, could provide ice reports at regular intervals, as well as emergency response, weather info and basic traffic monitoring.

Because most crews have no experience in ice-filled waters, IMO guidelines state that commercial ships working in or transiting the Arctic Ocean should carry an ice navigator, but unfortunately do not require that one be used. Ice navigators are mariners who have met the IMO requirements of approved training and experience in ship navigation through ice-filled areas — though there is no specific license endorsement for them.

I recently spoke with Capt. David Snider, of Martech Polar, an expert ice navigator from Canada. We talked about how Canada, Russia and the Baltic states have specific training, classroom and experience requirements that go well beyond the IMO's minimum standard. In my opinion, the potential for disaster in the Arctic Ocean dictates the need for the IMO to require, not just recommend, the use of ice navigators in Arctic waters. I also think that the IMO should adopt Canada's higher standard worldwide, and that there should be an ice navigator endorsement on the license of anyone serving in that capacity.

It should come as no surprise that companies around the world are already jumping at the chance to make billions of dollars in the new Arctic "Gold Rush," but without proper precautions, decisions made in corporate boardrooms could have calamitous real-world results in Arctic waters. Beluga Shipping, a German company, has announced plans to send its cargo ships through the northern passages in 2009. The infrastructure needed to fully support wide-scale Arctic shipping is not in place. While the opening up of the Arctic could well develop into the biggest maritime story of this century, time, effort and expenditures are needed to help make sure the story doesn't turn out to be a tragedy.

Till next time, I wish you all smooth sailin'.

Kelly Sweeney holds the licenses of master (oceans, any gross tons) and master of towing vessels (oceans), and regularly sails on a wide variety of commercial vessels. He lives on an island near Seattle. You can contact him at captsweeney@ professionalmariner.com.