

Ice Navigation, The Nautical Institute's Way Ahead.
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Navigation in Ice

For many years, the marine industry has recognized that one aspect of our profession, that of navigating vessels in ice, demands skills additional to, and separate from those required of most mariners who navigate on the seas, rivers and lakes of the globe. Captain William Scoresby, a whaling captain wrote in his 1820 book that described the activities of the whaling fleets in the Arctic that *“The navigation of Polar seas, which is peculiar, requires in a particular manner, an extensive knowledge of the nature, properties and usual motions of the ice, and it can only be performed to the best advantage by those who have a long experience with working a ship in ice conditions”*. More recently, Ulf Rider of Stena Bulk said in Fairplay magazine that *“it takes as long to train an Ice master as it does a brain surgeon”*.

Time and time again, at conferences and symposia where ice navigation is discussed, the same theme has surfaced: Crews that are inexperienced in ice navigation and cold climate operations are often the cause of loss time injury accidents and damage to vessels in ice. That these additional skills, knowledge and experience are necessary to navigate safely in any ice regime has been widely accepted for many decades, however, what has hitherto eluded our industry is the development of an internationally recognized and accepted standard to measure against.

As with other specialist trades and sectors of our profession, there was no historical need to set down what skills and knowledge were required to “train” future mariners in these skills. The traditional method of passing on what had been learned before was simply to understudy for years those before who possessed the knowledge and skills. With navigation in ice, it was also left to specialized ships and crews. Today we are not afforded the same luxury of time. Young officers are moving into more senior positions more rapidly, time is not available to learn by experience. With global climate change and technology advances combining to increase traffic into ice infested waters at a rapid rate, the number of officers that require an appreciation of the skills required to navigate in ice regimes is increasing along with the number of ships that are expected to operate in these regions. .

Defining a Standard

Simply recognizing that special skills and knowledge in a specific area of expertise are required is not enough. It often remains a challenge to change from a traditional knowledge transfer by experience methodology, to one based on training combined with experience. The first step is to define the skills and knowledge required to establish baselines and standards to measure against, then to develop the training objectives. To

ensure conformity and provide quality assurance it is also advisable to put in place a process of verification and accreditation for the training institutions an individual certification processes.

With no standard of required skill, knowledge and experience yet to be agreed internationally, mariners, ship operators and owners, insurers and charterers are unable to compare training courses, qualifications of personnel or make decisions on crew selection to ensure sufficient capability will be onboard a vessel intended to transit an ice regime. Early in the millennium The Nautical Institute recognized that this gap existed, and that a number of attempts to incorporate clear and precise standards in regulation that is internationally agreed to have failed. Against this background, it became clear there is a need for a global standard for Ice navigators.

Examples of the inconsistent nature of the requirements include:

the Regulations for Navigating the Northern Sea Route states only that onboard ships transiting the passage, the *“ships master or person substituting should possess minimum knowledge of navigation in ice and have experience of ships control while in ice.”*

versus

Canada’s Arctic Shipping Pollution Prevention Regulations, define an Ice Navigator, when required, as an individual *“qualified to act as a master or person in charge of the deck watch ... [and] have served on a ship in the capacity of master or person in charge of the deck watch for a total period of at least 50 days, of which 30 days must have been served in Arctic waters while the ship was in ice conditions that required the ship to be assisted by an ice-breaker or to make manoeuvres to avoid concentrations of ice that might have endangered the ship.”*

International Developments

Not only does the definition of an Ice Navigator vary globally, but so do the skills and knowledge that are expected to be brought to the bridge. There is no standard to measure against. In 1995 Canada submitted a proposal to IMO that defined Ice Navigator, elaborated skills and knowledge required of this individual, and was accompanied by model courses. The result however was only a recommendation in the Guidelines for Ships Operating in Arctic Ice Covered waters, that ships carry an Ice Navigator that had attended a course the content of which was undefined. No further details were provided. The STCW 2010 Manila amendments included a paragraph that described several topics that should be covered in training, but this remains vague. The IMO guidance remained vague and it did not appear that any substantive improvement to this guidance on ice navigation skills and knowledge could be expected in the round of discussions on the

Polar Code amendments that initially focused only on technical matters. Though Norway and Russia submitted proposals for Ice Navigator Standards to be included as compulsory requirements under STCW, this was soon dropped.

By 2013 it was expected that the IMO's mandatory Polar Code would finally close this gap including clear guidelines for training and certification of Ice Navigators. Many in international shipping had high expectation that the new Polar Code would bring together the plethora of national regulations or local instructions in which definitions and "titles" vary widely. Is the experienced navigator an Ice Navigator, Ice Pilot, Ice Master, or Ice Advisor? What skills and knowledge are necessary for such an individual? How does a ship or manning manager know that an individual they contract to provide the added level of experience considered necessary for transiting ice infested waters actually has the skills and knowledge necessary?

Ice Navigation in the Context of The Polar Code

The Polar Code as adopted did not clearly address ice navigation, preferring instead to address "polar waters knowledge" alone. Under the Code, depending on the type of ship and the quantity of ice that may be present, mariners on ships operating in Polar waters need only have attended training courses and for the senior levels, have only logged time in "polar waters" with no reference to experience operating ships in ice.

In the absence of clear IMO direction on ice navigation skills, the confusion in definition and standard has persisted. Any individual can claim to be and hire themselves out as an Ice Navigator. The Polar Code expressly avoided identifying or defining an Ice Navigator or requiring practical experience operating in ice for ships operating in Polar waters. As well, the Polar Code applies only to SOLAS ships in Polar waters. Non-SOLAS ships and vessels operating in non-polar ice infested waters have no common guidance. How is the ship operator, owner, managing agency or sadly, a marine accident investigation agency to compare?

Since 1995, there have been other non-regulatory attempts to close the definition/standard gap. Several training establishments have independently developed syllabi and conducted ice navigation courses, but again, there is no international standard to compare against.

In the spring of 2009 in Montreal, Canada, stakeholders gathered to discuss how best to move ahead to put in place international standards for ice navigators. The results of the workshop were again clear, international standards were required. However, the workshop also found that in the absence of IMO movement on the topic, a leader was required to take charge of the development of these standards. No particular sector of the marine industry was felt to have a broad enough scope to move forward unilaterally. As a result, The Nautical Institute, seeing the need for international standards, presented a proposal at the Arctic Shipping Summit in Helsinki in April 2010 to take the lead in this topic. Having received general support from many industry stakeholders in Helsinki and reinforced support at the British Columbia Branch's conference on Arctic Shipping in

April 2010, a proposal was presented through the Professional Development Committee to Council in April of the same year.

Development work by The Nautical Institute

The NI Council approved the proposal for the Institute to lead an international, multi-stakeholder project to define Ice Navigator, to determine skills, knowledge and experience necessary. The Ice Navigation Project was announced to very positive industry response at the Arctic Shipping Summit in Helsinki the following week.

Based on five desired outcomes outlined in the project terms of reference, the Ice Navigator Project fits well within the new Strategic Plan. The five outcomes are:

- Set up of international industry working group consisting practitioners, vessel operators and owners, training providers, class, insurers and flag states. This working group will consider various work already in existence, determine what gaps exist and develop standards for skills and knowledge necessary to navigate in new ice (first year) and old (multi-year or polar ice) conditions. The working group will predominantly proceed electronically. One physical meeting of working group participants is anticipated in order to validate data collated and assumptions arrived at prior to formulating a draft report
- Devise and propose an international framework and syllabus for ice navigation
- Develop navigation training and training elements at sea and ashore to meet requirements set out in STCW Code, Part B
- Input the training framework to IMO
- Consider the need for the Institute to offer and accreditation service to implement and maintain the devised standards.

Numerous organizations have participated in the Ice Navigator Project, including

- Marine Institute of Memorial University, Canada;
- Admiral Makarov State Maritime Academy, Russia;
- Willem Barentz Maritime Institute, Netherlands;
- Kymenlaakso University of Applied Sciences, Finland;
- International Chamber of Shipping;
- TransAtlantic Ice Council, Sweden;
- Arctia Shipping;
- Lloyd's Register;
- Germanischer Lloyd;
- Fednav Limited, Canada;
- P&O Maritime Services, Australia;
- SOVCOMFLOT, Russia;
- Gard AS, Norway
- Canadian Ice Service (for International Ice Charting Working Group), Canada

Under the proposal accepted by Council the project proceeded within specified timelines. The electronic working/correspondence group was set up immediately and provided its first proposals during a physical meeting held in conjunction with the North American Arctic Shipping Summit in St. John's, Newfoundland and Labrador in October 2011. Draft recommendations were presented to Council in April 2012 and the final recommendations for submission to IMO by October 2013. At that time, the IMO announced that the Polar Guidelines would be reviewed with the expectation of replacement by a mandatory code by end of 2016

The Nautical Institute's Ice Navigator Project was put on hold when the IMO began the process to move forward to put in place a new mandatory code. Initial drafts of the Polar Code did include definitive requirements for Ice Navigation skills and competency, but as previously stated, these fulsome requirements did not make the final approved document.

The Nautical Institute Ice Navigator Accreditation and Certification Scheme

When it became apparent that the Polar Code would not directly address Ice Navigation the Nautical Institute was approached by a number of marine industry representatives and was encouraged to resume efforts to put in place an international standard of training and certification for Ice Navigation. Before moving forward once again, The Nautical Institute stood by until it was clear exactly what would be required by the HTW approved Polar Waters Training Model Courses. Once the IMO Polar Code courses were approved in 2016, a final gap analysis was completed. The Nautical Institute once again reached out to stakeholders with the intention of building an ice navigator training accreditation program that would fill the gaps and could be relied upon as a baseline reference to ensure officers meet appropriate competency to operate ships in ice covered waters, regardless of their area of operation or status as SOLAS or coastal trade. The resulting program fully complements the Polar Code requirements, adding elements that are specifically designed to ensure competency in ice operations.

Because of its broad international membership, the Nautical Institute is the ideal forum to move forward such a vital initiative. The proposal has been accepted by industry worldwide, knowing the Institute's track record on objective standard development and stewardship for Dynamic Positioning and ECDIS Operator Training.

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