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The Polar Code



SHIPS

The Polar Code

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Introduction

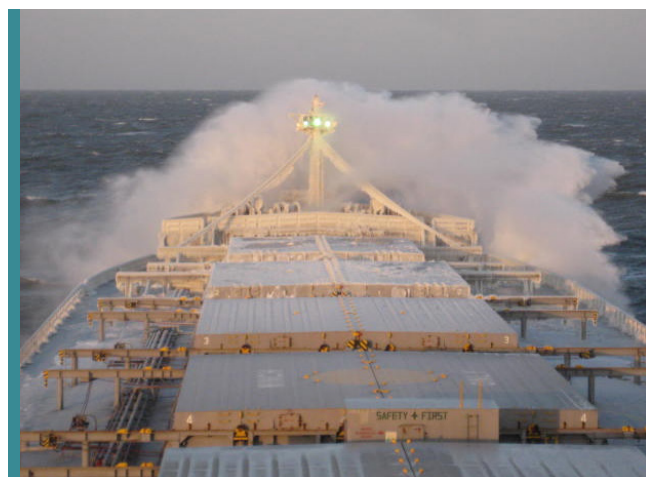
The Polar Code came into force on 1 January 2017.

The main objective of the Polar Code is to ensure that vessels intending to trade in the regions surrounding the Arctic and Antarctic are fit for operating in these areas.

The Code applies to all vessels of 500GT and over that operate or visit ports within the Polar Region boundaries.

Such vessels now require a Polar Ship Certificate and a Polar Water Operations Manual that are approved by the vessels Flag State before the vessel can operate.

The requirements are based on the capabilities a vessel must have to allow it to conduct safe operations. The requirements are therefore dependent on where and when a vessel will operate inside the Polar Regions.



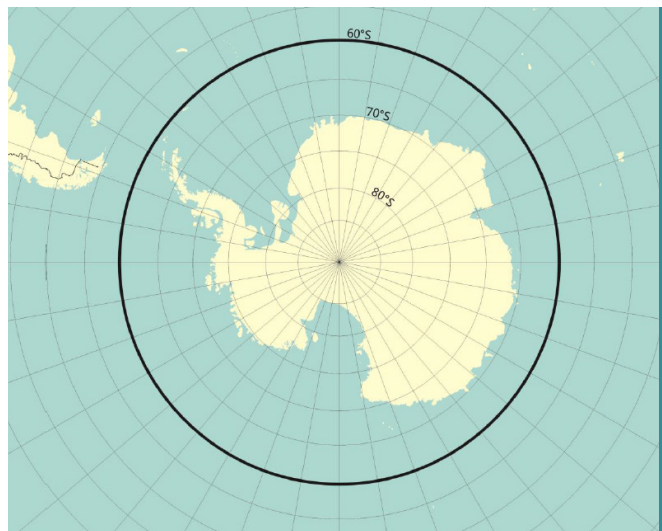
Sea spray and temperature are factors affecting ice accretion

The Polar Regions

Prior to calling at ports in Polar Regions, or transiting the regions, Members should establish if that area of operation lies within the boundaries of the Polar Code.

The boundaries are as follows.

Antarctic Boundaries



Source: IMO.

Arctic Boundaries



Source: IMO.

In the Antarctic the boundary is simple – it is the 60°S Latitude. However, the Arctic boundary does not follow the Arctic Circle (60°N Latitude). Instead it is modified to encompass the coast of Greenland, through to the Russian Arctic coast in the Barents Sea. This means that the Polar Code does not affect Iceland, Norway and the Kola Peninsula in North West Russia as for the majority of the year they are ice free.

In the Bering Sea the limiting latitude is 60 degrees North.

See Annex 1 for Polar Region boundary drawings.

For more information, please visit www.nepia.com    

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The Polar Code (cont.)

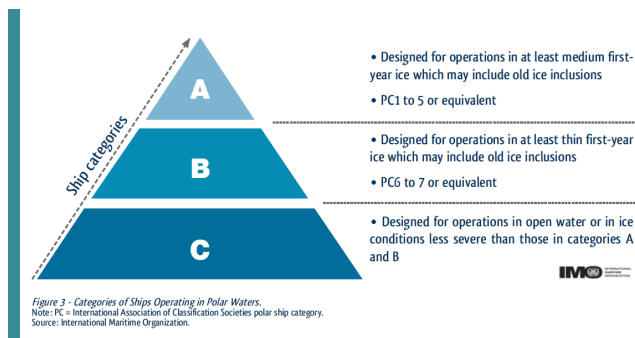
The Polar Ship Certificate

The Polar Ship Certificate is a Flag State issued certificate that is unique to the vessel. It classifies the vessel for operations in the Polar Regions. There are 3 classes of Polar vessels, A, B and C detailed below.

Not all ships are designed and built for operation in Polar Regions, so the categories allow some flexibility for other vessels to operate in these regions. An example would be a normal bulk carrier vessel that wishes to call at a Russian port within the Polar Region, during a summer period. This can most likely be classified as Category C.

The category is influenced by the type of ice and conditions expected to be encountered by the ship.

The Polar Ship certificate shows a vessel's Polar Category, operational limitations and capabilities, and any required additional safety, communications and navigation equipment needed for operating in Polar Regions.



Polar Class	General Description
PC1	Year-round operation in all ice-covered waters
PC2	Year-round operation in moderate multi-year ice conditions
PC3	Year-round operation in second-year ice which may include multi-year ice inclusions
PC4	Year-round operation in thick first-year ice which may include old ice inclusions
PC5	Year-round operation in medium first-year ice which may include old ice inclusions
PC6	Summer/autumn operation in medium first-year ice which may include old ice inclusions
PC7	Summer/autumn operation in thin first-year ice which may include old ice inclusions

Source: IMO

The Polar Classes shown above are set by IACS classification societies. These 7 polar classes are used to determine vessel construction and machinery requirements.

For a vessel to gain a Polar Ship Certificate it must undergo an initial survey to show it complies with the relevant requirements of the Code, or complete an Operational Assessment for submission to the Flag State for approval instead of an on board survey.

The Operational Assessment

Is an assessment of the ship and its equipment to establish appropriate operational procedures, and any operational limitations such as destinations and seasonal limits.

Owners and operators should establish a Polar Operating Profile to give them an understanding of how the Code will apply to their vessel.

This profile should include consideration of the intended area of operations, the season and the type of activity to be conducted.

After this an Operational Risk Assessment should be carried out to establish any procedural or equipment requirements and limitations for the vessel.

When conducting the assessment the following should be considered:

- The anticipated range of operations, and expected environmental conditions such as,
 - Operation in low temperatures
 - Operation in ice.
 - Navigating in higher latitudes.
 - The potential of abandoning ship onto ice.
- Any hazards associated with operating that vessel in the areas within the Polar Region.

The information gathered during the process should ensure that the vessel is carrying the correct equipment and has the correct procedures in place for operating in the polar conditions likely to be encountered.

Flag State then uses the assessment results to assign the correct Polar Category to the vessel. This will include any limitations for that vessel such as operating air temperatures.

If the Operational Assessment shows that the vessel is carrying all the required equipment, requires no structural modifications in order to comply with the Code, then the certificate may be issued without the survey. If this is the case an on board survey would only be required at the next scheduled survey date. The certificate date should be harmonized along with the vessels SOLAS certification.

The Polar Water Operations Manual (PWOM)

This is a ship-specific manual carried on board which outlines the ship's capabilities and limitations.

It should include the procedures for operating in Polar Regions to make sure the vessel always remains inside its limitations. It should also include actions to take in the event that the ship encounters conditions outside its limitations.

The manual must also cover procedures for the use of ice breaker assistance vessels whilst trading in the region.

The Polar Code (cont.)

Procedures to be followed in the event of an incident or emergency occurring within the Polar Regions should also be included.

Risk based procedures that are contained in the manual should include:

- Voyage planning instructions and guidance for operating in such regions, including any vessel limitations.
- The potential lack of reliable chart information that is possible in some polar areas.
- How to gather weather reports in higher latitudes.
- Any additional equipment to be carried.
- Any procedures required for machinery and equipment to ensure its continued safe operation in Polar Regions.
- Emergency contact details for any areas the vessel will operate in.

Voyage planning is covered in the Code, and as such bridge teams should familiarise themselves with its contents.

OCIMF have released guidance on how operators can develop their polar water operational manual which can be found here: www.ocimf.org/media/147317/Guidelines-for-the-Development-of-a-PWOM.pdf



Crew removing ice buildup from a vessels structure

Additional Equipment or Equipment Modifications

The Code has detailed requirements for new builds and Category A and B vessels. However, Category C cargo vessels may also require additional equipment, or modifications to operate in these regions.

Machinery

The Code has detailed requirements for Category A and B vessels. However, the machinery in all vessels, including Category C vessels, must be able to operate fully in the expected environmental conditions for the trading area with regard to both sea and air temperatures. In determining if machinery is suitable, operators should consider:

- Ice and or snow build up.
- Ice in the water and sea water intakes.
- Snow ingestion.
- The cooling of liquids and subsequent viscosity changes.
- Cold dense air
- Effects on any batteries due to temperature

If the vessel cannot operate correctly due to the effects of air and sea temperature, or the build-up of ice, then changes to the ships machinery may be required.

Life Saving and Fire Fighting Equipment

All items of LSA and FFE equipment must be capable of operating when the ship is in Polar Regions. For example exposed sections of fire main must not freeze and must remain operational whilst in the polar region. The temperature must not affect the fire extinguishing mediums on board in any way. For example, fire nozzles in a fixed system or fire pumps must not be affected by low temperatures. The assessment of fire and safety equipment should consider whether the clothing provided for the crew is suitable for operating equipment, for example thick heavy gloves operating smaller technical equipment.

Means of access and escape must be able to be kept free of ice and / or snow build up at all times.

Vessels must be fitted with fully or partially enclosed lifeboats, and their launch facilities remain operable at all times.

Crew must be provided with adequate thermal protection to prevent frostbite, this may be in excess of the normally supplied immersion suits.

When considering the requirements for lifesaving equipment, operators must take into account the maximum expected rescue time taking into account conditions expected and the remoteness of any SAR rescue facilities.

Navigational Equipment

As with all equipment, it is important to ensure that navigation equipment correctly operates when trading inside the polar region. For ice strengthened new build vessels built after 1 January 2017 there are more stringent requirements in the code. However for existing Category C ships there are also some considerations;

- Ships must be able to receive up to date information and ice reports when operating anywhere inside the polar region.
- Ships must be capable of detecting ice when operating in the hours of darkness with the use of narrow beam search lights.
- All vessels must comply with SOLAS regulation V/22.1.9.4 Bridge Navigation Visibility, and have a clear view astern.
- Ships should have means of ensuring that there is no ice build-up on navigation equipment such as antenna. There should also be means of ensuring that there is no ice or snow build up on the bridge windows.

The Polar Code (cont.)

- There are also prescriptive requirements for the quantity and type of compasses carried on board to ensure there is enough back up and that the compasses are suitable for use in higher latitudes.
- For ships operating with the assistance of an ice breaker, a means of indicating when the vessel is stopped must be installed.

Communication Equipment

Vessels must be fitted with adequate communication equipment for the expected operating location and conditions.

This extends to the emergency communication equipment carried, as well as to how the vessel communicates with any escort vessels.

Members should note that certain areas will have poor satellite coverage which will affect communications equipment.

Structural Alterations

A Vessel's scantlings will determine the Polar Category of the vessel. Normal cargo vessels falling under Category C need not make alterations if it is adequate for the intended operation. Tankers in these areas must, however, be double hulled.

Ships must prove that they have adequate stability when subject to ice accretion; there are additional stability requirements for new build Category A and B ships related to ice damage.

Watertight and weather tight hatches and doors must remain working in the event of ice accretion.



A vessels foremast with ice accretion

Training Requirements

The Code lays out requirements for additional training of officers in charge of navigational watches inside the polar region boundaries. The training is split into basic and advanced level as follows:

Basic:

Ice conditions	Tankers	Passenger ships	Other
Ice Free	Not applicable	Not applicable	Not applicable
Open waters	Basic training for master, chief mate and officers in charge of a navigational watch	Basic training for master, chief mate and officers in charge of a navigational watch	Not applicable

Advanced:

Ice conditions	Tankers	Passenger ships	Other
Ice Free	Not applicable	Not applicable	Not applicable
Other waters	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch.

Source: The International Code for Ships Operating in Polar Waters.

- Ice Free Water:** No ice of any kind is present.
- Open Waters:** Large areas of freely navigable water with ice concentrations of less than 1/10 are present. There is also no ice of land origin present.
- Other Waters:** Ice concentration is greater than 1/10 or there is a presence of glacial ice including icebergs or bergy bits.

The training requirements will enter into force on 1 July 2018.

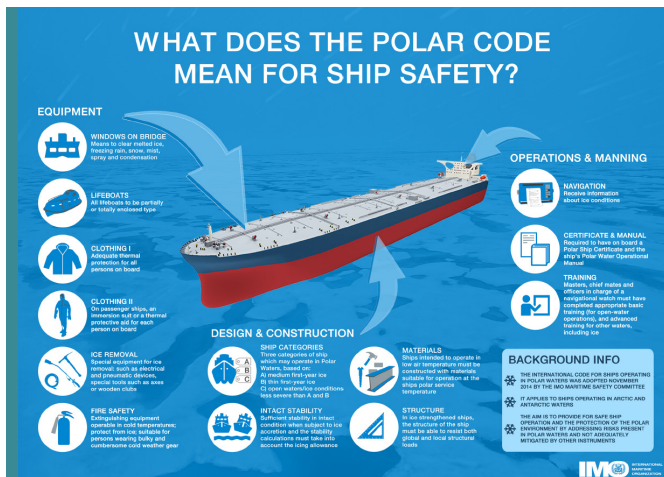
Deck Officers of any rank will need to attend the basic training course. Masters and Chief Officers will in addition need to attend the advanced course. The advanced course requires an additional 2 months sea time within Polar Regions whilst working on board in a senior position.

For experienced Deck Officers there are transitional provisions for the first two years after the entry into force which will be until 1 July 2020. Deck officers can apply for the basic certificate if they have approved seagoing service on board a ship operating in polar waters for a period of at least three months during the preceding five years; or have successfully completed a training course meeting the training guidance established by the IMO.

The Code does allow the use of additional ice trained officers as a supplement to the normal crew while the vessel is in the Polar Region. They must be STCW certified and comply with all work hours requirements as usual.

All crew must be familiar with and understand the contents of the Polar Water Operation Manual.

The Polar Code (cont.)



Source: IMO.

Ice Information Services

The following organisations broadcast information regarding polar ice conditions.

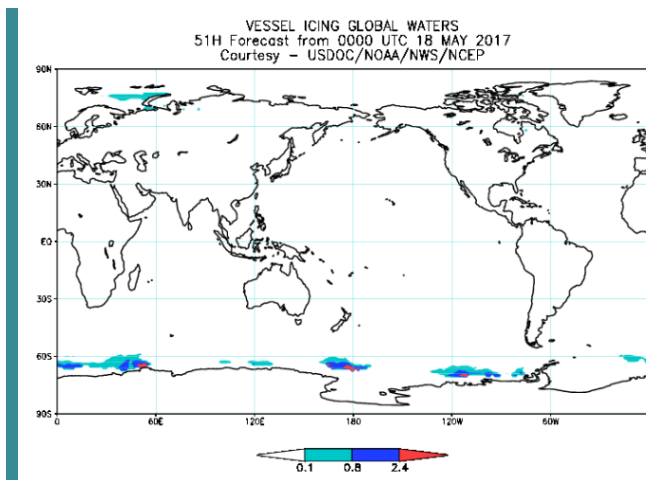
BIMCO

Members can sign up to BIMCO and once logged on they can check items from general information such as an ice glossary to ice service reports and operational advice.

To sign up please go to: www.bimco.org/

National Oceanic and Atmospheric Administration (NOAA)

NOAA online run a global superstructure ice accretion service which was developed using predictive modeling. The model works on an algorithm relating to wind speed, freezing point of the sea water, air temperature and the sea temperature. The bottom legend of the animation shows the expected amount of ice accretion in inches.



The animated NOAA ice accretion map.

The NOAA ice accretion site can be located here:

<https://polar.ncep.noaa.gov/marine.meteorology/vessel.icing/#ani.sice>

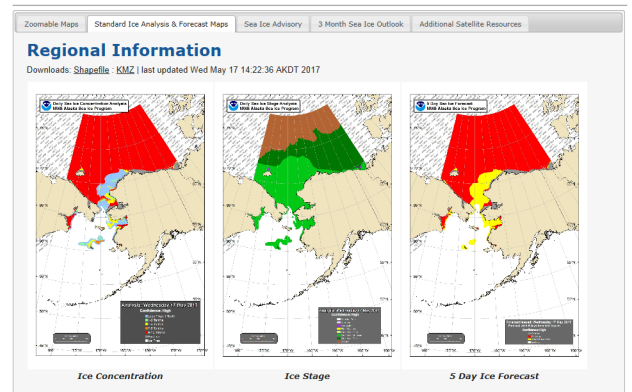
NOAA also cover the Bering Sea through the Alaska Sea Ice Program (ASIP), this includes ice limits, advisories and 3 month forecast outlooks.

NWS Alaska Sea Ice Program (ASIP)

Weather.gov • Anchorage, AK • NWS Alaska Sea Ice Program (ASIP)

Anchorage, AK
Weather Forecast Office

Our ASIP is staffed 7 days a week from 6:30 am to 3:30 pm
Operations Phone Line: 907.266.5138
Operations Email: nws.ar.ice@noaa.gov

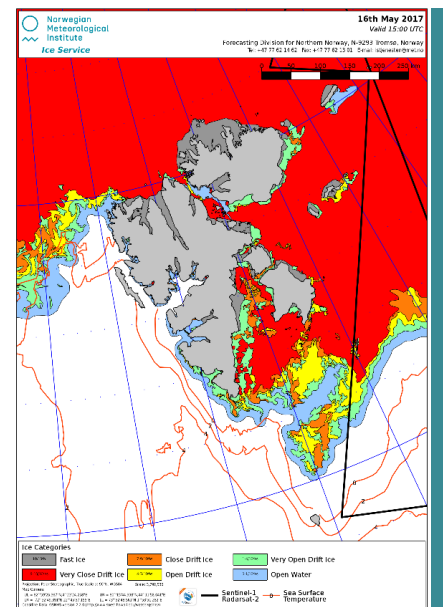


National Weather Service Ice Charts

These can be found here: www.weather.gov/afc/ice

Norwegian Ice Service - MET Norway

This service offers a range of services for monitoring and forecasting the ice situation in Polar regions. It covers the areas of North and Baltic Sea, the Barents Sea, Eastern Greenland and Svalbard.



Norway Ice Service Ice forecast.

The service can be located here: polarview.met.no/

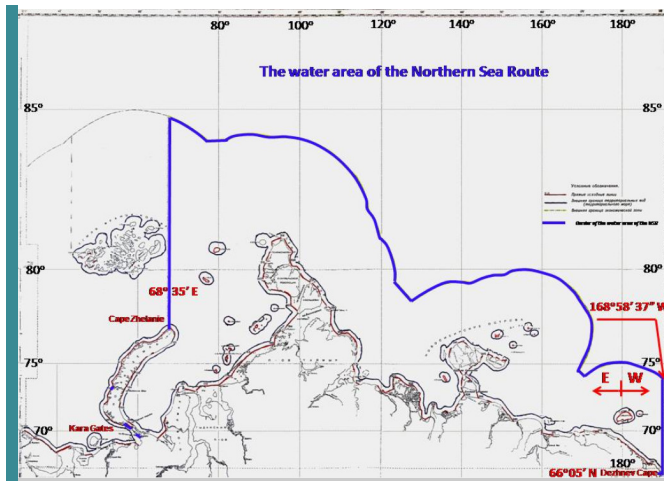
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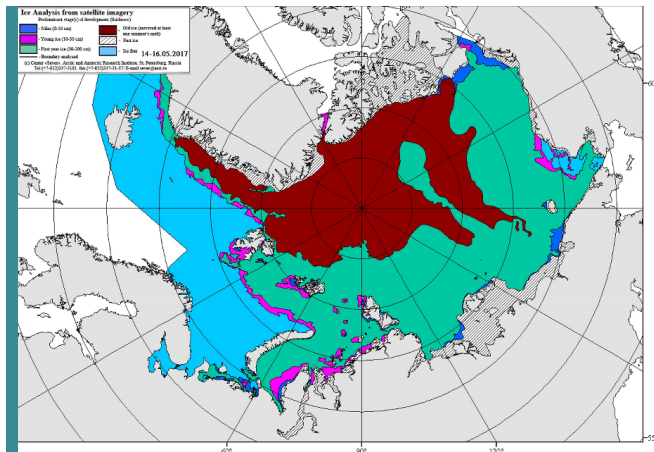
The Northern Sea Route Administration (NSRA)

The main purpose of the NSRA is to administrate and organize the safe navigation of vessel using the Northern Sea Routes.



The Northern Sea Route limits

The site includes the latest ice conditions charts for the Northern Sea routes Area.



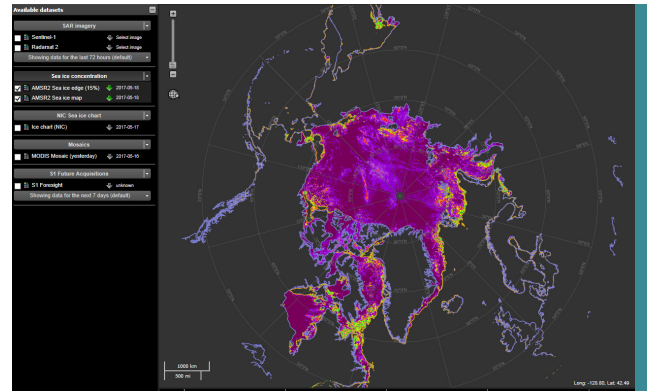
The NSRA ice chart.

The site can be accessed here:

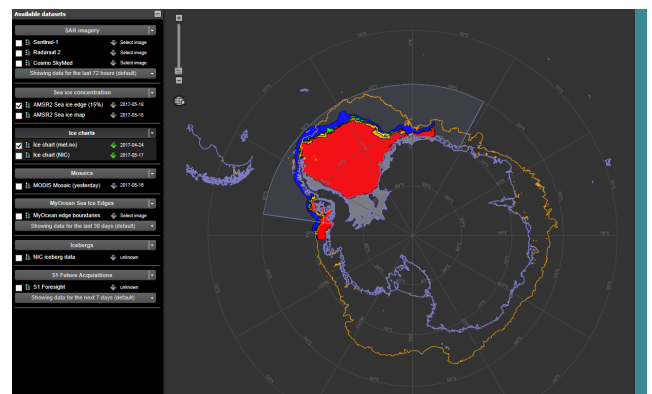
www.nsr.ru/en/navigatsionnaya_i_gidrometinformatiya/icecharts.html

Polar View

Is a satellite based information and data service. Their products include ice charts and forecasts and well as ice edge and iceberg movement information.



Polar View Arctic ice satellite chart



Polar View Antarctic ice satellite chart

The site allows operators to monitor ice in Polar Regions through the use of:

- Sea Ice Forecasts
- Sea Ice Types
- Sea Ice Concentration
- Sea Ice Thickness
- Sea Ice Pressure
- Sea Ice Drift
- Iceberg Detection
- Iceberg Drift
- Iceberg Historical Trends
- Met-Ocean

For more information please visit polar view here:

www.polarview.org/

Ice and weather information will also be available from commercial sources.

The Polar Code (cont.)

Environmental Regulation Changes

Part 2 of the Polar Code deals with the environmental protection regulations, and the new measures that are now required. These are of a higher level than those prescribed in MARPOL. The four MARPOL annexes that are amended by the Polar Code are:

- Annex I – Oil
- Annex II – Noxious Liquid Substances
- Annex IV – Sewage
- Annex V – Garbage

Owners should familiarise themselves with the new stricter requirements in place for the Polar Region, and incorporate these into the operational procedures of the vessel to ensure compliance.

Members intending to trade within the boundaries laid out in the Polar Code should contact their flag state for advice. Many of the classification societies have issued advice on how to comply with the Polar Code.

Examples of Classification Society advice are shown in the below links.

Lloyds Register

www.lr.org/en/marine/operation/standards-schemes-codes-and-directives/polar-code/

Class NK

www.classnk.or.jp/hp/pdf/tech_info/tech_img/T1096e.pdf

ABS

ww2.eagle.org/content/dam/eagle/advisories-and-debriefs/ABS_Polar_Code_Advisory_15239.pdf

The Charter Party

The starting position is that the owners will have responsibility for ensuring the vessel has all certificates that are required for trading within the allowed trading area set out in the charter party (c/p). If the c/p allows trade to the Polar Region, and the vessel does not have the required certificates in place, and loss and delay are caused because of this, the fault will lie with the owners, not the charterers. This may also include any consequential loss suffered by the charterers.

Often when operations to ports within ice areas are expected the c/p will contain an "Ice Clause", such as one of the BIMCO Ice Clauses. The BIMCO Ice Clause for Time Charter Parties, for example, states that the vessel is not required to force ice but, depending on the individual vessel particulars, may follow ice breakers. This clause clearly states that the vessel shall not be required to enter a port if the Master considers it unsafe. It also provides that any delay or deviation caused by or resulting from ice shall be for the account of the charterers, as well as any additional insurance premiums that may be required. Any standard "Ice Clause" which the parties intend to incorporate in

the c/p, such as the BIMCO Ice Clauses, will need to be closely reviewed for suitability and amended to reflect the parties' intentions.

Many charter parties will also provide that the vessel shall be used "via safe ports or berths". North recommends that owners consider extending the safety warranty to cover all places, transit locations and waterways, as vessels may not actually call at a port or berth within the Polar Region and may be transiting through the area or encounter difficulties outside of port limits. Charterers should consider the appropriateness of any safety warranty and whether it should be absolute or qualified (for example, requiring due diligence only).

Assuming an appropriately wide safety warranty is incorporated, if the vessel is damaged as a result of trading within this area and/or calling at a port or berth within the Polar Region, then, as well as the owners possibly being able to claim under any ice clause incorporated in the c/p, the owners may also be able to claim losses/damages arising from the charterers on the basis that there was a breach of the safety warranty (assuming the appropriate legal test have been met). There is also the possibility of the owners bringing a claim under the implied indemnity for following the charterers' orders, assuming the risk and loss encountered have not been dealt with elsewhere in the c/p.

North recommends that parties intending to trade within the Polar Region include a specific "Ice Clause" in their c/p, such as described above, or a bespoke "Polar Clause", in order to expressly deal with potential responsibilities, liabilities and risks arising when trading in ice and the Polar Region and to detail what activities are and are not permissible under the c/p.

Disclaimer

The purpose of this publication is to provide a source of information which is additional to that available to the maritime industry from regulatory, advisory, and consultative organisations. Whilst care is taken to ensure the accuracy of any information made available no warranty of accuracy is given and users of that information are to be responsible for satisfying themselves that the information is relevant and suitable for the purposes to which it is applied. In no circumstances whatsoever shall North be liable to any person whatsoever for any loss or damage whatsoever or howsoever arising out of or in connection with the supply (including negligent supply) or use of information.

Unless the contrary is indicated, all articles are written with reference to English Law. However it should be noted that the content of this publication does not constitute legal advice and should not be construed as such. Members should contact North for specific advice on particular matters.

Published December 2019.

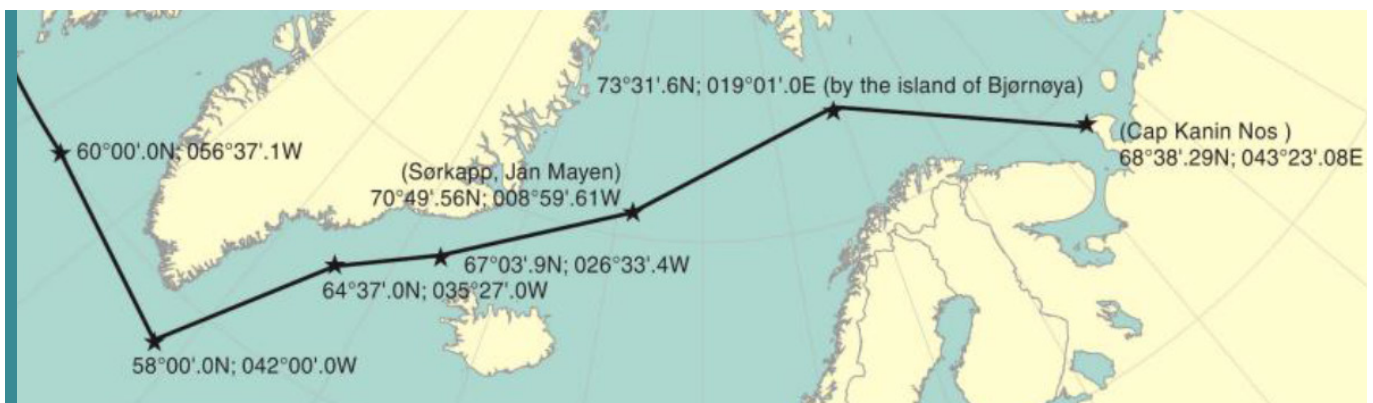
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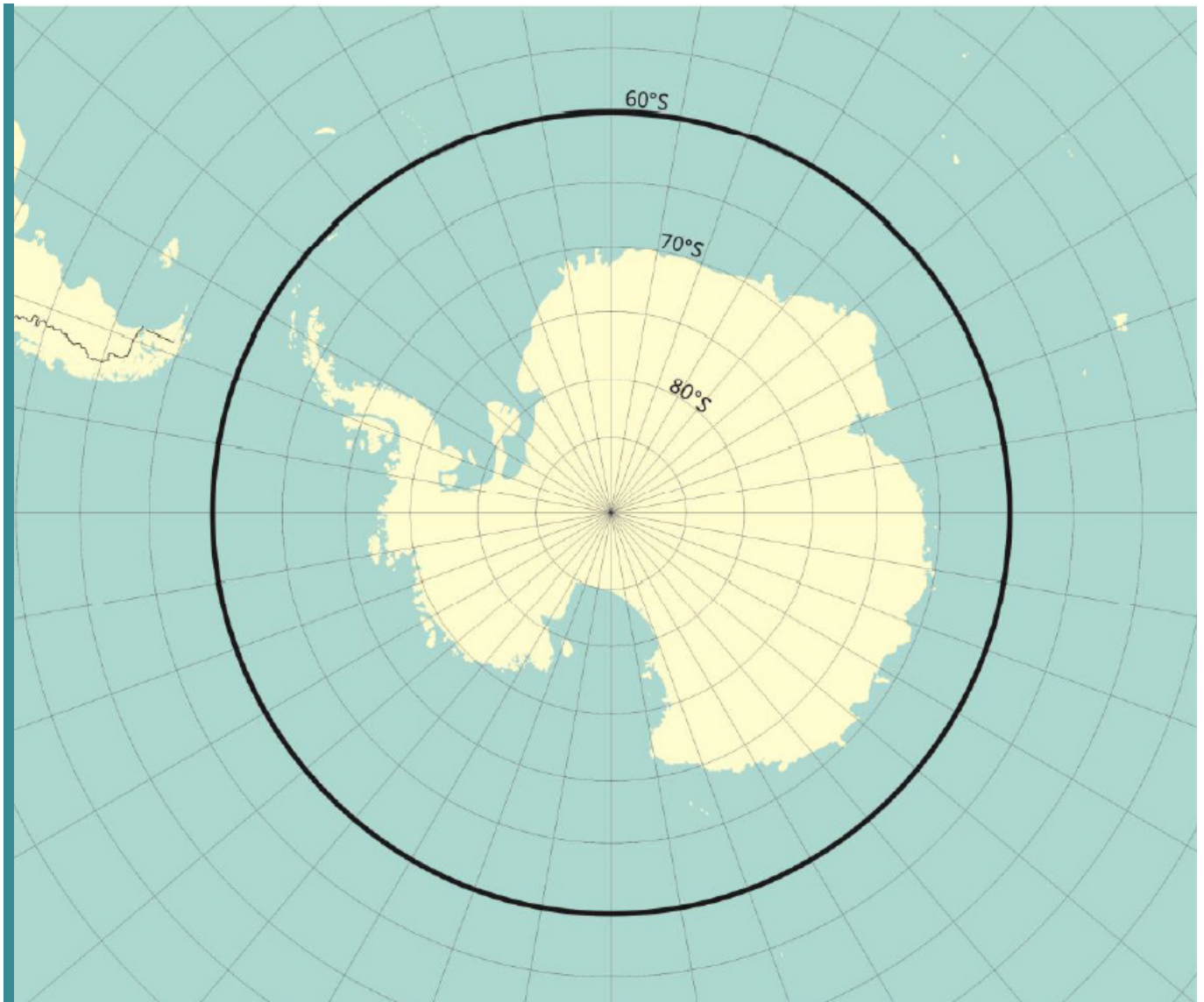
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ANNEX 1 POLAR REGION BOUNDARIES



The Polar Code (cont.)



Source: IMO