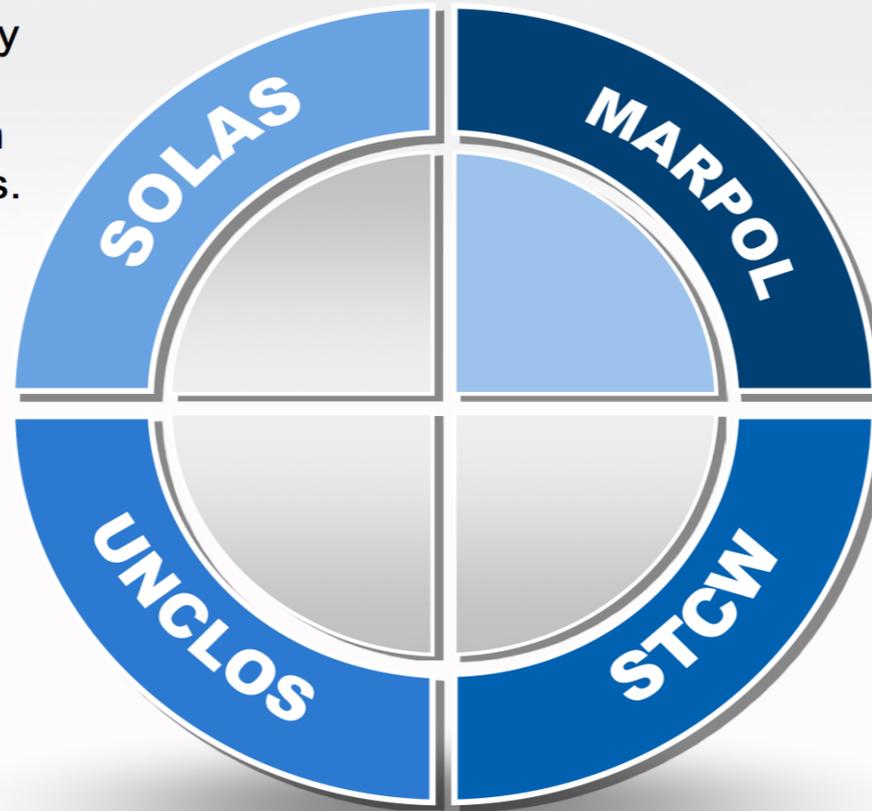


Polar Code, Update

Polar Code

Safety requirements apply to all ships which are subject to the Convention operating in Polar regions.

Legal framework governing the rights and responsibilities of nations in their use of ocean space.



Provides the mandatory level environmental protection with zero discharge requirements for Antarctica.

Newly adopted guidance and recommendations for training and competency of officers and masters on ships in polar regions.

The draft Polar Code includes mandatory measures covering safety part (part I-A) and pollution prevention (part II-A) and recommendatory provisions for both (parts I-B and II-B).

Polar Code

Part IA – Safety (SOLAS):

- Marine Safety Committee adopted SOLAS chapter XIV “Safety measures for ships operating in polar waters” in **November 2014**

Part IIA – Environmental (MARPOL)

- MARPOL amendments were adopted during the 68th session of the Marine Environment Protection Committee (MEPC) in **May 2015**

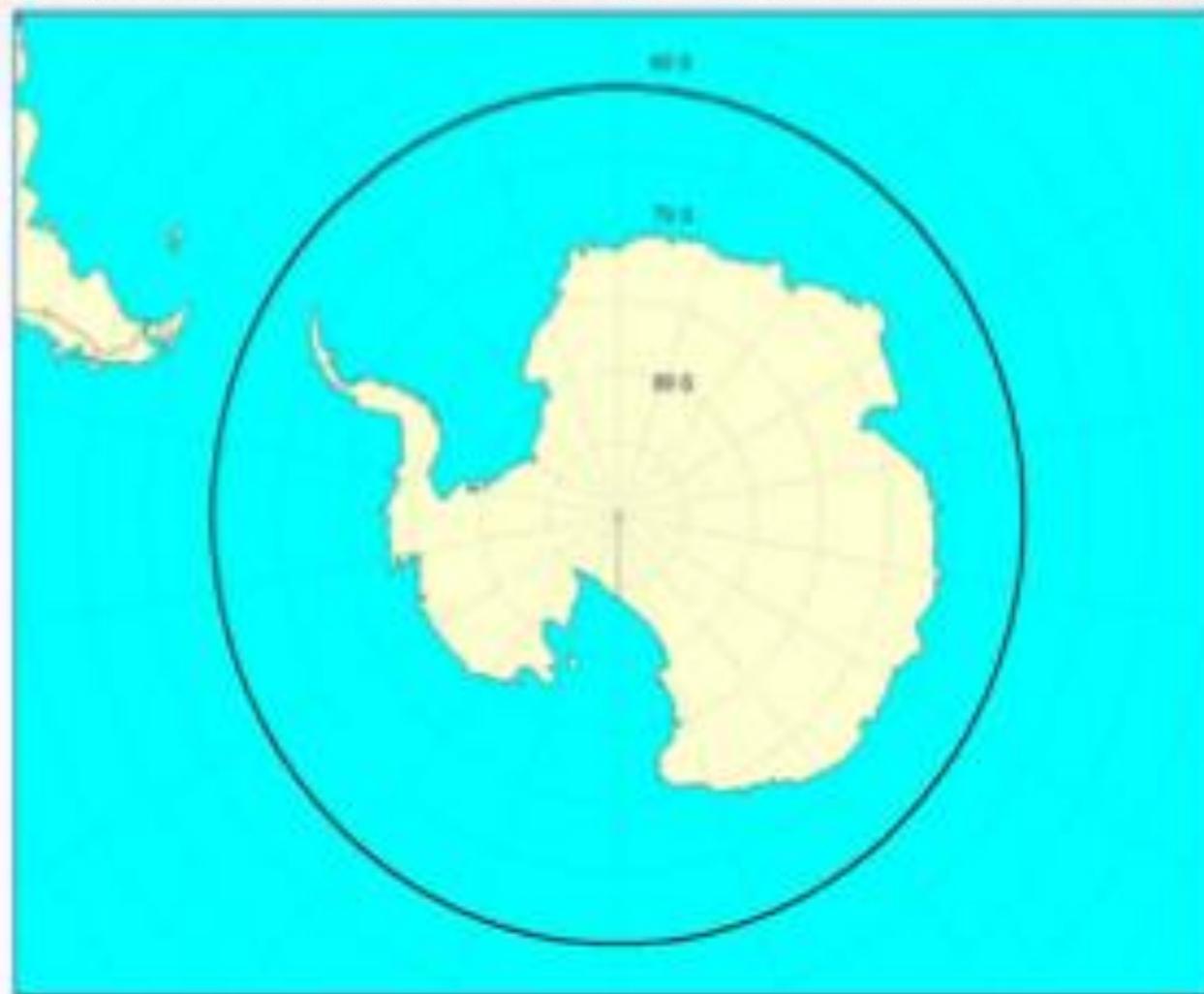
- Different sub-committees introduce and adopt a number of amendments related to the Code
- Some papers presented in IMO and ATCM regarding the appliance of the Polar Code to non SOLAS ships (fishing & yachts)

Polar Code. Next...

Enter into force on 1st January 2017

- It will apply to new vessels constructed after that date
- Ships constructed before will be required to meet the relevant requirements of the Polar Code by the first intermediate or renewal survey, whichever occurs first, after 1st January 2018

Polar Code

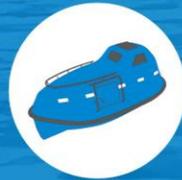


WHAT DOES THE POLAR CODE MEAN FOR SHIP SAFETY?

EQUIPMENT



WINDOWS ON BRIDGE
Means to clear melted ice, freezing rain, snow, mist, spray and condensation



LIFEBOATS
All lifeboats to be partially or totally enclosed type



CLOTHING I
Adequate thermal protection for all persons on board



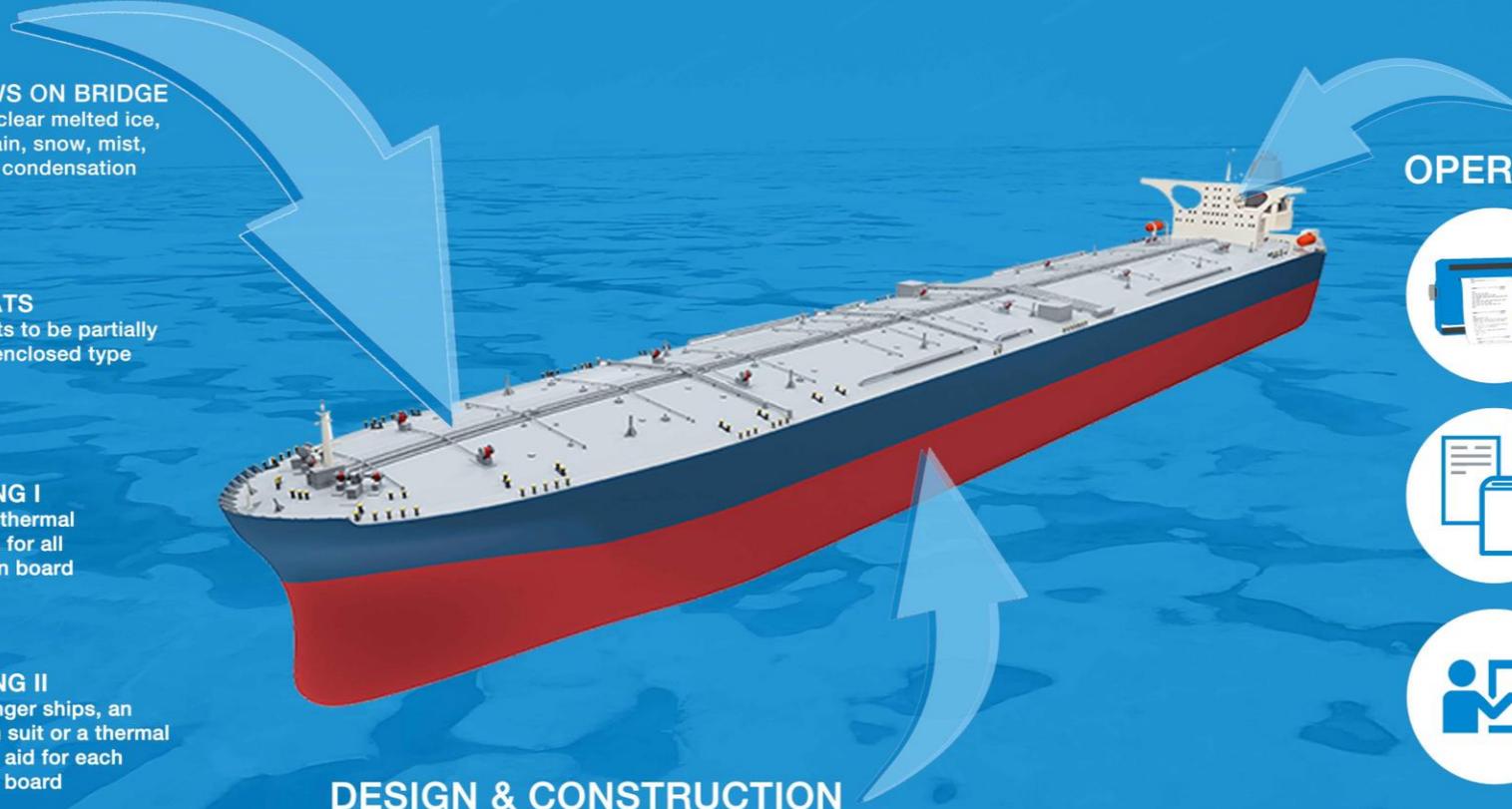
CLOTHING II
On passenger ships, an immersion suit or a thermal protective aid for each person on board



ICE REMOVAL
Special equipment for ice removal: such as electrical and pneumatic devices, special tools such as axes or wooden clubs



FIRE SAFETY
Extinguishing equipment operable in cold temperatures; protect from ice; suitable for persons wearing bulky and cumbersome cold weather gear



OPERATIONS & MANNING



NAVIGATION
Receive information about ice conditions

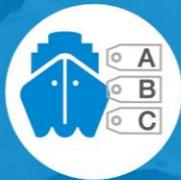


CERTIFICATE & MANUAL
Required to have on board a Polar Ship Certificate and the ship's Polar Water Operational Manual



TRAINING
Masters, chief mates and officers in charge of a navigational watch must have completed appropriate basic training (for open-water operations), and advanced training for other waters, including ice

DESIGN & CONSTRUCTION



SHIP CATEGORIES
Three categories of ship which may operate in Polar Waters, based on:
A) medium first-year ice
B) thin first-year ice
C) open waters/ice conditions less severe than A and B



MATERIALS
Ships intended to operate in low air temperature must be constructed with materials suitable for operation at the ships polar service temperature



INTACT STABILITY
Sufficient stability in intact condition when subject to ice accretion and the stability calculations must take into account the icing allowance



STRUCTURE
In ice strengthened ships, the structure of the ship must be able to resist both global and local structural loads

BACKGROUND INFO

❄️ THE INTERNATIONAL CODE FOR SHIPS OPERATING IN POLAR WATERS WAS ADOPTED NOVEMBER 2014 BY THE IMO MARITIME SAFETY COMMITTEE

❄️ IT APPLIES TO SHIPS OPERATING IN ARCTIC AND ANTARCTIC WATERS

❄️ THE AIM IS TO PROVIDE FOR SAFE SHIP OPERATION AND THE PROTECTION OF THE POLAR ENVIRONMENT BY ADDRESSING RISKS PRESENT IN POLAR WATERS AND NOT ADEQUATELY MITIGATED BY OTHER INSTRUMENTS

HOW THE POLAR CODE PROTECTS THE ENVIRONMENT

OIL



DISCHARGES
Discharge into the sea of oil or oily mixtures from any ship is prohibited



STRUCTURE
Double hull and double bottom required for all oil tankers, including those less than 5,000dwt (A/B ships constructed on or after 1 January 2017)



HEAVY FUEL OIL
Heavy fuel oil is banned in the Antarctic (under MARPOL). Ships are encouraged not to use or carry heavy fuel oil in the Arctic



LUBRICANTS
Consider using non-toxic biodegradable lubricants or water-based systems in lubricated components outside the underwater hull with direct seawater interfaces

INVASIVE SPECIES



INVASIVE AQUATIC SPECIES
Measures to be taken to minimize the risk of invasive aquatic species through ships' ballast water and biofouling

SEWAGE



DISCHARGES I
No discharge of sewage in polar waters allowed (except under specific circumstances)



TREATMENT PLANTS
Discharge is permitted if ship has an approved sewage treatment plant, and discharges treated sewage as far as practicable from the nearest land, any fast ice, ice shelf, or areas of specified ice concentration



DISCHARGES II

- Sewage not comminuted or disinfected can be discharged at a distance of more than 12nm from any ice shelf or fast ice
- Comminuted and disinfected sewage can be discharged more than 3nm from any ice shelf or fast ice

GARBAGE



PLASTICS
All disposal of plastics prohibited (under MARPOL)



FOOD WASTES I
Discharge of food wastes onto the ice is prohibited



FOOD WASTES II
Food wastes which have been comminuted or ground (no greater than 25mm) can be discharged only when ship is not less than 12nm from the nearest land, nearest ice shelf, or nearest fast ice



ANIMAL CARCASSES
Discharge of animal carcasses is prohibited



CARGO RESIDUES
Cargo residues, cleaning agents or additives in hold washing water may only be discharged if: they are not harmful to the marine environment; both departure and destination ports are within Arctic waters; and there are no adequate reception facilities at those ports. The same requirements apply to Antarctic area under MARPOL

BACKGROUND INFO

- ❄️ THE INTERNATIONAL CODE FOR SHIPS OPERATING IN POLAR WATERS WILL ENTER INTO FORCE ON 1 JANUARY 2017
- ❄️ IT APPLIES TO SHIPS OPERATING IN ARCTIC AND ANTARCTIC WATERS: ADDITIONAL TO EXISTING MARPOL REQUIREMENTS
- ❄️ IT PROVIDES FOR SAFE SHIP OPERATION AND PROTECTS THE ENVIRONMENT BY ADDRESSING THE UNIQUE RISKS PRESENT IN POLAR WATERS BUT NOT COVERED BY OTHER INSTRUMENTS

DEFINITIONS



SHIP CATEGORIES
Three categories of ship designed to operate in polar waters in:

- A) at least medium first-year ice
- B) at least thin first-year ice
- C) open waters/ice conditions less severe than A and B



FAST ICE: Sea ice which forms and remains fast along the coast, where it is attached to the shore, to an ice wall, to an ice front, between shoals or grounded icebergs



ICE SHELF: A floating ice sheet of considerable thickness showing 2 to 50m or more above sea-level, attached to the coast

CHEMICALS

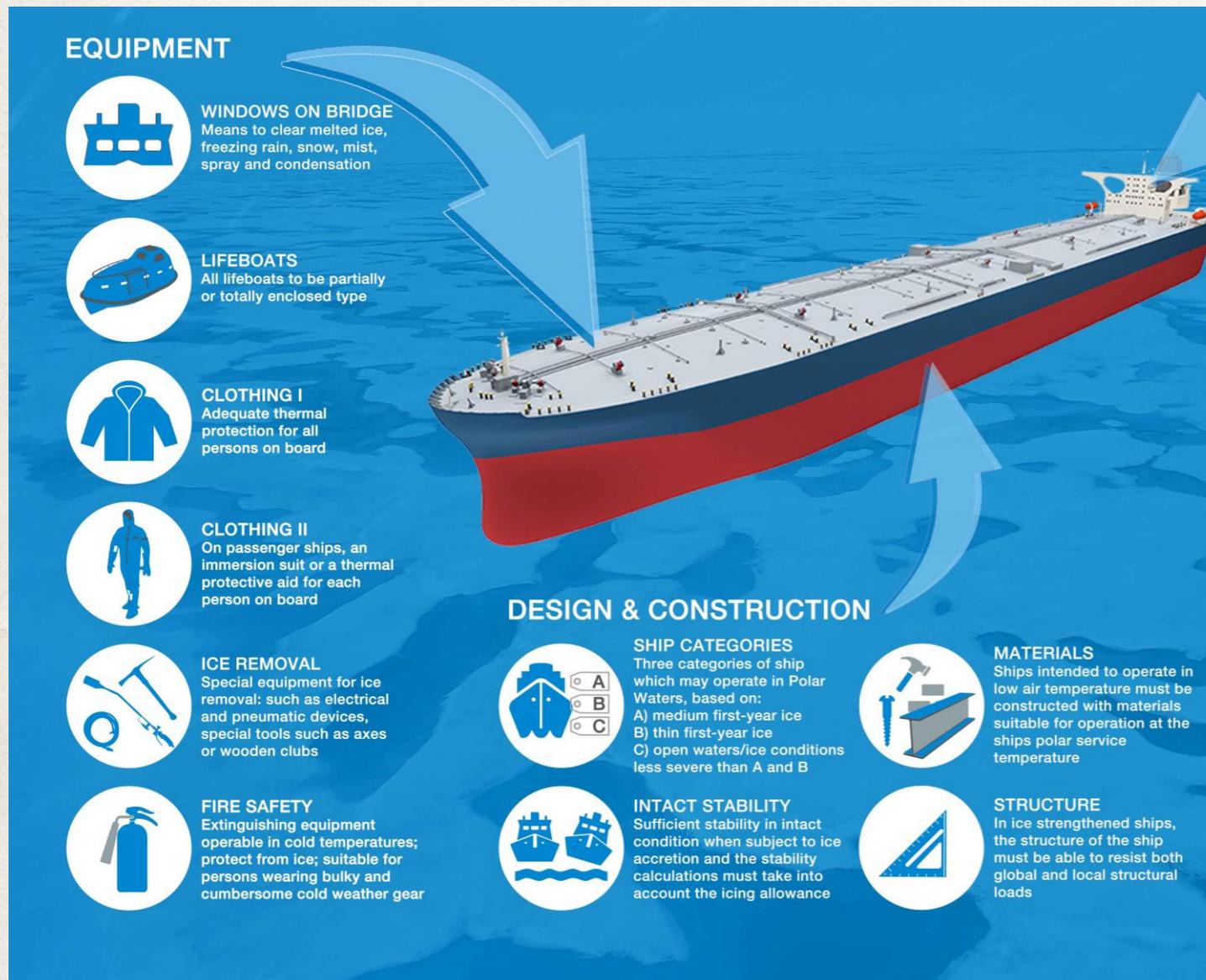


DISCHARGES
Discharge of noxious liquid substances (NLS) or mixtures containing NLS is prohibited in polar waters



Design and construction, Equipment.

The equipment requirements



Chapter 2 - Structures

Chapter 3 - Subdivision and stability

Chapter 4 - Accommodation and escape measures

Chapter 5 - Directional control systems

Chapter 6 - Anchoring and towing arrangements

Chapter 7 - Main machinery

Chapter 8 - Auxiliary machinery systems

Chapter 9 - Electrical installations

Chapter 10 - Fire safety

Chapter 11 - Life-saving appliances and survival arrangements

Chapter 12 - Navigational equipment

Chapter 16 - Environmental protection and damage control

Operations and manning

The operational “papers”

OPERATIONS & MANNING



NAVIGATION

Receive information about ice conditions



CERTIFICATE & MANUAL

Required to have on board a Polar Ship Certificate and the ship's Polar Water Operational Manual



TRAINING

Masters, chief mates and officers in charge of a navigational watch must have completed appropriate basic training (for open-water operations), and advanced training for other waters, including ice

All ships operating or intending to operate in polar waters should carry on board at all times a ...

- **Polar Ship Certificate.**
 - Define capability, operational limitations, Category
 - Approved by Flag State or RO
- **Polar Water Operation Manual**
 - Define procedures, voyage planning, ...
 - Qualified training and experience
 - Approved by Flag State or RO

Should be revised by Port State Control

Polar Code. Risk assessment

- Risk Assessment Process
- Ship perspective requirements

POLARIS. Polar Operational Limit Assessment Risk Indexing System (IACS)

CODE

- Assess vessel design & equipment
- Flag State approved or RO

Polar Ship Certificate

- Assess intended operations
- Flag State approved or RO

Polar Water Operation Manual

Operating manual. Normal operation

.1 principal particulars of the ship;

.2 loading procedures and limitations including any applicable recommendations against carrying pollutants in tanks and compartments against the hull envelope, maximum operational weight, position of centre of gravity and distribution of load necessary for operation in polar waters;

.3 acknowledgment of changes in standard operating procedures for radio equipment and navigational aids applicable to Arctic and Antarctic operations;

.4 operating limitations for the ship and essential systems in anticipated ice conditions and temperatures;

.5 passage planning procedures accounting for anticipated ice conditions;

.6 deviations in standard operating procedures associated with operation of propulsion and auxiliary machinery systems, remote control and warning systems and electronic and electrical systems made necessary by operations in polar waters

Operating manual. Risk management

- .7 deviations in standard damage control procedures made necessary by operations in polar ice-covered waters;
- .8 evacuation procedures into water, onto ice, or into a combination of the two, with due regard to chapter 11 of these Guidelines;
- .9 information regarding the handling of the ship as determined in accordance with chapter 16 of these Guidelines (Environmental protection and damage control);
- .10 maximum towing speeds and towing loads where applicable;
- .11 procedures for checking the integrity of hull structure;
- .12 description and operation of fire detection and fire-extinguishing equipment in a polar environment;
- .13 details arising from the standards of chapter 3 of the Guidelines (Subdivision and stability) likely to be of direct practical use to the crew in an emergency; and
- .14 guidance taking into account the results of any risk or failure analysis reports developed during the ship's operational history and its design limits and redundancy features.

Polar Code. Training

“... while operating in polar waters, masters, chief mates and officers in charge of a navigational watch shall be qualified in accordance with chapter V of the STCW Convention and the STCW Code, as amended, as follows...”

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
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.

- Risk based assessment allows some flexibility
- POLARIS or other systems have to be well defined
- Administration and Recognized Organizations need enhanced skill and experience
- Administrations need to develop clear policies to facilitate implementation and inspection
- Application to existing ships could be very challenging
- Sharing within ERVO members experiences will be interesting, especially in all aspects related to the preparation of the “Polar Ship Certificate” and the “Polar Water Operation Manual”.

Thank you for your attention!!
