Polar Code, Update
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).
Part IA – Safety (SOLAS):
• Marine Safety Commettee adopted SOLAS chapter XIV “Safety measures for ships operating in polar waters” in November 2014

Part IIA – Enviromental (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, all 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 be 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 water/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 ship’s 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 (ICOPS)**
  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 5,000 dwt (A/B ships constructed on or after 1 January 2017).

**HEAVY FUEL OIL**
- Heavy fuel oil is banned in the Antarctic (under MARPOL).

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

**GARBAGE**
- **PLASTICS**: All disposal of plastics prohibited under MARPOL.

**FOOD WASTES I**
- **PLASTICS**: Discharge of food wastes onto the ice is prohibited.

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

**ANIMAL CARCASSES**
- Discharge of animal carcasses is prohibited.

**CARGO RESIDUES**
- Cargo residues, containing liquids or residues in hold washing water, may only be discharged if they are not harmful to the marine environment.

**INVASIVE SPECIES**
- Measures to be taken to prevent the risk of invasive aquatic species through ships’ ballast water and biodiversity.

**SEWAGE**
- **DISCHARGES I**: No discharge of sewage in polar waters allowed (except under specific circumstances).

**TREATMENT PLANTS**
- Discharge 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 12 km from any ice shelf or fast ice.

**DISCHARGES III**
- Comminuted and disinfected sewage can be discharged more than 1 km from any ice shelf or fast ice.

**INVASIVE AQUATIC SPECIES**
- Measures to be taken to prevent the risk of invasive aquatic species through ships’ ballast water and biodiversity.

**BACKGROUNDS 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.

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

- **ICE SHELF**: A floating ice sheet of considerable thickness showing 0 to 50 km or more above sea-level, attached to the coast.

- **FAST ICE**: Ice which forms and remains fast along the coast, where it is attached to the shore, to an ice wall, or to an ice front, between ships or grounded icebergs.

**CHEMICALS**
- 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”

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)

- 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
.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.
“… 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…”

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<thead>
<tr>
<th>Ice conditions</th>
<th>Tankers</th>
<th>Passenger ships</th>
<th>Other</th>
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<tbody>
<tr>
<td>Ice Free</td>
<td>Not applicable</td>
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<tr>
<td>Open waters</td>
<td>Basic training for master, chief mate and officers in charge of a navigational watch</td>
<td>Basic training for master, chief mate and officers in charge of a navigational watch</td>
<td>Not applicable</td>
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<tr>
<td>Other waters</td>
<td>Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch</td>
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• 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!!