IMO Polar Code

Captain John W. Mauger
Commanding Officer
USCG Marine Safety Center
Ship-focused Regs: for design, construction, manning and operation

Part I: Safety – Applies to large international cargo, tank & cruise ships; Adopted NOV 2014; entry date JAN 2017.

Part II: Environment – Applies per MARPOL annexes (“all ships”); Adopted MAY 2015; entry date JAN 2017
Overview of the IMO Polar Code:

- Origins in 2002 Ice-covered Guide
- Ship-focused Code
- Additions to SOLAS, MARPOL, & STCW

- Risk Factors:
  - Ice, Low Temperature, High Latitude, Remoteness from Response, Rapidly Changing Severe Weather, Limited Charting, Inexperienced Crew, and Pristine Environment

- Two Parts: Safety and Environment
- Key Topics: Ship Design & Safety Equipment, Risk Assessment, Voyage/Contingency Planning, Crew training & Environmental Impact
General Chapter

- Certificate & Survey
- Performance Standards
- Operational Limitations

Polar Water Operational Manual

- May use Safety Management System
- Ship’s Capabilities & Limitations
- Procedures for Normal Operations
- Contingency Planning
- Icebreaker Escort/Convey (as applicable)
Ship Structure & Stability

- Category A – medium first year ice or greater
- Category B – Thin first year ice to medium first year ice
- Category C – less than 1/10 ice concentrations

- Cat. A & B – IACS PC Rules
- Cat. C – Flag State approval
- Ice Accretion
  - Intact Stability Calculations
- Category A & B
  - Ice Damage Calculations
IMO Polar Code Part I: Safety

Machinery & Fire Protection
- Protection from
  - Ice/snow/freezing
- Exposed machinery foundations & propeller scantlings
- IACS Polar Class Rules

Lifesaving Chapter
- Escape Routes
- Evacuation (Equipment)
- Survival Kits (Additional gear for prolonged rescue/evacuation to ice)
IMO Polar Code Part I: Safety

**Navigation**
- Receive & Display Ice Conditions
- Protection of underwater sensors/transducers
- High Latitude – two non-magnetic & one GNSS heading device

**Communications**
- Ships – two-way comms equip w/ Rescue Coord’ n Centers
- Rescue/Lifeboats & Survival Craft– transmitting device & on-scene communications
**IMO Polar Code Part I: Safety**

**Crew Training**

- Familiarization training
- All crew members
- Ice Navigation (Basic and Advanced)

<table>
<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>
<td>Not applicable</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>
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<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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IMO Polar Code Part II: Environment

Requirements are in addition to MARPOL requirements (including MARPOL Antarctic Special Area requirements)

• **Annex I**: Zero discharge oil & oily mixtures
• **Annex II**: Zero discharge of noxious liquid substances
• **Annex IV and V**: New discharge restrictions (distance to ice considerations):
  • Sewage
  • Food waste
  • Cargo residues
• **Annex I & II**: Added tank protection for oil/oily mixtures and NLS tanks
Polar Code Implementation

01 JUN to 30 NOV 2013

2013 Bering Strait Arctic Vessel Traffic

01 JAN to 31 MAY 2013

AIS Data Courtesy of Marine Exchange of Alaska
2011-2013 Vessel Casualties in U.S. Arctic and N. Bering Sea north of 60 N (25 incidents USCG MISLE data)

ICE DAMAGE - Only one of the above incidents involved ice damage; there were no injuries and < $10K property damage

Compared to region:

Vessel Casualties for Western Alaska (2004-14 MISLE)
- 3451 Casualties
- 85% uninspected
- 75% are CFV
- 10% are UTV

Vessel Types:
- CFV = Fishing
- UTV = Towing
- SPV = Crew boat
- OSV = Support
USCG Prevention Operations Concept

Implementation
- Standard port state control & U.S. inspection regimes
- Local D17 Policies
- Arctic Waterways Safety Cmte

Systematic and Systemic Issues
- MDA & RCC Communications
- Ice Management & Forecasting
- Hydrographic Surveys
Opportunities Beyond the IMO Polar Code:

- Uniform Ice-strengthening Standards
  - Could be developed within IACS
- Remoteness & High Latitude
- Rapidly Changing Severe Weather
- Ice and Low Temperature
- Ice Management and Forecasting
- Limited Charting
- Surveys and Hydrography
- Environment & Indigenous Culture
- IMO /Arctic Council Cooperation
15 U.S. Code § 4111 - “Arctic” defined

“Arctic” means all United States and foreign territory north of the Arctic Circle and … all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi Seas; and the Aleutian chain.

Vessel Casualties
(2004-2014)
3451 Casualties (MISLE)
85% are uninspected vessels
Of those:
75% are uninspected fishing
10% are uninspected towing