

16 March 2004

## **HELCOM RECOMMENDATION 25/7**

on the

SAFETY OF WINTER NAVIGATION IN THE BALTIC SEA AREA

having regard to Article 13, Paragraph b) of the Helsinki Convention

was adopted on 2 March 2004 in Helsinki

by the 25<sup>th</sup> Meeting of the Helsinki Commission (HELCOM),

Baltic Marine Environment Protection Commission.

*The given 'guidelines are intended to give instructions for the Contracting Parties to the Helsinki Convention for establishing adequate ice surveillance systems, establishing equivalence of ice classification rules, establishing safety requirements for ships sailing in ice conditions, and to give guidelines for operational matters related to winter navigation in the Baltic Sea area'.*

The most relevant items for the Baltic Sea Ice Services are concentrated in clause 1. Ice surveillance systems.

<http://www.helcom.fi/recommendations/Rec25-7.pdf>



## HELCOM RECOMMENDATION 25/7

Adopted 2 March 2004  
having regard to Article 13, Paragraph b)  
of the Helsinki Convention

### SAFETY OF WINTER NAVIGATION IN THE BALTIC SEA AREA

#### THE COMMISSION,

**CONSCIOUS** of the sensitivity of the marine environment of the Baltic Sea area and of the importance it represents to the people living around it, for economical, social, recreational and cultural reasons,

**NOTING** the increase of shipping activities, especially the increase of oil transportation, in the Baltic Sea area during the past ten years,

**NOTING ALSO** the special requirements set for maritime transportation by low temperature and ice conditions in winter in the Baltic Sea area,

**NOTING FURTHER** the important work of the Baltic Sea Ice Services to provide information on ice conditions in the Baltic Sea area,

**RECALLING** the decision of the Extraordinary Ministerial Meeting held in Copenhagen, Denmark, 10 September 2000, to consider the possible need for concerted action regarding a unification of rules for winter traffic/ice classification and icebreaker services arrangements during winter time at the joint IMO/HELCOM/EU Workshop held in Warnemünde, Germany, 11-12 March 2003,

**RECALLING ALSO** the outcome of the joint IMO/HELCOM/EU Workshop, where it was agreed that there is a need for unified action within HELCOM to obtain rules for winter traffic, i.e. ice classification and icebreaker services arrangements,

**RECALLING FURTHER** the decision of HELCOM HOD 11/2003 to establish inter alia an *ad hoc* Expert Working Group to look into the need and possibility to establish unified rules for the ice classification of ships and arrangements for icebreaker services during the winter period, with Finland acting as a lead country,

**RECOGNIZING** the need for unified application of winter navigation rules and practises,

**RECOGNIZING ALSO** the special problems related to fire fighting at low temperatures,

**RECOGNIZING FURTHER** the problems related to combating oil spills in ice conditions,

**RECOMMENDS** that the Contracting Parties to the Helsinki Convention should take measures to ensure that compilation of data on accidents and incidents due to ice conditions will be continued, and that a Formal Safety Assessment on the safety of winter navigation in the Baltic Sea area is made in accordance with the Guidelines for Formal Safety Assessment (FSA) for use in the IMO Rule-making Process (MSC/Circ.1023, MEPC/Circ.392 of 5 April 2002),

**URGES** the Contracting Parties to the Helsinki Convention to apply the attached Guidelines for the Safety of Winter Navigation in the Baltic Sea Area,

**REQUESTS** the Governments of the Contracting Parties to report on the implementation of this Recommendation in accordance with Article 16, Paragraph 1 of the Helsinki Convention.

## **Guidelines for the Safety of Winter Navigation in the Baltic Sea Area**

These guidelines are intended to give instructions for the Contracting Parties to the Helsinki Convention for establishing adequate ice surveillance systems, establishing equivalence of ice classification rules, establishing safety requirements for ships sailing in ice conditions, and to give guidelines for operational matters related to winter navigation in the Baltic Sea area.

### **1. Ice surveillance systems**

Information about ice conditions in the Baltic Sea area should be obtained from national ice services. Contact information of the national ice services and basic information about ice conditions in the Baltic Sea area can be obtained from the common website of the national ice services of the Baltic Sea States established by the Baltic Sea Ice Services, [www.bsis-ice.de](http://www.bsis-ice.de).

Information about ice conditions should be published in the form of ice charts, ice reports or bulletins, or in accordance with the Baltic Sea Ice Code. Information about ice conditions should contain information on the location of the boundary of the ice field and open water, the edge of the ice field with thickness exceeding 10 cm, the thickness of level ice, ice concentration, and ice ridge fields along the routes to the ports used during the winter period. The terms and symbols of WMO should be used when describing ice and ice conditions in the Baltic Sea. Ice reporting should also contain information about traffic restrictions, information about traffic control, and the location of the assisting icebreakers and their operational area.

Icebreakers should send information about ice conditions in their operational area to their national ice service.

The national ice services should send their information about ice conditions to the other national ice services preferably daily, but at least twice a week.

### **2. Equivalence of ice classification rules**

The equivalence of the ice classes of different Classification Societies with the Finnish-Swedish Ice Class Rules is based on the comparison of hull structural requirements. Equivalence is estimated on the condition that the hull structural strength given by the rules of a classification society is on a similar level as the hull structural strength obtained by applying the Finnish-Swedish Ice Class Rules.

At the same time, the requirements of the Finnish-Swedish Ice Class Rules regarding the power of the main engines should be fulfilled. Alternatively, the ship should have sufficient power for possible independent movement at a minimum steady speed of 1-2 knots through level ice of a thickness indicated in paragraph 3.1 below, depending on the ice class of the ship.

An equivalence table indicating the equivalence of the ice class rules of the Classification Societies with the Finnish-Swedish Ice Class Rules is attached to these Guidelines.

### 3. Safety requirements

The Administrations of the Contracting Parties should set traffic restrictions based on safety aspects for ships sailing in ice conditions. Adequate ice strengthening should be required for ships sailing in ice in accordance with paragraph 3.1. More stringent traffic restrictions than those given in accordance with paragraph 3.1 may also be set based on operational reasons.

#### 3.1 Traffic restrictions based on safety aspects

The traffic restrictions may be based on the measured level ice thickness, or the calculated level ice thickness in the coastal area. Level ice thickness can be calculated e.g. in accordance with the formula of Zubov:

$$h_{ice}^2 + 50h_{ice} = 8R ,$$

where  $h_{ice}$  is the level ice thickness in cm and  $R$  is cumulative freezing degree days (FDD) based on 0°C. The temperature measurements should be obtained from official meteorological stations located along the coastline. The calculation of freezing degree days has to be started only from the freeze-up date for each location. A freeze-up date is established when the mean ice concentration reaches 80 to 100%.

The traffic restrictions should be set as follows:

When the thickness of level ice is in the range of 10-15 cm, and the weather forecast predicts continuing low temperature, a minimum ice class LU1 or equivalent should be required for ships entering the ports of a Contracting Party.

When the thickness of level ice is in the range of 15-30 cm, and the weather forecast predicts continuing low temperature, a minimum ice class IC or LU2 or equivalent should be required for ships entering the ports of a Contracting Party.

When the thickness of level ice is in the range of 30-50 cm, a minimum ice class IB or LU3 or equivalent should be required for ships entering the ports of a Contracting Party.

When the thickness of level ice exceeds 50 cm, a minimum ice class IA or LU4 or equivalent should be required for ships entering the ports of a Contracting Party.

The traffic restrictions can be lightened and finally removed after the melting period of ice has started in spring and the strength of the level ice fields has started to decrease.

#### 3.2 Exemptions on traffic restrictions

In the beginning and in the middle of the winter season, the icebreaking service should not cancel a traffic restriction as long as the water temperature is close to zero degrees. However, exemptions on the given traffic restrictions may be granted by the Administration for individual ships due to favourable weather conditions, or based on detailed analysis of the strength of the vessel. No exemptions should be granted for ships which are more than 20 years old.

### **3.2.1 Exemptions on traffic restrictions due to favourable weather conditions**

If favourable wind conditions open up the ice along the coast of the state, the Administration may grant exemptions from the traffic restrictions that are in force. A time-limited exemption can under these circumstances be issued for a specific vessel to a specific port. Before this exemption is permitted, the icebreaking service should consult the weather or ice service about how long this weather situation is estimated to last.

### **3.2.2 Exemptions on traffic restrictions based on detailed analysis of the strength of the vessel**

The Administration may grant an exemption from the traffic restrictions on an individual ship, which does not have the required ice class, if a detailed analysis of the strength of the vessel in the prevailing ice conditions is made. In the analysis the level ice thickness, ice strength, ice pressure, ice coverage and other relevant information on ice conditions should be taken into account. The ship-owner should submit to the Port Authority or to the Administration a written document, developed by a competent organization, similar to the Ice Passport used in the Russian Federation, specifying admissible speeds of ship under various ice conditions, the number of required assisting icebreakers, and other relevant operational information. This information should also be submitted to the icebreakers responsible for icebreaker assistance in the area.

## **3.3 Winterisation of ships**

The above exemptions from the traffic restrictions apply mainly to the assessment of sufficiency of the hull strength against ice loads. However, in any case, a ship should be adapted for the safe operation at a low outdoor air temperature down to minus 30°C. This concerns the operability of material of hull structures, deck equipment (anchor-handling and mooring, towing and cargo handling), main engine cooling system, material of propeller and its sufficient immersion to reduce interaction with ice.

The stability of ships at a low outdoor air temperature under open water conditions should be sufficient taking into account the probability of icing.

## **4. Operational matters related to winter navigation**

### **4.1 Vessel Traffic Management and Information System in winter**

In winter conditions the most important task of the Ship Reporting System (SRS) is to provide information on way points for ships sailing in the area. The organization responsible for defining and giving information on way points should be agreed on in each country. Only one organization should be authorized for this purpose. The national SRS Centres should create clear procedures for the distribution of information on way points to ships, to national Vessel Traffic Service (VTS) Centres and to other SRS Centres.

Information on way points should be distributed to ships as follows:

1. The Administration or the icebreaker responsible for co-ordination of icebreaker services notifies the way points to the national SRS centre.
2. The national SRS Centre notifies the way points to the other SRS Centres in the Gulf of Finland.

3. The SRS Centres give information on way points to ships upon request or when ships report.

#### **4.2 Operational instructions for ships**

The Administrations of the Contracting Parties should set operational instructions for ships sailing in ice covered waters. Such instructions should contain the following:

1. Instructions for sailing alone in ice.
2. Instructions for sailing in ice under icebreaker supervision.
3. Instructions for sailing assisted by an icebreaker: escorting, in towing, and sailing in a convoy headed by an icebreaker.

*Annex*      Approximate correspondence between Ice Classes of the Finnish-Swedish Ice Class Rules (Baltic Ice Classes) and the Ice Classes of other Classification Societies

| Classification Society                                    | Ice Class       |              |              |              |                    |
|---|-----------------|--------------|--------------|--------------|--------------------|
| <b>Finnish-Swedish Ice Class Rules</b>                    | <b>IA Super</b> | <b>IA</b>    | <b>IB</b>    | <b>IC</b>    | <b>Category II</b> |
| <b>Russian Maritime Register of Shipping (Rules 1995)</b> | UL              | L1           | L2           | L3           | L4                 |
| <b>Russian Maritime Register of Shipping (Rules 1999)</b> | LU5             | LU4          | LU3          | LU2          | LU1                |
| <b>American Bureau of Shipping</b>                        | IAA             | IA           | IB           | IC           | D0                 |
| <b>Bureau Veritas</b>                                     | IA SUPER        | IA           | IB           | IC           | ID                 |
| <b>CASPPR, 1972</b>                                       | A               | B            | C            | D            | E                  |
| <b>China Classification Society</b>                       | Ice Class B1*   | Ice Class B1 | Ice Class B2 | Ice Class B3 | Ice Class B        |
| <b>Det Norske Veritas</b>                                 | ICE-1A*         | ICE-1A       | ICE-1B       | ICE-1C       | ICE-C              |
| <b>Germanischer Lloyd</b>                                 | E4              | E3           | E2           | E1           | E                  |
| <b>Korean Register of Shipping</b>                        | ISS             | IS1          | IS2          | IS3          | IS4                |
| <b>Lloyd's Register of Shipping</b>                       | 1AS             | 1A           | 1B           | 1C           | 1D                 |
| <b>Nippon Kaiji Kyokai</b>                                | <i>IA Super</i> | <i>IA</i>    | <i>IB</i>    | <i>IC</i>    | <i>ID</i>          |
| <b>Registro Italiano Navale</b>                           | IAS             | IA           | IB           | IC           | ID                 |