

WINTER NAVIGATION TRAINING IN PRACTISE

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MS GOF - Maritime Safety in the Gulf of Finland

- **WP 2:** Developing education and training regarding maritime safety and winter navigation
- WP 2 is conducted by Helsinki University of Technology and Kymenlaakso University of Applied Sciences



Need for training

- Increased traffic volumes in the Baltic Sea have created urgent demand for crews with relevant training
- The crews are more and more from southern countries with no experience in ice navigation
- Virtually minor operational mistakes due to ignorance can have costly impacts in the forms of damages and off-hire



What kind of damages ?

Typical ice-induced damages:

- broken or deformed propeller blade
- dented or ruptured shell plating and framing
- ship-to-ship collision
- damaged rudder blade and/or steering machinery
- grounding

According to statistics [1]: Every tenth vessel calling the Baltic Sea ports during winter period gets damages

[1] Research Report No 54,

INCIDENTS AND ACCIDENTS IN WINTER NAVIGATION IN THE BALTIC SEA, WINTER 2002 – 2003

Finnish Maritime Administration/Swedish Maritime Administration

Finnish Maritime Administration winter seafaring statistics 2002-2003

<http://www.fma.fi/toiminnot/talvimerenkulku/pdf/No54.pdf>

http://www.fma.fi/palvelut/tilastot/mlt/mlt_talviliikenne.htm





MS GOF, WP2

- RESULTS:
- Training material for maritime students
- Training courses
 - ICETRAIN
 - Kymenlaakso University of Applied Sciences offers a winter navigation training course to their students based on the ICETRAIN
- Publicity
- Cooperation



ICETRAIN

- ICETRAIN has been designed by Finnish organisations representing different fields of ice navigation.
- The partners are Deltamarin Contracting Ltd, Finstaship, Germanischer Lloyd, Ice Advisors Ltd, Kymenlaakso University of Applied Sciences and Meriturva Maritime Safety Training Centre.
- www.icetrain.fi



ICETRAIN partners

- Together these experts create a unique team of instructors for this course.
- Our strenghts are
 - -cooperation, versatile knowledge and experience in ice operations, six significant organisations work together
 - -advanced simulator
 - -certification by GL



ICETRAIN



- Internationally targeted ice navigation training
- The three-day course is aimed at masters and officers who operate their vessels through the Baltic during winter season
- The goal is to improve the safety of vessel traffic in the Baltic Sea. A significant factor affecting the accident risk is the crews' **lack of training or inexperience in ice navigation.**
- Course's emphasis is on ice navigation and simulator training
- In addition, the course deals with e.g. icebreaker operations, management and legislative issues, cargo handling, the effects of icing and ice build-up rate, ice related services, survival and occupational safety.



ICETRAIN

Content outline

Main items covered:

Set 1: Introduction to ice operation

Set 2: Navigation and shiphandling

Set 3: Cargo handling and deck machinery

Set 4: Safety, emergency and survival



ICETRAIN

Set 1: Introduction to Ice Operation

- **Ship-Ice-Interaction**
 - - Physical properties of ice
 - - Ice conditions and Ice qualities
 - - Ship performance in ice
 - - Ice induced damages
- **Ship design for Ice Operations**
 - - Typical hull forms
 - - Propulsion concepts
 - - Ice classification and ice strengthening
 - - Special systems for ice going ships
 - - Aspects for detail design
- **Icebreaker Operations**
 - - Operation qualities of icebreakers
 - - Management of icebreaking operations
 - - Real-time information systems
 - - Modes of escorting and assistance
- **Management issues**
 - - Rules and regulations
 - - Safety and environmental aspects
 - - Setting the attitude for ice operation
 - - Collaboration between fleet management,



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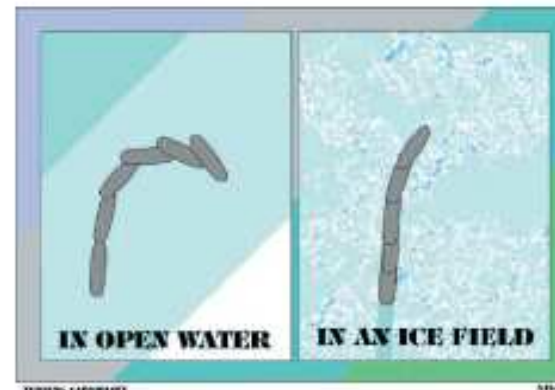
Kymenlaakson
ammattikorkeakoulu
University of Applied Sciences



ICETRAIN

Set 2: Navigation and shiphandling

- Voyage planning and preparations
 - - Pilot books and navigation guides
 - - Weather information systems
 - - Ice information systems, ice codes and ice charts
 - - Planning the approach to forthcoming ice fields
 - - Preparations before entering cold ambient
 - - Real-time information and route plan updates
- Watchkeeping during passage
 - - Routines during navigation in open sea areas
 - - Routines during navigation in ice infested areas
 - - Positioning methods
 - - Operation and maintenance of bridge accessories
 - - Use of radar
- Shiphandling and manoeuvring
 - - Independent operation in different ice conditions
 - - Avoiding damages to hull, rudder and propeller
 - - Procedures when meeting and overtaking
 - - Operation under pilotage
 - - Procedures during icebreaker assistance



Picture 9. Remember that the ice field affects the steering capabilities of your ship. The turning capability in ice is weaker. Long and narrow ships become even more stiff in the ice field. The shape of the waterline has it's effects on the steering ability of the ship too.



ICETRAIN

Set 3: Cargo handling and deck machinery

- **Cargo handling operations**
 - - Operation and controlling of ballast tanks and piping
 - - Adjusting draught and trim in accordance with ice class
 - - Items specific to given ship/cargo type
- **Operation of deck machinery and equipment**
 - - Operation, maintenance and protection of deck piping, valves and fittings
 - - Operation, maintenance and protection of deck machinery



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Set 4: Safety, emergency and survival

- **Icing and ship stability**
 - - Ice build-up processes
 - - Factors affecting ice build-up rate
 - - Effect of icing upon ship's stability
 - - Estimating ice mass and its influence on stability
 - - Methods for removing of ice
 - **Occupational health and medical first aid**
 - - Effect of cold upon human organism
 - - Proper clothing and outfit
 - - Treatment of cold induced injuries
 - - Risk factors when working on deck
- Fire fighting, evacuation and survival**
- Maintenance of fire-fighting equipment and systems
 - Fire-fighting practice
 - Maintenance of life-saving equipment and systems
 - Operation of shipboard evacuation equipment
 - Group survival equipment and techniques
 - Personal survival equipment and techniques



ICETRAIN

- The first ICETRAIN - course in October 2007 was attended by shipmasters from Österströms Ltd



ICETRAN

Example of contents: Use of radar

- Finding the way through ice
- Adjusting settings correctly



Contents of the first course...

- Simulator exercises



Contents of the first course...

Taking Pilot



Contents of the first course...

- Icing



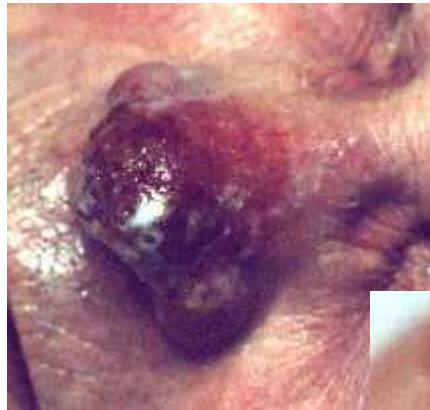
Contents of the first course...

Survival



Contents of the first course...

Occupational health and medical first aid





Ice Advisors Ltd

PROFESSIONAL AND SAFE ICE NAVIGATION

IN THE BALTIC SEA



Contents:

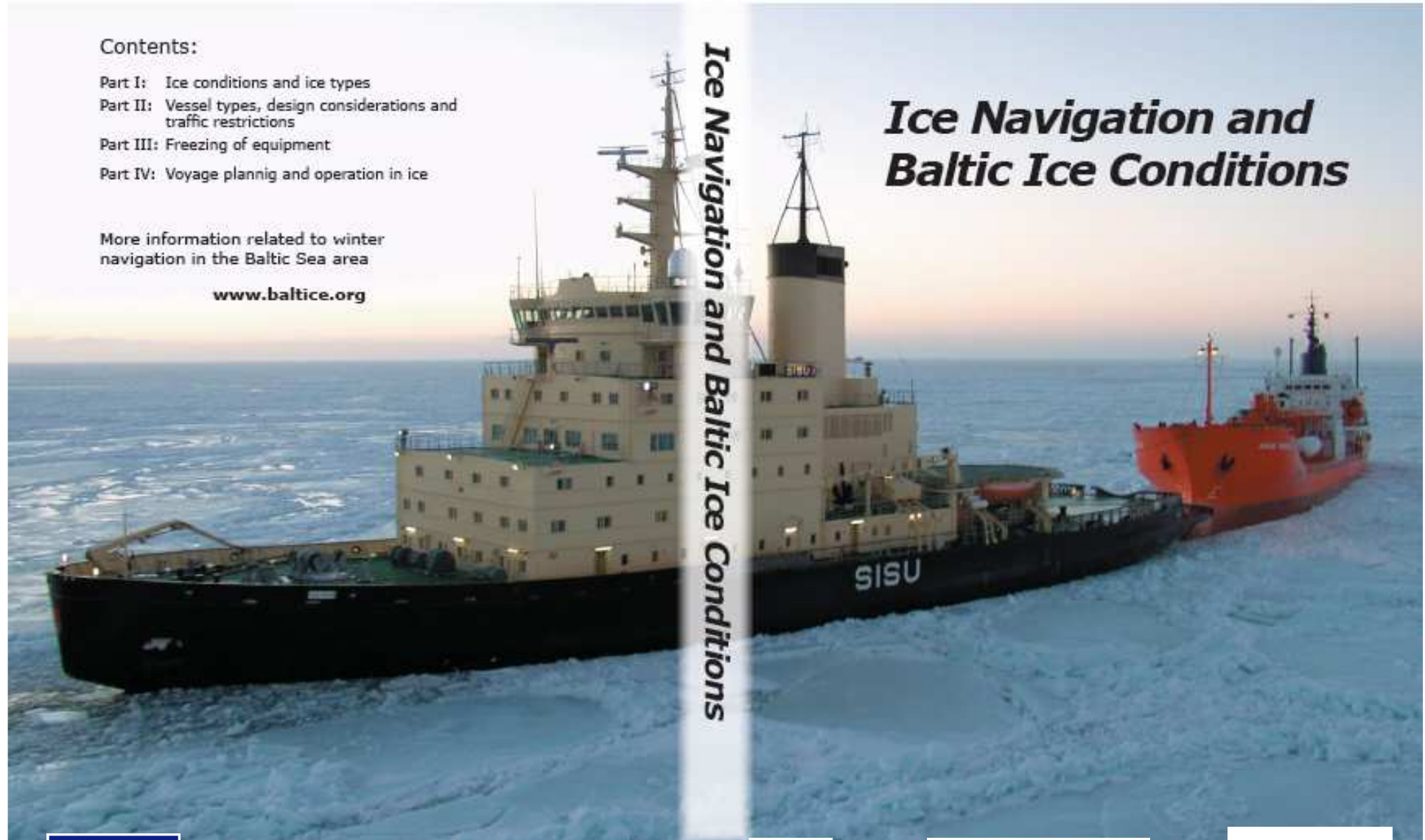
- Part I: Ice conditions and ice types
- Part II: Vessel types, design considerations and traffic restrictions
- Part III: Freezing of equipment
- Part IV: Voyage planning and operation in ice

More information related to winter navigation in the Baltic Sea area

www.baltice.org

Ice Navigation and Baltic Ice Conditions

Ice Navigation and Baltic Ice Conditions



Baltice.org

Baltic Icebreaking Management



Welcome | Sisäänkirjaus |

| Print | Text size + -

- [Ice Map](#)
- [Traffic Restrictions](#)
- [Reporting Instructions](#)
- [Icebreakers](#)
- [Satellite Images](#)
- [Ice Thickness](#)
- [Ice Forecast](#)
- [Ice Reports](#)
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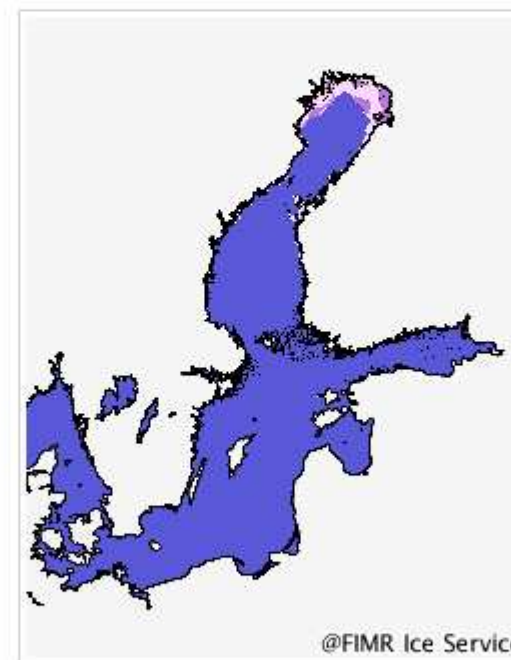
Welcome to renewed Baltice.org!

Baltice.org is a single access point to reliable and up to date information related to winter navigation in the Baltic Sea area. This site gathers information and instructions from icebreaking authorities from all the Baltic Sea countries. Information is available free of charge and meant for users of winter navigation information at the Baltic Sea.



Daily updated [ice chart](#) of the whole Baltic Sea area is available in pdf format. Ice chart data is also viewable in [Ice Map - window](#), where it is possible to move, zoom in and out, and measure distances and directions on the ice map. The data is viewable in different WMO styles.

The aim of the site is to extend the knowledge of winter navigation and prevailing conditions in the area during ice season. Website is commissioned and financed by Baltic Icebreaking Management (BIM), which has members from all Baltic Sea countries, and co-financed by the European Commission through the programme for trans-European transport network. [Read more about BIM](#)



Simplified ice map.

[Click for detailed Ice map](#)

ICETRAIN 2 - 4.10.2007

- Although experienced in ice operations, the participants gained valuable knowledge in the training, and the course received positive feedback.
 - From 1 to 5 (1=poor, 5=excellent) the participants evaluated the course contents with an average of 4,1)
- Furthermore, the participants stressed the importance of this training in order to improve the safety of winter navigation in the Baltic Sea.





MEDIA

- National media finds this subject interesting
- Press conference was kept on 3rd October in Espoo.



MEDIA

■ Published articles, interviews, news:

- -Radio Suomi, News 3.10.
- training etc. -Kymenlaakso radio FM 96,9: interview on 19.5. at 10.40 on winter navigation
- -Kymenlaakso radio FM 96,9: interview on 3.10. at 11.40 on ICETRAIN
- -YLE TV 2: national news Wed 3.10. at 17.00 and at 18.50
- -YLE Aamu TV 4.10.
- -Kymen Sanomat Thu 4.10. an article, interview
- -Voima&Käyttö, an article on ICETRAIN
- -Maritime Finland, an article on ICETRAIN
- -Tekniikka&Talous, an article on winter navigation training, interview

- -Svensk Sjöfartstidning, an article
- soon) -Suomen Merenkulku, an article, interview of the ICETRAIN partners (coming
- -Österströms Ltd, web pages
- -Kymenlaakso University of Applied Sciences, web pages
- -Åbo Underrättelser, an article, interview
- -Scandinavian Shipping Gazette





FUTURE

- **Today's training is mainly done through training on the job**
- It is presumed that the operations in the ice covered areas shall be carried out by certified personnel in the future
- We want to take part in this development by
 - offering quality training
 - developing the training standards together with national and international authorities and organisations
 - distributing the message (winter navigation requires special skills and the icy conditions will remain at sea though the global warming) to those involved



THANK YOU

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