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# Ice Channel in the Context of Maritime Rules

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# Summary

Winter transportation is equally important as the summer transportation, or even more meaningful for countries, which are affected by the winter conditions. In this perspective, the focus of this paper is in the Baltic Sea, which is a sea, where some of its areas are frozen every year.

During winter times, vessels may face heavy ice conditions and extreme weathers when navigating through ice fields. There are special ice class regulations to limit what kind of vessels shall enter in the Baltic Sea during winter to operate by using their full capacity in ice conditions and maintain all the safety features. How these winter conditions changes in the prevailing situation, will be explained in a way that the reader should understand why there are these special needs for ice class regulations and needs for vessels entering the Baltic Sea. In addition, paper addresses' what actions are needed from authorities' side to keep transportation going in spite of prevailing weather conditions.

National and International rules sets clear rules to guide navigational issues, like passing and crossing. However, there are no single international rule to guide ice navigation in same manner how these rules guide open water situations, like the Convention on the International Regulation for Preventing Collisions at Sea does. There are some national rules trying to guide winter navigation, but those are only locally applicable and still leaves some holes for guidance issues, what vessels needs to maintain safe navigation in ice conditions.

Best way to show the scale of this mentioned problem is done by presenting different Finnish cases to show out all types of problems, that are caused by the unclear definition of the ice channel and the lack of sailing rules for vessels to obey in ice conditions. In addition, some thoughts from experts from field are presented to support the fact that there is need to solve this issue.

Going through all these aspects there is a conclusion made in the end, which presents a possible way to minimize the problem surrounding ice channel navigation and, discusses what should be done to prevent similar accidents occurring in the future.

# Preface

I want to thank Herman Ljungberg, partner of the Hammarström Puhakka Partners, Attorneys Ltd, giving me the idea for the thesis by talking of the problems concerning ice navigation and helping through the practical issues.

I am also very grateful for Ilmari Aro at Finnish Transport Agency, Jari Haapala at Finnish Meteorological Institute, Jyrki Viljanen and Paavo Wihuri, of their willingness to took the time for an interview and bringing their experience and thoughts to this paper.

In addition, thank to my supervisor Lars-Göran Malmberg, for giving ideas to improve this thesis during the process.

Finally, thanks to Silja Snäll and my family for placing supporting comments at right time and offering their help when needed the most.

# Abbreviations

AFT	Act on Finnish Transport Safety Agency
BWL	Ballast Water Line
COLREGS	The International Regulations For Preventing Collisions At Sea, 1972
FTA	Finnish Transport Agency
GOFREP	The Mandatory Ship Reporting System in The Gulf of Finland
HELCOM	The Helsinki Commission
IMO	International Maritime Organization
LWL	Load Waterline Length
MSRS	Mandatory Ship Reporting System
SOLAS	International Convention for the Safety of Life at Sea, 1974
SRS	Ship Reporting System
VTMIS	Vessel Traffic Management and Information Service
VTS	Vessel Traffic Service
WMO	World Meteorological Organization

# 1 Introduction

One of the key topics in last years has been the ice smelting and the raising consequences of that. When researching statistic from last year's they shows that last couple winters have had special characters when looking the areas bordering the Baltic Sea, as well as other places. When the main focus of this paper is in the Baltic Sea, the remark is done in relation to Baltic Sea areas.

Some of these special characters, what the winters have had, has been the long periods of a constant freezing temperatures. And when there are long periods of freezing temperatures it means that a new steel ice is forming, which is the hardest form of ice existing and very hard for vessels to go through.<sup>1</sup> Also, the amount of snow have shown bigger numbers than last few decades. Reflection from these issues, the ice situation on waters has been very ruff for vessels navigating in Baltic Sea and especially northern parts of it. However, when the last few winters have had hard conditions, two winters before this period formed hardly any ice at all in the Baltic Sea areas, except on the Bothnian Bay. Therefore, it can be said that absolute climate phenomena are going to be more common today than earlier, and changes between following winter and the previous winter may differ a lot.<sup>2</sup>

Seafarers should be aware how to handle their vessels through ice conditions as well as shipowners should equip their vessels in appropriate way to manage the prevailing ice conditions. However, like the practice shows, what is presented in later chapters through some cases, there are clear problems in ice navigation and how seafarers are taking the special needs what the ice navigation demands them to do. This claim is supported through numerous collisions and accidents occurred during ice navigation in various places, where the human error is the leading reason for these accidents. In addition, when a human error is one main factor to cause these accidents and the risk to increase human errors is the ice channel behaviour between vessels. More precisely, what are proper rules or guidance that vessels are able to trust or lean when facing problems when navigating through an ice channel in the context of existing rules, instead of depending on crew members' actions in each time.

In maritime world, there are several international conventions and regulations, to guide seafarers to improve safety and navigational issues, while sailing. One of the most important one, and the main one to this paper, which gives a good and clear boundaries to work, is the Convention on the International Regulations for Preventing Collisions at Sea, 1972.<sup>3</sup> Through

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<sup>1</sup> Personal interview with Mr. Haapala

<sup>2</sup> Ibid.

<sup>3</sup> Convention on the International Regulation for Preventing Collisions at Sea, 1972, Hereinafter referred to as COLREGS.



its text, it presents clear rules for vessels to act, in manner to prevent causing collision at sea. Nevertheless of its coverage in various situations, there cannot be found any references to ice channel situations. This might be the outcome, when the ice problem is not that severe, if taken it to a bigger picture and considering the part of those oceans where ice is the main cause of problems for commercial vessels. Even though, the problem might not be present in all seas, there are vessels and seafarers from all over the world, who are navigating in these ice covered waters and who faces real problems and accidents and causes threats to environment by their actions.

As mentioned, there are international conventions, which sets clear rules for vessels to act under overtaking, heading and / or crossing situations at open water. When the weather condition is changed and there is an ice layer on the top of the water and there are not anymore a clear shipping lane, what vessels are able to use and do their manoeuvres as used to do, it brings out the whole new challenge to all parties onboard.

Problems which are presented in this paper are in most cases caused by an unclear situation concerning navigational rules when a vessel is navigating in the ice channel. And mostly the direct consequence of a collision between vessels or an accident happened to a single vessel is caused by the uncertainty what is required from vessels' side to do

The paper will bring out how the ice channel is handled through the Baltic Sea areas from authorities side and from vessels side. There will be nine cases presented at the chapter 9, where all cases will have a different focus and what is the outcome, in liability questions and what was the main reason why that accident was caused. As one of these cases brings out, sometimes through a court system, judge's opinion may differ quite a much depending at the level of the court, is it a District court or the Supreme court. Example in this case, the district and appeal court finds a same outcome from the facts presented, where the Supreme court comes to an opposite result.

When the issue is concerning maritime practice, the main conventions and rules are mostly developed through practice and rules are dealt to be shaped in a way that seafarers are actually able to use those rules in everyday practice as their guidance for safer navigation. This paper will go through the existing rules, which can be held to be in relation to paper's topic and trying find the existing problem and how it is handled through the system. Because of the confusion, seen from case rulings and especially through the practice, there is a clear need to research that, can there been found a legal definition for an ice channel or is it something, which is impossible to define to be something special that can be used through common practice.

## **1.1 Delimitation**

The purpose of this paper is to research how an ice channel, narrow channel and safe navigation are present in ice navigation. In addition, rules concerning navigational issues are presented, but limited to cover issues going under the paper's topic.

For this reason, it is relevant to go through what an ice condition actually means and to limit the areas where this question is actually faced. It cannot be seen very useful for regions where, there are no ice conditions. In this basis, information given in this paper, being whether legal or general, is from regions, where the ice conditions can be seen as an annual problem for navigation. In this reason the focus is in the Baltic Sea and its northern parts. More precisely, this paper presents how the Finnish authorities, courts, and experts feels about the question concerning the ice channel. In addition, how these affects to the main goal to achieve safe navigation. It is not forgotten that there are ice areas, like the Antarctic, the Arctic and the Northwest Passages and especially the North East Passage, which is probably going to be used as a commercial shipping route for vessels. In these areas, an ice channel is used to serve same purpose, what it is in the Baltic Sea. However, in these areas vessels do not use these routes in daily basis, and does not have that much of commercial importance for maritime commerce, what the Baltic Sea does at this moment. In addition, the fact that Finnish archipelago and channels for main harbours are one of the most difficult ones in the world to navigate through in open water situations, what the number of accident shows, it is even harder during winter. One of the main reasons why there are so many accidents, is the lack of clear definition and rules to cover ice channel as well as how the question concerning narrow channels is understood. Therefore, the focus is purely concerning Finnish waters, Finnish authorities and court ruling's from Finnish system.

## **1.2 Method and Material**

The method used consists of traditional legal research and analysis of legislation, case law. The main source to this paper has been regulations and commentaries made by State authorities, legislations, conventions and case law, as well as comments from the field. In addition to those, the chapter 10 presents three interviews from experts who are or have worked in different fields of maritime world, but having the main focus in icebreaking, pilotage and authority issues. By using these interviews it is easier to show for readers, what are the main problems in the field and how these things are experienced differently. And in order to provide sufficient and proper analysis in the very end of this paper, it is done by combining main conventions, rules, legislations to practice, which might be difficult to do

without the proper commentary from the actual practitioners from the specific field.

There is lot of literature available in relation to collisions, passing situations, appropriate law and liability issues, which are present in this paper among the ice channel issue. However, it is not relevant to go that deeply into these side issues. On the other hand, when looking for literature handling ice channel was not that easy to find. Most of the writings handling ice channel and winter navigation, are publications from authorities and case commentaries.

### **1.3 Disposition**

The thesis begins by presenting the prevailing circumstances at Baltic Sea and how the winter and especially how the ice changes the navigational needs to survive through winter conditions. In addition, it shows how the ice channel is understood and the challenges it creates. Theoretical part of the essay introduces legislation in International and National level. More precisely, conventions, acts and rules in relation to fairway and sailing issues are analysed. The essential part of the paper outlines how the navigation rules works in practice. Furthermore, the main practical problems in relation to navigation in ice channels, are addressed and supported by cases from Finnish Courts. In addition, opinions from persons who are active in the maritime sector and have years of experience of winter navigation is addressed. Moreover, the main analysis is conducted in the end of the paper.

# 2 Baltic Sea

## 2.1 Transportation

Baltic Sea have a special nature of being quite small sea in comparison to the amount of traffic what goes there in each day. The estimation is that every moment there are over 2000 large vessels sailing and over 900 million tons carried annually onboard by tankers and cargo vessels.<sup>4</sup> At same time being a sea, where at least the northern parts are covered by ice in every winter for several months, and creating special challenges and needs to an every vessel navigating there during winter months. Around 40% of that 900 million tons of cargo going through the Baltic Sea, is delivered during winter months when the Baltic Sea is covered by ice.<sup>5</sup>

In addition, being the only waterway from some of the bordering countries of the Baltic Sea, and the only and important sea transportation route for these states going through Baltic Sea areas. In its south parts the ice is not a problem, but in the northern parts the ice will bring extra challenges. Finland and Estonia are the only States in the World, who uses waterways to maintain their main transportation needs, where the surrounding waterways freezes every year and basically closes the road for vessel transportation and needs special actions to keep these water roads open.

When this paper is focusing to this ice channel issue from Finnish perspective, it is necessary to bring out the reasons, why this question is that important to have discussion. Finland have 60 commercial ports on its coast line, which have facilities to load and discharge vessels in commercial purposes. Over 80% of Finland's foreign trade goes through these 60 ports. However, during winter times the heavy ice situation makes it impossible to keep all 60 ports open, so the number of all time open ports is limited to 23 and 14 of them are the main ports handling most of the transportation need.<sup>6</sup> The needed resources are limited due the money and personnel issues, to keep sea transportation going in safe way, regardless of the prevailing ice conditions. When the need for assistance is in its busiest it is practically impossible for icebreakers and pilots to help all vessels on time, because the

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<sup>4</sup> Ilmatieteen laitos ja VTT mukana jäätietopalveluja kehittävässä ICEMAR- Projektissa, [Finnish Weather Institution and VTT with developing the ICEMAR – Project], VTT, 7.3.2011, Hereinafter referred to as Ilmatieteen laitos.

<sup>5</sup> Liikennejärjestelmän talvikestävyys, [Sustainability of Winter Transportation], Liikenne ja viestintäministeriö, Julkaisuja 40/2010, Page 19, Hereinafter referred to as Liikennejärjestelmän talvikestävyys

<sup>6</sup> Ibid, Page 15.

resources in all sectors are quite limited in relation what is the real need to have a constant movement to all vessels navigating.<sup>7</sup>

## 2.2 Traffic Surveillance Systems

Baltic Sea is a hard place to navigate for large ships through narrow channels. In the perspective, the average depth is 55 meters, and approaching lanes to harbors, especially, Finnish territorial waters are hard to navigate, because of the number of rocks, reefs and the narrowness of sea lanes and the need of having many waypoints when approaching the harbors, makes it challenging for ships to sail in normal conditions. Winter conditions makes it even harder to follow the market shipping lane and be secured of its position, when there is a thick ice layer, that ships has to go through or following the ice channel, and being unable to follow where the actual sea route goes, that the GPS signal and radar tells to follow.

Main help for vessel navigation is a local Vessel Traffic Service (VTS). In Finland the ministry of transportation is the public authority behind the Finnish VTS system.<sup>8</sup> Basic need of VTS is the same, no difference if it is winter or summer, vessels needs to have a working route guidance and tracking system. However, the ministry of transportation may see a need for temporarily remove the route tracking system, if the ice conditions are too bad to operate in normal manner. This kind of action requires a special announcement made for vessels, and in these conditions prevailing, a special icebreaker assistance is needed and special transportation restrictions are given.<sup>9</sup>

In 1999 the FTA launched preparations to develop a vessel traffic management system in the Gulf of Finland in a cooperation with Estonian and Russian maritime authorities. In 2001 the Memorandum of Understanding was signed by ministers and the Vessel Traffic Management and Information Service (VTMIS) – operation was launched.<sup>10</sup> The idea is that the VTMIS covers all sea areas of the Gulf of Finland, and have tracking system for all vessel and being able to notice if there is a collision heading between vessels. Its work was researched by using the Formal Safety Assesment (FSA) – methods, and it showed that the VTMIS – system is useful tool by controlling collision risks between sailing vessels. To work VTMIS uses a system called System2, which is based to information collected through AIS – System and is basically working similarly how the

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<sup>7</sup> Liikennejärjestelmän talvikestävyys, Page 17-18.

<sup>8</sup> Alusliikennepalvelulaki, [Vessel Traffic Service Act], 5.8.2005/623, , Hereinafter referred to as Alusliikennepalvelulaki, §2 (2).

<sup>9</sup> VTS – Vessel Traffic Service, Finnish Transport Agency and Finnish Transport Safety Agency, online.

<sup>10</sup> Sanna Sonninen, Page 2.

VTS – service is working. In a difference that the VTMIS is covering the whole area of the Gulf of Finland.<sup>11</sup>

In 2002, IMO approved the application, which was concerning Traffic Separation Schemes in the Gulf of Finland. Estonian, Russian and Finnish authorities pushed that application forward, and the result was seen in 2004,<sup>12</sup> when the Mandatory Ship Reporting System in the Gulf of Finland<sup>13</sup> was launched.<sup>14</sup>

## 2.3 Ship Reporting Systems

VTS and VTMIS are not the only systems trying to guide vessels through the Baltic Sea. The third one is the GOFREP, and being a Mandatory Ship Reporting System under the International Convention for the Safety of Life at Sea, 1974<sup>15</sup>, and has been working since 2004<sup>16</sup> and is operated in a cooperation with Finnish, Estonian and Russian authorities. Where the aim of MSRS is to create “tools” to develop safety and environment issues in through navigation internationally, where the GOFREP’s aim is to improve issues such, the safety of navigation and to increase the protection of the marine environment, focusing to ships navigating in the international waters in the Gulf of Finland east of the Western Reporting Line. There are three Traffic Centres operating and one in each country, one in Helsinki, Tallinn, and St Petersburg.<sup>17</sup>

The information, what GOFREP uses is based on surveillance of vessel traffic, navigational marks in the operational area and radio communication used. The information and guidance, what vessels are able to use to support their winter navigation by using recommended routes through the ice and provided contact information for icebreakers.

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<sup>11</sup> Tommi Arola, Risto Jalonen, Pentti Kujala, Meriliikenteen paikkatiedon tilastointi ja hyödyntäminen Suomenlahden meriturvallisuudessa, [Collecting Sea Transportation statistics and Utilizing The Sea Safety in The Gulf Of Finland], University of Technology, Ship Laboratory, Espoo 2007, M-29, Page 13, Hereinafter referred to as Tommi Arola.

<sup>12</sup> Mandatory Ship Reporting Systems, International Maritime Organization, SN/Circ. 225, 6 January 2003, Hereinafter referred to as MSRS.

<sup>13</sup> GOFREP – Gulf Of Finland Reporting, Finnish Transport Agency, Hereinafter referred to as GOFREP.

<sup>14</sup> Sanna Sonninen, Paula Savioja, Maaria Nuutinen, Tapio Nyman, Suomenlahden alusten pakollisen ilmoittautumisjärjestelmän yhtenäisten toimintatapojen kehitys, [The joint co-operation to develop a regional VTMIS for the Gulf of Finland], Merenkululaitos, Merenkululaitoksen julkaisuja, 5/2004, Page 6, Hereinafter referred to as Sanna Sonninen.

<sup>15</sup> International Convention for the Safety of Life at Sea, 1974, The Regulation v/11

<sup>16</sup> See Foot Note 7.

<sup>17</sup> Winter season in Northern Baltic Sea, Gard AS, FEBRUARY 2006, Hereinafter referred to as Winter season in Northern Baltic Sea.

Every vessel over 300 gross tonnage are required to report a full<sup>18</sup> or short<sup>19</sup> report<sup>20</sup> to the GOFREP and give required information,<sup>21</sup> where under 300 gross tonnage vessels are only required to report in cases, when a vessel; are not under command or at anchor in the Traffic Separation Zone; are restricted in their ability to manoeuvre; have defective navigational aids.

In addition, GOFREP's main cover is set to be over the international waters, but Estonia and Finland have implemented GOFREP to cover their territorial waters outside their VTS areas. These operations are utilized in same manner, than the GOFREP is in the international areas, and territorial and international areas are both jointly referred to as GOFREP in all relations.

## 2.4 Baltic Icebreaking Management

Baltic Icebreaking Management (BIM) is an organization, where its 10 members,<sup>22</sup> are the bordering states of the Baltic Sea and a Country with the interest of being part of this organization. The need to have an organization to handle specially icebreaking issues in Baltic Sea area, raised during a difficult winter season 2002/2003. It was launched to follow the framework of HELCOM by improving the safety of winter navigation in the Baltic Sea. To have some real effects, the icebreaking authorities from each member

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<sup>18</sup>When entering the GOFREP area from the west or from Väinameri; on departure from a port or at the latest before entering the reporting area; on departure from a port if they will not enter the reporting area at all; before departing from Russian port areas.

<sup>19</sup> On entering the GOFREP area from the Estonian or Finnish VTS areas in the Gulf of Finland; on crossing the Western or Väinameri Reporting Line, bound for the Gulf of Finland; on crossing the Central Reporting Line; whenever there is a change in the vessel's navigational status, except for change of status when berthing or unberthing.

<sup>20</sup>A Full Report consists of designators A, C or D, E, I, O, P, U and W. Vessels may additionally be requested to report designators F, H or X. A full report is made by non-verbal means (AIS, e-mail or facsimile) or by voice on VHF. A Short Report consists of designators A, C or D and E. Vessels may additionally be requested to report designator F. A short report is always reported by voice on VHF.

<sup>21</sup> A; Vessel's name, call sign and IMO identification. MMSI may be reported. C; Geographical position by two 6 digit groups; or D; Bearing and distance in nautical miles from a clearly identified landmark. E; True course in three (3) digit group. F; Speed in knots with one decimal. H; Time (UTC) and point of entry into the GOFREP area. I; Destination ETA. O Vessel's present draught in metres with one decimal. P; Dangerous goods on board, main classes and total quantity in metric tons with up to two decimals. The amount of classes 1 and 7, if any, shall be reported separately. Q; Brief details of defects or restrictions of manoeuvrability. R; Description of pollution or dangerous goods lost overboard. T; Address for the communication of cargo information. U; Ship's type and length in meters with one decimal. W; Total number of persons on board. X; Characteristics and estimated quantity of bunker fuel for ships carrying more than 5000 tons of bunker and navigational status.

<sup>22</sup> Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russia and Sweden.

states are taking part and acting actively to keep BIM's developments working and used in practice.<sup>23</sup>

When EU launched its concept of Motorways of the Sea, the Baltic Sea countries saw there a special challenge to improve more efficient winter navigation through cooperation between the Baltic Sea countries. However, the starting point is based on EU project, but non-EU members, such as Russia and Norway are taking part and acting in a consensus within the EU project. The EU project was adopted to be part of the BIM's mission, and today, BIM is focusing to development of safe, reliable and efficient winter navigation between Baltic Sea countries.<sup>24</sup>

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<sup>23</sup> About BIM,

<sup>24</sup> About BIM,



### 3 Winter conditions

Last couple winters had shown its cruelty in Baltic region, especially to seafarers at the Baltic Sea and North part of it. This has caused number of situations where vessels are stuck in the middle of ice fields and needs assistance to continue their voyage. According to statistics, there can be shown some changes towards warmer temperatures.<sup>25</sup> However, the extreme conditions have also increased and the winter 2009- 2010 was proximately 3 degrees colder what the average expects it to be. During the coldest period of that winter, it was measured 61 days long continuous period, when the temperature was below a freezing point.<sup>26</sup> This continuous freezing period makes it possible that on open water areas, are now covered by steel ice. Steel ice is the thickest form of ice, what is measured. Meaning that, vessels have huge problems to break their way through that kind of ice, without a help of an icebreaker, and sometimes the icebreaker is also unable to break through of that kind of ice.<sup>27</sup>

The Finnish Meteorological Institute uses winter categorization measurement, and is based for the ice coverage in the Baltic Sea. Categorization is divided into five different categories,<sup>28</sup> however the categorization does not consider issues like, ice thickness, ice depth and structure of ice. Therefore this categorization system does not give correct answers or results for shipping industry, how hard that winter was.<sup>29</sup>

Research shows that there are not much difference in accidents between months, whereas during winter months there are much more collision cases, than during summer months. In addition, most of these collision is reported to happen during the icebreaker assistance or when vessels are passing other vessels when navigating through an ice channel. However, damages are normally not very severe, because these collisions occurs at very low speed actions.<sup>30</sup>

It is not very general, that all vessel transportation services have to be shut down, because of the winter conditions, but in 2009 – 2010 pilot service have to be shut down, because of the wind for 12 hours, and in that time vessels were unable to proceed their voyage in ice conditions and were stuck.<sup>31</sup> Normal winters the estimated need for icebreakers is about 9 icebreakers to have ongoing icebreaking services provided for vessels. In 9

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<sup>25</sup> Liikennejärjestelmän talvikestävyys, Page 6.

<sup>26</sup> Liikennejärjestelmän talvikestävyys, Page 6.

<sup>27</sup> Personal interview with Mr. Haapala.

<sup>28</sup> 1) Very Mild 2)Mild, 3) Average, 4) heavy, 5) Very Hard

<sup>29</sup> Liikennejärjestelmän talvikestävyys, Page 7.

<sup>30</sup> Liikennejärjestelmän talvikestävyys, Page 8.

<sup>31</sup> Liikennejärjestelmän talvikestävyys, Page 17.

icebreakers the goal is that commercial vessels do not have to be waiting for long times.<sup>32</sup>

Keeping in mind that, ice is a movable object and changes its position all the time and its pressuring force is hard to predict if ships are in standstill position surrounded by the ice fields. When ice really starts to move and its pressure force is enough strong, it will not take long before there are numbers of vessels stuck on ice. Similar to this sort of situation, happened in last February there were over 30 vessels stuck in the ice only in the area of the Gulf of Bothnia.<sup>33</sup>

### 3.1 SAFEICE

The EU – Backed SAFEICE project was launched in 2004 and was a part of European Commission Sixth Framework Programme, where the main goal is to collect more information mainly in three categories; ice loading on ships, design of Arctic ship structures and an integrated traffic control infrastructure.<sup>34</sup>

One of the main goals is to research the preparedness of Finnish and Swedish vessels to navigate through icy waters, and widen that knowledge to all Arctic areas. The SAFEICE program is not just a project inside EU and to set rules for EU areas. The goal is to have an international system and this might be achieved when Canada, Japan and Russia are taking parts to this program to develop the safety of winter navigation on a worldwide scale.<sup>35</sup> In addition, to make it possible to achieve the best possible outcome, there are several research centres participating from various countries around the World.<sup>36</sup>

### 3.2 Latest Ice Research

Finnish research vessel R/V Aranda was in its SeaIce 2011 cruise at the turn of February and May, where its research took place at the Gulf of Botnia. The main goal of that research was to collect new information of ice

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<sup>32</sup> Teppo Markku, Jäänmurtopalvelujen kehittäminen, [Improving icebreaking services], Finnish Transport Agency, 032011, Page 4. Teppo Markku.

<sup>33</sup> Kymmeniä aluksia jäiden saartamina, [Vessels Surrounded by Ice], YLE, 26.2.2011, Hereinafter referred to as Kymmeniä aluksia jäiden saartamina.

<sup>34</sup> SAFEICE – Cutting a path through icy waters, European Commission, 8.4.2004, Last visit May 12 2011, Hereinafter referred to as SAFEICE.

<sup>35</sup> Ibid.

<sup>36</sup> SAFEICE – Increasing the Safety of Icebound Shipping, TKK, Hereinafter referred to as SAFEICE.

movements and ice pressure and how these could be measured. Jari Haapala was the scientist in charge and the group got some nice satellite photos how the ice is moving. In addition, of ice movement, the research group installed a buoy to measure the ice pressure and that buoy to send the data forward to institutions to handle it and inform ships at later point. This is just a first of its kind and it will be seen if this works and can be used to inform ships more precisely about ice movements and its pressure force.

Mr. Haapala noted what the research shows is that, the movement can be massive and a stuck ship cannot do anything than just go with a drift and hope that the way is keeping its course in safe waters. Research presented clear pictures of this movement. Also meaning that the done ice channels are also moving on open grounds. Main thing in this movement is that the actual movement of ice floes is concentrated right to the spots of the edge of two ice floats, usually ice channels are these spots where the main movement happens.

This in mind, the ice channel is a “moving road”, and this movement is very hard to predict, as Mr. Haapala prescribes. In some form it can be predicted, by researching key elements like, the wind direction, low- pressure areas and sea flow.

The other thing what makes it hard for ships is the thickness of ice. This is a factor, what makes it either possible or impossible for a ship to do its own route and follow a satellite route or forces it to follow the ice channel. This is where the mentioned test buoy comes in picture, because it is proved that the ice thickness is very local matter. The main rule when calculating of the ice thickness is the ice temperature and the laws of physics as Mr. Haapala says.

Latest technology will give a hand to do a proper watch after these issues and serve all relevant information to ships as close to following situation matters. However, this system is still taking early steps, and it is hard to say what is the actual outcome, but if it is going to work as planned, it should be helpful for ships to navigate and do reservations considering the ice situations affecting that very time and keeping their voyage as safe as possible.

### **3.3 Ice Channel**

Before examining and being possible to made a clear definition what an ice channel is and how the ice channel is understood it is necessary to look how fairway area and channel are defined under the existing rules. Clearing these two out, it is easier to understand all the problems what the term “ice channel” creates and how those problems should be handled.

Fairway area is generally understood to be an area, where the use of waterborne traffic is delimited by the channel's edge lines. In addition, all areas designated to be a part of the channel are included into a fairway area. Main thing in fairway areas is the guaranteed safe clearance depth, which is set by authorities. In other words, State bears the liability if there are something laying above that informed depth, and causes any damages to passing vessels. Therefore, the edges of a fairway area are marked by spar buoys, buoys, edge marks, and light buoys or any relevant markings, to inform seafarers where the guaranteed depth area ends.<sup>37</sup>

Whereas, fairway areas are marked on different types of buoys, and seafarers are able to spot those on water, where the public channels are marked in charts and in GPS devices, which are maintained by the Finnish Maritime Administration. Determining channels on Finnish waters, they are generally held as 'narrow channels', if that channel is not located on the open sea, or in other deep open waters.<sup>38</sup> And narrow channels have special rules<sup>39</sup> on navigational issues for vessels to obey.

In charts the channel is usually marked in form of straight black line going between fairway buoys. That line is drawn, without any consideration of its position towards the freeway area, so it might be drawn to be in the middle, on the right side or on the left side of the fairway area. In addition it might "sail" from side to side. That in mind, it is hard to figure out where that line actually goes, if the user is unable to read it out from the chart in use. However, sometimes navigational lines are marked by leading marks on the rocks at coast, where it can be read and followed. Nevertheless of the confusion where the shipping line goes, it is documented by using coordinates and controlled by the Fairway Register of the Finnish Maritime Administration.<sup>40</sup>

What then defines the question of an ice channel. In generally "ice channel" suppose to mean an open water lane through ice field, which is made by icebreaker or some other ship, or at least an easier route for vessel to go than thick ice field. In most cases, icebreakers tries to lay ice channels inside the fairway areas and close to a shipping lane.<sup>41</sup> Moreover, this is sometimes impossible to do already at the beginning of the ice thickness. Ice lane is much more narrower than the lane in open water conditions, normally it is just a wide of the icebreaker and soon it starts to move back together or towards some other direction. In some circumstances it might cut some corners of the shipping lane, normally after some time when vessels with the ability to break ice, will cut some corners, if the water depth allows that sort of action, but mainly it goes outside the shipping lane, because the ice is a floating object and it might change its position in wide range and even

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<sup>37</sup> Fairway Terminology, Finnish Maritime Administration, 7/12.7.2005, Hereinafter referred to as, Fairway Terminology.

<sup>38</sup> Ibid.

<sup>39</sup> See Chapter 6.2.4

<sup>40</sup> Fairway Terminology.

<sup>41</sup> Personal interview with Mr. Viljanen.

might do it rapidly or either it will close again. In a case<sup>42</sup>, which is presented later on chapter 8, it took only two hours from the point when the ice channel was opened to a point when it was moved outside from the fairway area and the *ms Marjesco* grounded.

Considering what is just said, ice channels are just vague lanes, without any legal ruling or special status. Those are just lanes made by icebreakers to keep shipping lanes open and those are not meant to be lanes which will have the actual shipping lane status. Through some case rulings, it is kept that, even though a vessel is using an ice channel and another vessel is approaching they should obey normal navigation rules set for fairway situations.

In normal ice conditions, icebreakers normally lay the ice channel on open waters inside the fairway and trying to follow the drawn shipping lane. In open water areas, where ice have lots of room to float and the movement of ice channels is causing problems for vessels, which are unable to break ice on their own to secure right heading and stay inside the shipping lane. When the ice conditions are really hard, icebreakers are instructed to use inside lanes through archipelago waters.<sup>43</sup> This will mean, that there are basically no ice movement at all. Because the islands will keep ice fields steady and limit the movement. However, when the ice movement is not a problem, the fact the ice channel is now following narrow channels navigating through archipelago, it makes it challenging for vessels to do all turns properly and staying inside of the ice channel. In addition, other problem is that there are no room to lay down several ice channels, just one or two. And if vessels are facing head-on situation and being unable to break out their way from an ice channel they have to stop and wait until the icebreaker will come and release them, and vessels can then pass each other.

### 3.4 Icebreakers

Under the Act of Finnish Transport Safety Agency article 2 (7),<sup>44</sup> the Finnish Transport Agency is the national authority responsible for providing icebreaking assistance to commercial and to other vessels operating in Finnish waters during winter times. However, FTA does not provide icebreaking services on its own. Its winter traffic work group is responsible to organize proper icebreaking services to Finnish waters to secure that the coming and leaving vessels are secured to navigate through prevailing ice conditions.<sup>45</sup> The group have procured ice breaking services from Arctia

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<sup>42</sup>Onnettomuustutkintakeskus, Tutkintaselostus C 2/1997 M, Accident Investigation Board of Finland, C 2/1997 M, Hereinafter referred to as *MS MARJESCO*.

<sup>43</sup>Mr. Aro's interview.

<sup>44</sup>Laki Liikenteen turvallisuusvirastosta, [Act on the Finnish Transport Safety Agency] 13.11.1009/863, Hereinafter referred to as AFT.

<sup>45</sup>Aro Ilmari, Vastuukysymykset yhteentörmäyksissä jäänmurtajan ja kauppa

Shipping Ltd and in case of extra need FTA may use other companies operating in icebreaking business.<sup>46</sup> Before 2004 all the icebreakers were own by State and operated through FTA, but after that FTA is now the charterer and gives the operating times for operator.

General for vessels, which are allowed to have icebreaker assistance without any exceptions are vessels, which fulfils all the requirements set by FTA to enter a port, where a vessel is heading. In addition, when a vessel is navigating in ice conditions, vessel's draft should be somewhere inside the load waterline length (LWL) and the ballast water line (BWL). A vessel shall have appropriate engine power, and it is measured from the power the vessel is actually using, not for the numbers the engine is capable of producing but the measuring number is the limited number if the engine power is limited. When an icebreaker sees that the vessel, which is planned to take under assistance, icebreaker have a right to decline for offering assistance to a vessel, which equipment, engine power or crew creates a doubt or a clear risk, that the vessel is unseaworthy to continue its voyage in prevailing ice conditions.<sup>47</sup>

Icebreaker assistance is founded by collecting fairway fees from vessels entering Finnish waters. Therefore, there are no extra charges collected, when a vessel needs normal icebreaking assistance. Extra salvage operations may raise additional fees to a vessel, which needs such operations.<sup>48</sup>

Liability and fault questions are held in a similarity what it would be if there are two normal vessels in question. So an icebreaker does not create any differences what a normal situation could be. The only difference is that normally the situation, where an accident happens is not that normal, because of the ice factor and special needs for a vessel under the assistance.

### 3.5 Convoy Situations

Over the years it has seen to be the best and most efficient ways to get vessels out of ice conditions by forming convoys. Meaning that an icebreaker is the first vessel and breaking its way through the ice and at the same time forming an ice channel, where vessel are following its route.<sup>49</sup>

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– aluksen välillä, [Collisions between icebreakers and commercial vessels and liability questions], Merenkulkualan koulutus – ja tutkimuskeskus [Centre for Maritime Studies], 9.12.2005, Page 3 – 10, Hereinafter referred to as Aro.

<sup>46</sup> Markku Teppo, Page 4.

<sup>47</sup> Ice Navigation and Baltic Conditions, Provided guidance video for vessels entering the Baltic Sea, BIM, Hereinafter referred to as Ice Navigation and Baltic Conditions.

<sup>48</sup> Personal interview with Mr. Aro.

<sup>49</sup> Ibid..

Forming a convoy, means that there are several vessels in close caps following the assisting and leading icebreaker. In most cases following vessels do not have same ice classification or same ability to navigate through the ice between vessels in the convoy. Because of this, before vessels are laid down they are sorted to form a lane where the weakest one is the first one to be behind an icebreaker. In addition, normally the first vessel is in towage and in this meaning the icebreaker is not just offering ice breaking assistance, it is providing towage services. Then the second vessel in a line, is one of the strongest ones and the third one is weaker one. This is a pattern, how a convoy is formed under the ice conditions.<sup>50</sup> In this way the best possible outcome is reached, when searching the overall situation and, when one ice breaker is able to assist as many commercial vessels as possible at same time.

When vessels are part of the convoy it creates an ultimate risk for collisions between each vessels. If the icebreaker is in some reason slowing down, following vessels should immediately respond to that, otherwise they will ram into a stern of the vessel ahead. When vessels are using the convoy, it normally means that the vessel cannot break ice on its own, and in that reason the only avoiding action is slowing down, than trying to break through an ice field and steer aside to avoid a collision. Moreover, the communication between vessels are very important and the language and manoeuvres shall be clear to all participating vessels.<sup>51</sup>

What is experienced from the field is when a vessel is going to face head-on situation with approaching convoy, the single vessel coming is sometimes trying enter into trail of the icebreaker, especially situations when the visibility is poor and the icebreaker is not providing towage assistance.<sup>52</sup> This is caused by many reasons. One is that masters wants to navigate by using fresh trail, they missed to do needed actions to keep their vessel on its own side, by way the rudder on starboard side, in most cases, when passing an icebreaker.<sup>53</sup>

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<sup>50</sup> Ibid.

<sup>51</sup> Ice Navigation and Baltic Conditions, Provided guidance video for vessels entering the Baltic Sea, BIM, Hereinafter referred to as Ice Navigation and Baltic Conditions.

<sup>52</sup> Personal interview with Mr. Viljanen.

<sup>53</sup> Ibid.

# 4 Helsinki Commission

## 4.1 HELCOM

The Helsinki Commission also known as HELCOM is purely focused in the Baltic Sea areas. The main achievement is the Convention on the Protection of the Marine Environment of the Baltic Sea Area<sup>54</sup>, better known as the Helsinki Convention. HELCOM is the governing body of the Convention and having some actual effect and force behind the Convention all the states bordering on the Baltic Sea and the European Community signed the 1992 Convention.

The main focus and goal of HELCOM is to protect the marine environment of the Baltic Sea, and mainly focusing to pollution issues in all possible forms. One major pollution source in the Baltic Sea is a ship source pollution, and HELCOM is trying to make suggestions and rules for ships environmental issues to improve a condition of the Baltic Sea. One of these key issues is to prevent collisions between vessels and groundings, where ships may create huge environmental risks for surrounding waters.

HELCOM's connection to this paper comes together through its actions to prevent collisions and creating navigation systems and safety features during winter times. Closest connection of this paper have the HELCOM Recommendation 25/7, Safety of winter navigation in the Baltic Sea.<sup>55</sup>

## 4.2 Safety of Winter Navigation in the Baltic Sea

Under the recommendation 25/7, there are four main issues,<sup>56</sup> which were seem to be necessary to have improvements and those are covered briefly in this chapter.

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<sup>54</sup> Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992, (Helsinki Convention), The 1992 Helsinki Convention entered into force on 17 January 2000, Hereinafter referred to as HELCOM.

<sup>55</sup> Adopted 2 March 2004, having regard to Article 20, Paragraph 1 b) of the Helsinki Convention, (Article 20 The duties of the Commission 1(b);" to make recommendations on measures relating to the purposes of this Convention;")

<sup>56</sup> 1) Ice surveillance systems, 2) Equivalence of ice classification rules, 3) Safety requirements, 4) Operational matters related to winter navigation



First section is about Ice surveillance systems, and how the information about ice conditions in the Baltic Sea area can be delivered to all actors. Under the rule 1, national ice services have a responsibility to offer basic information about ice conditions in that state's waters. This information can be obtained from the common website,<sup>57</sup> which was established by the Baltic Sea States. There are also clear forms<sup>58</sup> how the information shall be presented when it is given to a public. In addition, there is a clear specification what sort of information<sup>59</sup> shall be given in the ice report, and all the terms and symbols of World Meteorological Organization (WMO) should be used when describing ice and ice conditions in the Baltic Sea. This was seen to be necessary to have harmonized and similar symbols that all foreign vessels are able understand used symbols without a risk of misunderstanding used symbols. Under this section a special task is given to icebreakers, while they are out on the Seas, they should update the information concerning ice conditions at that moment into their national ice service. When the ice service have collected the new information and it is ready to be send to the other national ice services, it shall do that in daily basis, but at least twice a week.

Second section is about the equivalence of ice classification rules, and where foreign Classification Societies are compared in the Baltic Sea. The Classification is based on the Finnish – Swedish Ice Class Rules.<sup>60</sup> Here the basic requirements are focusing into two criteria, hull structure and engine power. Hull structural requirements will set the actual ice class, where the engine power is required to have minimum capacity to maintain at least 1-2 knots in that ice conditions, what the ice class allows a vessel to enter.<sup>61</sup>

Third section deals with safety requirements, that are recommended for the Contracting Parties to obey in their traffic restrictions based on safety aspects for ships sailing in ice conditions. Main importance for setting traffic restrictions is the thickness level of ice fields on that moment in the sea area where a vessel is entering.<sup>62</sup> To calculate a right thickness level of ice, was decided to be used the formula of Zubov<sup>63</sup> to give the most correct answer available in general level and precise method to collect and use

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<sup>57</sup> [www.bsis-ice.de](http://www.bsis-ice.de).

<sup>58</sup> "form of ice charts, ice reports of bulletins, or in accordance with the Baltic Sea Ice Code."

<sup>59</sup> "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.", "traffic restrictions, information about traffic control, and the location of the assisting icebreakers and their operational area."

<sup>60</sup> Ice Class Regulations 2008, "Finnish-Swedish Ice Class Rules 2008", Adopted in Helsinki on 8 December 2008 (No. 2530/30/2008), Hereinafter referred to as Ice Class Regulations 2008.

<sup>61</sup> HELCOM RECOMMENDATION 25/7, Adopted 2 March 2004, having regard to Article 20, Paragraph 1 b) of the Helsinki Convention, Hereinafter referred to as HELCOM Recommendation 25/7.

<sup>62</sup> HELCOM Recommendation 25/7, 3.1

<sup>63</sup> " $h_{ice}^2 + 50 h_{ice} = 8R$ "

required data to give that correct level<sup>64</sup> What is the outcome in each case, the traffic restrictions shall be affective, and the general requirements for the traffic restrictions are divided into four classes<sup>65</sup>, that vessels should obey, until the ice service can lighten or remove the traffic restriction, when it sees that the ice is starting to melt and conditions are improving.

During winter time there can be major changes in weather conditions, which will have influence to prevailing ice conditions. In this reason it is required to have a possibility to set exemptions on traffic restrictions if it is possible to do so.<sup>66</sup> Basic rule to lower the traffic restrictions is, that the icebreaking service should not cancel a traffic restriction as long as the water temperature is close to zero degrees, and having the freezing risk. Especially, there is a risk that new ice fields are forming, when the winter season is starting or in the middle of it. When it is clearly starting to be in the end, then it is possible lower the traffic restrictions. However, if the vessel is under the question to have traffic restriction relief, is more than 20 years old, it is not allowed to have such relief.<sup>67</sup>

The basic rule is that a vessel should have proper ice class certification, when entering winter ports. However, If a vessel does not have the required ice class, it may enter a port, if a detailed analysis of the strength of the vessel in the prevailing ice conditions is made.<sup>68</sup> The last point of this section, is to take appropriate actions to secure vessel operations when air temperature is down to minus 30°C.<sup>69</sup>

And in fourth is the operational matters related to winter navigation. This section is divided into two subchapters, one being (4.1) Vessel Traffic Management and Information System in winter, where the other one (4.2) Operational instructions for ships.

Vessel Traffic Management and Information System in winter, practically means, that each country should define one responsible organization to

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<sup>64</sup>“ Where  $h_i$  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%.”

<sup>65</sup> (1) 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. (2) 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. (3) 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. (4) 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.

<sup>66</sup> HELCOM Recommendation 25/7, 3.2.1

<sup>67</sup> HELCOM Recommendation 25/7, 3.2

<sup>68</sup> HELCOM Recommendation 25/7, 3.2.2

<sup>69</sup> HELCOM Recommendation 25/7, 3.3

define and give information<sup>70</sup> on way points to SRS. In this way the important issue of knowing routes, what ships are going to use and in that way being able to locate and control sailing ships in better way. In addition, the national SRS Centres should create clear procedures for the distribution of information on way points to ships, that the national SRS Centre and national Vessel Traffic Service (VTS) can act in cooperation with each other without any problems in forms of given information. Also the national SRS Centre should distribute the defined information to other SRS Centres as well.

The Operational instructions for ships concerns the instruction given for ships sailing in ice covered waters. It is required that the Administrations of the Contracting Parties should give specified instructions<sup>71</sup> for ships, how to navigate in different situations prevailing during their voyage.

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<sup>70</sup> 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.

<sup>71</sup> 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 and icebreaker.

# 5 Finnish Authorities

In the beginning of 2010 the Finnish Maritime Administration and whole public transportation sector was newly formed. Basically the old Finnish Maritime Administration was divided into two different branches, TraFi and Finnish Transport Agency (FTA). TraFi is a formation after the Finnish Maritime Administration, The Finnish Rail Administration and the central administration of the Finnish Road Administration merged. The Finnish Transport Agency is a government agency operating under the jurisdiction of the Ministry of Transport and Communications, and it is responsible for the maintenance and development of the transportation system overseen by the government.<sup>72</sup>

## 5.1 Trafi

The Finnish Transport Safety Agency as the “old” name stands for, and it is more appropriate to clarify what are the main tasks and sectors where the TraFi have most influence. The main objectives of Trafi’s business are guided by Finnish law.<sup>73</sup> Trafi is a common name to the Finnish Transport Safety Agency and it is divided into four division, Aviation, Maritime Sector, Railways and Road Traffic.<sup>74</sup> Its main work into Maritime Sector have seen in fields such as, Dangerous goods, Environmental protection, Finnish register of ships, manning and certification, pilotage authority, ship safety control, port state control, surveys and inspections and technical approval. All the maritime safety regulations and environmental protection actions are done by the TraFi. Its latest and the key factor to this paper is the Ice Class Regulation 2010, which is presented in chapter 4.<sup>75</sup>

## 5.2 The Finnish Transport Agency

Where the TraFi is more about establishing new rules and regulations, the FTA is more about the practical things. Key factors can be divided into five categories and each of them into several subcategories. Main ones are: informational services, fairways and canals, nautical charts, vessel traffic services and winter navigation. Under the winter navigation, the FTA will

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<sup>72</sup> Trafi.

<sup>73</sup> AFT

<sup>74</sup> Ibid.

<sup>75</sup> Ibid.

give information regarding icebreaking, traffic restrictions and rules applying for winter navigation.

The obligation, what the HELCOM Recommendation 25/7 4.2 sets for the administrations of the contracting parties to give operational instructions the FTA is the organization to give such information to vessels. This information<sup>76</sup> is given to all vessels, what they should obey during winter navigation operations in Finnish Waters.

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<sup>76</sup> Finland's Winter Navigation, Instructions for winter navigation operators, Finnish Transport Agency, Winter 2010 – 2011, Hereinafter referred to as Finland's Winter Navigation.

# 6 Convention on the International Regulations for Preventing Collisions at Sea, 1972

When the ongoing discussion is about collisions between vessels during their voyage the most important convention to look at is the COLREGS. It was created to be the main actor and give proper navigation rules to guide maritime navigation through World Seas. When maritime environment has its international effect it also has international influence, where ever it is reviewed. In this perspective, the COLREGS applies to situations on High Seas automatically and gives its perspective and boundaries for national law as well. All United Nation Member States have implemented COLREGS and its rules. This means that, no matter if the vessel is sailing on high seas or territorial waters, crew can rely to fact that the basic principles of COLREGS applies and have to be obeyed, like the rule 1 states.<sup>77</sup>

COLREGS' content is mostly concerning issues in relation for navigation and collision. It has five parts; A,<sup>78</sup> B,<sup>79</sup> C,<sup>80</sup> D,<sup>81</sup> E<sup>82</sup> and each of them have special concentration area<sup>83</sup> for making it easy to find when needed. These special parts shows that the clear purpose is to point out the needed navigational and visual information what is needed to generate safe navigation through general conditions. In addition to broader and general rules, there are many special rules to determine, example how vessels lights should be fitted. However, in this paper the focus is going to be in navigational rules and how those specify collision cases occurred while vessels are using ice channels.

## 6.1 Fairway

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<sup>77</sup> Rule 1(a) These rules shall apply to all vessels upon the high seas and in all waters connected therewith navigable by seagoing vessels.

<sup>78</sup> Part A. General.

<sup>79</sup> Part B. Steering and Sailing Rules, Section .I Conduct of vessels in any condition of visibility, Section II. Conduct of vessels in sight of one another, Section III. Conduct of vessels in restricted visibility.

<sup>80</sup> Part C. Lights and Shapes.

<sup>81</sup> Part D. Sound and Light Signals.

<sup>82</sup> Part E. Exemptions.

Fairway, sea lane and shipping lane are terms used to determine were the actual route, where vessels are able set their route and navigate safely. The area, that is marked as a fairway is marked clearly in charts and are normally marked using lateral or cardinal signs. Sometimes, there are two signs, when the fairway, or “safe water”, is between these two marks. The area behind these marks is properly checked of rocks and etc. and the depth is secured to be at least the informed number. When there is only a one sign, it means that the other side compared to fairway, where it is marked to be in the map, the depth is less what it is informed to be in a chart readings, and there might be some rocks or reefs, which are in more shallow waters than the actual depth of the fairway is. Of course the waters outside or out of the range of these signs might be whatever there might be and if the collision or accident occurs in those waters, authorities are not liable for reasons behind accident in those conditions, if the accident is caused by hitting on rocks, reefs or anything else there might exists.

Talking about fairways, sea lanes and shipping lanes, it is clear that special rules are required in same way than there are special rules for roads and highways for cars and road users. Being more specific, the need of having rules for fairways is present, because the traffic is actually pretty bad in some areas and the size differs a lot between vessels and make it hard to navigate without proper rules.

What makes navigation rules special and how the whole maritime environment differs from land environment. In maritime context, there are “civil boaters” who may not have a clue about certain rules, “commercial yachts” who have the knowledge to obtain rules, “commercial vessels” which crew have to be aware and obtain all rules which the vessel is obliged to follow.

When there is a large container approaching a harbour, there are always a number of “civil boaters”, who may not know how to approach such large containers and containers may never know how “civil boaters” acts and they just have to guess and trust that smaller ones give a needed room to bigger ones.

## **6.2 Sailing Rules**

The part B of COLREGS gives minimum standards for vessels to obey, while navigating through seas. In some extend, it cannot be held literally called “minimum standards”, because it will give quite covered information for vessels to act through number of situations vessel may head up during their voyage.

Main guidelines, what vessels are required to do to avoid collisions are set through rules 5<sup>84</sup>, 6<sup>85</sup>, 7<sup>86</sup>, 8<sup>87</sup>, 9<sup>88</sup> and 10<sup>89</sup>.

Rule 5 is concerning the lookout rules, and for conditions that might prevail during winter months. In winter times it is even more important for vessel to make it sure they are obeying this rule, because of the weather conditions are in most cases worse what it is during summer months. However, as the paper will bring out, there are some cases occurred in Baltic Sea, where one main reasons, why the collision or grounding has occurred was the lack of proper look-out as the Baltic Progress case<sup>90</sup> brings out.

Next one is the rule 6,<sup>91</sup> which is all about the “safe speed” that vessels should keep on, and being able to have the needed agility, what the ship can provide for possible actions might come up at surrounding conditions. Likewise, the previous rule, the “safe speed” has been as well a factor of cause in several collisions occurred in Baltic Sea during winter times. Which was a part of the reason behind the collision in the Geulborg case.<sup>92</sup>

About the actual risk of collision and how to handle it, is covered in the rules 7<sup>93</sup> and 8.<sup>94</sup> Here the main concern is concentrated, that vessels

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<sup>84</sup> “Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.”

<sup>85</sup> “Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid a collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.”

<sup>86</sup> Risk of Collision "assumptions shall not be made on the basis of scanty information, especially scanty radar information"

<sup>87</sup> Action to avoid collision

<sup>88</sup> Narrow Channels

<sup>89</sup> Traffic separation schemes, "if a vessel is obliged to cross traffic lanes it should do so as nearly as practicable at right angles to the general direction of the traffic flow"

<sup>90</sup> Chapter 8.5.

<sup>91</sup> In determining a safe speed the following factors shall be among those taken in to account: (a) By all vessels. (i) the state of visibility; (ii) the traffic density including concentrations of fishing vessels or any other vessels; (iii) the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions; (iv) at night the presence of background light such as from shore lights or from back scatter of her own lights; (v) the state of wind, sea and current, and the proximity of navigational hazards; (vi) the draught in relation to the available depth of water. (b) Additionally, by vessels with operational radar: (i) the characteristics, efficiency and limitations of the radar equipment; (ii) any constraints imposed by the radar range scale in use; (iii) the effect on radar detection of the sea state, weather and other sources of interference; (iv) the possibility that small vessels, ice and other floating objects may not be detected by radar at an adequate range; (v) the number, location and movement of vessels detected by radar; (vi) the more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity.

<sup>92</sup> Chapter 8.1.

<sup>93</sup> (a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist. (b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects. (c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information. (d) In determining if



navigational equipment is in good shape and the vessel is actually properly equipped. Also, a vessel should be able to manoeuvre its position in a way that it may avoid the heading collision. However, like numerous cases shows, this is not the case out there. In many cases, the map equipment is insufficient for conditions surrounding and specially the know-how / knowledge is not there to operate in the needed way what the prevailing conditions demands. When there is a collision occurred between two or more vessel, it basically means that vessels involved to that collision have clearly broken these rules, which is shown through every collision case.

Rule 10<sup>95</sup> makes it certain that if a vessel is crossing traffic lanes, it should do this by trying to be “as nearly as practicable at right angles to the general direction of traffic flow.” The main achievement under this rule for the Baltic Sea has been the development of SRS system as presented in the chapters 4.2 and 2.3.

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risk of collision exists the following considerations shall be among those taken into account: (i) such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change, (ii) Such risks may sometimes exist when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

<sup>94</sup> Any action taken to avoid collision shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship. (b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided. (c) If there is sufficient sea room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that is made in good time, is substantial and does not result in another close-quarters situation. (d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear. (e) If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.

<sup>95</sup> (a) This Rule applies to traffic separation schemes adopted by the Organization. (b) A vessel using a traffic separation scheme shall: (i) proceed in the appropriate traffic lane in the general direction of traffic flow for that lane; (ii) so far as practicable keep clear of a traffic separation line or separation zone; (iii) normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from the side shall do so at as small an angle to the general direction of traffic flow as practicable. (c) A vessel shall so far as practicable avoid crossing traffic lanes, but if obliged to do so shall cross as nearly as practicable at right angles to the general direction of traffic flow. (d) Inshore traffic zones shall not normally be used by through traffic which can safely use the appropriate traffic lane within the adjacent traffic separation scheme. (e) A vessel, other than a crossing vessel, shall not normally enter a separation zone or cross a separation line except: (i) in cases of emergency to avoid immediate danger; (ii) to engage in fishing within a separation zone. (f) A vessel navigating in areas near the terminations of traffic separation schemes shall do so with particular caution. (g) A vessel shall so far as practicable avoid anchoring in a traffic separation scheme or in areas near its terminations. (h) A vessel not using a traffic separation scheme shall avoid it by as wide a margin as is practicable. (i) A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane. (j) A vessel of less than 20 metres in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.

## 6.2.1 Overtaking Rule

The applying rules for overtaking situations are covered in the COLREGS rule 13.<sup>96</sup> Giving a proper look for the rule, the subsections shall be opened here and compared to ice channel situations in later context of this paper.

The wording in paragraph (a) brings it out that an overtaking vessel shall give appropriate room of the vessel being overtaken regardless what is said in other rules in Section II, by giving wording “notwithstanding anything in the rules of this section”.<sup>97</sup>

Paragraph (b) establishes three factors when the vessel in question is an overtaking vessel. First one to raise attention is the term “coming up” or other words, closing the gap between her and a vessel in front.<sup>98</sup> Second clear factor is the described compass degree in relation between these two vessels. The vessel approaching shall take a position from 22.5 degrees abaft port or starboard beam of the vessel being overtaken.<sup>99</sup> In addition, the third one, gives clearer view for a position required from these two vessel that the existing situation can be seen as overtaking position. In this meaning, the overtaking vessel shall be able to see only the sternlight of the vessel being overtaken.<sup>100</sup> In case, if the overtaking vessel is able to see sidelights of the vessel being overtaken, her position is going to be more than 22.5 degrees and required angle for overtaking is changed. Rules governing lights and visibility issues can be found in Part C.<sup>101</sup>

Paragraph (c) brings out a concern to avoid situations, where vessels are concerning the situation existing to figure out is the vessel in question having the “overtaking” status or not and how it should then behave. By giving a wording “in any doubt” a vessel having a concern of the status it should always take the status of overtaking and act under the way described in paragraph (a).<sup>102</sup>

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<sup>96</sup> (a) Notwithstanding anything contained in the Rules of this Section any vessel overtaking any other shall keep out of the way of the vessel being overtaking. (b) A Vessel shall be deemed to be overtaking when coming up with another vessel from a direction more than 22.5 degrees abaft her beam, that is, in such a position with reference to the vessel she is overtaking, that at night she would be able to see only the sternlight of that vessel but neither of her sidelights. (c) when a vessel is in any doubt as to whether she is overtaking another, she shall assume that this is the case and act accordingly. (d) Any subsequent alteration of the bearing between the two vessels shall not make the overtaking vessel a crossing vessel within the meaning of these Rules or relieve her of the duty of keeping clear of the overtaken vessel until she is finally past and clear.

<sup>97</sup> Proshanto K. Mukherjee, Overtaking or Crossing: Judicial Interpretation and Mariner’s Dilemma, *Journal of Maritime Law and Commerce*, vol. 23, April, 1992, Hereinafter referred to as Proshanto K. Mukherjee, Page 248.

<sup>98</sup> *Ibid*, Page 249.

<sup>99</sup> *Ibid*.

<sup>100</sup> *Ibid*.

<sup>101</sup> COLREGS, Part C. Lights and Shapes, Rule 21 Definitions, (B) Sidelights, Rule 22 Visibility of lights.

<sup>102</sup> Proshanto K. Mukherjee, Page 250.

Paragraph (d) lays down a principle for “once an overtaking vessel, always an overtaking vessel”. Meaning that, when an overtaking vessel goes ahead of the vessel overtaken, the situation remains until the overtaking situation is clearly over, and any new action done by overtaking vessel causes no need to deviate of the course of overtaken vessels. When the overtaking vessel is safely ahead it can change its course and then situation between these two vessels can be seen differently.<sup>103</sup>

Summing up the overtaking issue, it might seem clear when a vessel is having the overtaking position what it should do. However, this is not the case. Sometimes the masters may think differently and a master from other vessel is making certain assumptions in behalf of the other and act under the assumption made. Example, one is having doubts of the overtaking position and plays it safe and acts under the paragraph (c), when the other one makes a decision that this is not an overtaking situation and positions the ship as a give-way vessel.

## 6.2.2 Crossing Rule

Crossing Rule can be found in rule 15,<sup>104</sup> where can be found three key elements, which defines the crossing situation. First, the term “power-driven vessel” is meant to mean only power driven vessels as various cases defines it to be used. So there cannot be a crossing situation if one of the vessels, which have a crossing heading, is not equipped with an engine to produce power.<sup>105</sup>

Second definition clarified is the “starboard side vessel” meaning a vessel, which should be the one with a lane or heading position in a manner that the vessel which have a vessel on her starboard side should alter her course in a way that the vessel on her starboard side can pass without an existing risk of collision between these two vessels.<sup>106</sup>

Third element is wondering around defining the existing risk of collision in crossing situations. One could be, that if the estimated crossing, with these two vessels course occurs to be at the exact same time at the same navigational point, there is a risk of collision. When the risk exists the starboard side vessel have to keep her status and the port side vessel shall maneuver in a way that the crossing ahead must be avoided.<sup>107</sup> However, through the practice and case law, the starboard side vessel have also a duty

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<sup>103</sup> Ibid.

<sup>104</sup> “When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.”

<sup>105</sup> Proshanto K. Mukherjee, Page 250.

<sup>106</sup> Ibid, Page 251.

<sup>107</sup> Ibid.

to control that the port vessel is doing the needed maneuver to avoid the crossing, if not then the obligation lies in the starboard side vessel. However, if it is clearly seen that vessels are crossing their heading, but the time differs in a way that, the crossing does not raise any special actions for vessels to do avoiding the collision, the question in matter is not crossing situation.

### 6.2.3 Give-way And Stand-on Vessels

Collision being one of the most common reason behind vessel accidents, the clear rules are made to observe clear tools for vessels to use when trying to avoid collisions. Here the main terminology is set to be in terms Give-way and Stand-on vessels. These two determines, which one of the vessels should be the active one to take steps to avoid the heading risk of incoming collision.

When the situation can be defined and found a clear status for vessels of stand-on and give-way vessels, it is clearly brought out what these vessels should do to avoid a collision under the rules 16<sup>108</sup> and 17<sup>109</sup> of COLREGS. Rule 16 clearly points out that a vessel, which position is as a give-way vessel should keep out of the way of another vessel, and do all correcting maneuvers needed in early stage to keep well clear position towards a stand-on vessel. In addition in a way that there is no chance of hesitation in behalf of stand-on vessel, what the give-way vessel is going to do.<sup>110</sup>

Where rule 16 gives a clear position to its subject, the rule 17 have some “however” included. The first part (a) (i), brings out the same rule what the rule 16 have, but in a perspective of a stand-on vessel. However, the (ii) mixes things up, by bringing out the terms “apparent” and “appropriate”. Being not exact precise terms it is hard for a stand-on vessel to make the final decision when it is coming clear that there is going to be a collision and a give-way vessel is not going to act under rule 16.<sup>111</sup> Equally confusing is the term “appropriate action” to avoid collision. Of course it can be said

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<sup>108</sup> ”Every vessel which is directed to keep out of the way of another vessel shall, as far as possible, take early and substantial action to keep well clear.”

<sup>109</sup> (a) (i) Where one of two vessels is to keep out of the way the other shall keep her course and speed. . (ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules. (b) When, from any cause, the vessel required to keep her course and speed finds herself so close that collision cannot be avoided by the action of the give-way vessel alone, she shall take such action as will best aid to avoid collision. (c) A power-driven vessel which takes action in a crossing situation in accordance with sub-paragraph (a)(ii) of this Rule to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side. (d) This Rule does not relieve the give-way vessel of her obligation to keep out of the way.

<sup>110</sup> Proshanto K. Mukherjee, Page 252.

<sup>111</sup> Ibid.

that the appropriate means that vessels are safe from colliding each other. However, there might be differences between persons onboard a vessel what can be seen as an appropriate action. This can be seen to go under the good seamanship, but as seen in practice, when relying only to good seamanship things might go wrong. In addition, the good seamanship demands a lot from crew's knowledge to navigate in that certain conditions what the final decision is going to be.

Part (b) is a bit confusing in its own wording in comparison to text found in previous part (a) (ii). If a stand-on vessels acts in accordance to (a) (ii), there are no change to face itself in a situation as described in part (b).<sup>112</sup>

Part (c) sets a restriction to a stand-on vessel not to alter course to port for a vessel on her own port side. By this, it eliminates one option or confusion between vessels to change their course when the collision may occur during crossing situation.<sup>113</sup>

## 6.2.4 Narrow Channels

An additional question under the main question of this paper, is concerning what the "narrow channel" means and when that applies. As it is stated in the COLREGS rule 9,<sup>114</sup> it only gives navigational rules for vessels to act when approaching and / or entering a narrow channel. Could it be seen that the ice channel can have a status of narrow channel, and if so, could it have it automatically or is there some special circumstance needed.

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<sup>112</sup> Ibid.

<sup>113</sup> Ibid.

<sup>114</sup>(A) a vessel proceeding along the course of a narrow channel or fairway shall keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable. (b) A vessel of less than 20 metres in length or a sailing vessel shall not impede the passage of a vessel which can safely navigate only within a narrow channel or fairway. (c) A vessel engaged in fishing shall not impede the passage of any other vessel navigating within a narrow channel or fairway. (d) A vessel shall not cross a narrow channel or fairway if such crossing impedes the passage of a vessel which can safely navigate only within such channel or fairway. The latter vessel may use the sound signal prescribed in Rule 34(d) if in doubt as to the intention of the crossing vessel. (e) (i) In a narrow channel or fairway when overtaking can take place only if the vessel to be overtaken has to take action to permit safe passing, the vessel intending to overtake shall indicate her intention by sounding the appropriate signal prescribed in Rule 34(c)(i). The vessel to be overtaken shall, if in agreement, sound the appropriate signal prescribed in Rule 34(c)(ii) and take steps to permit safe passing. If in doubt she may sound the signals prescribed in Rule 34(d). (ii) This Rule does not relieve the overtaking vessel of her obligation under Rule 13. (f) A vessel nearing a bend or an area of a narrow channel or fairway where other vessels may be obscured by an intervening obstruction shall navigate with particular alertness and caution and shall sound the appropriate signal prescribed in Rule 34(e). (g) Any vessel shall, if the circumstances of the case admit, avoid anchoring in a narrow channel.

The general assumption of narrow channel rules is that the larger vessel goes first and the smaller one makes it possible that the bigger vessel can pass safely. However, if the smaller one is already in the narrow channel, larger one should wait until it is able to continue its voyage. In addition, vessels navigating in narrow channel they shall be conducted with utmost care. And if this should be the case in all weather conditions, as the cases will show in chapter 8, this hardly ever come in question, and seafarers are navigating through normal manners, at least what the judge believes in most cases.<sup>115</sup>

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<sup>115</sup> Ibid.

# 7 Finnish National Legislation

## 7.1 Relevant Laws and Regulations from Finnish Legislation

The Sea Act<sup>116</sup> is the main tool to give general rules and definitions through the field. Issues dealt in the Sea Act are concerning general regulations for vessels, which are sailing under the Finnish flag and in the Finnish waters. In addition, all the liability rules to cover following situations like, arrest, collisions, carriers and ship owners can be found from the Sea Act, if the liability question is raised.

One important legislation is the Pilot Act,<sup>117</sup> which revoked by the new Pilot Act at 1 of July 2011. Through the act its main concern is to maintain safe navigation by setting pilot regulations for vessel, entering Finnish ports.

Another one is the Inland Rules,<sup>118</sup> which sets the competent acting authorities concerning water transportation. Under the article 2, the acting authority in a cooperation with the Finnish Maritime Administration may and shall give amending regulations and rules concerning traffic schemes, when and if it is sees necessary to do so.

In the meaning of amending regulations under the Inland Rules, the Act on Fairway Dues,<sup>119</sup> where all the necessary issues relating to fairway dues are handled. Another is the Vessel Traffic Service Act,<sup>120</sup> where are rules concerning VTS service. Next one with a relation to paper's topic is the Channel Depth Practice in Finland,<sup>121</sup> where is the information given concerning how the fairway and channel depth's are calculated and should be understood, when navigating through Finnish waters.

In addition, there are certain Acts and Regulations concerning mainly navigation in ice conditions. These are the Act on The Ice Classes of Ships and Icebreaker Assistance,<sup>122</sup> Ice Class Equivalence and Ice Class

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<sup>116</sup> Merilaki, [Sea Act], 15.7.1994/674, Hereinafter referred to as Sea Act.

<sup>117</sup> Luotsauslaki, [Pilotage Act] 21.11.2003/940.

<sup>118</sup> Asetus yhteentörmäämisen ehkäisemisestä sisäisillä kulkuvesillä, (Sisävesisäännöt), [Inland Water Rules], 30.3.1978/252, § 2.

<sup>119</sup> Väylämaksulaki, [Fairway due act], 22.12.2005/1122, amendments up to 787/2008 included.

<sup>120</sup> Alusliikennepalvelulaki, [Vessel Traffic Service Act], 5.8.2005/623.

<sup>121</sup> The Channel Depth Practice in Finland, No. 1343/610/2005, Finnish Maritime Administration Bulletin, 8/12.7.2005.

<sup>122</sup> Laki alusten jääluokista ja jäänmurtaja-avustuksesta, [Act on the Ice Classes of Ships and Icebreaker Assistance], 22.12.2005/1121.

Regulations and The application Thereof,<sup>123</sup> and the 2010 Ice Class Regulations.<sup>124</sup>

## 7.2 International Conventions and National Law

In maritime world the national law is mostly based on international conventions, and in this case, talking about COLREGS and Finnish national law, the matter is same here. Finland have adopted the COLREGS and is identified by an act number 30/1977.<sup>125</sup>

All Finnish laws concerning maritime safety, are in a consensus with international conventions and regulations. The only difference worth to mention under the paper's topic is concerning narrow channels, where the main and actual difference is about the vessel's size (length) to determine give-way rules concerning this kind of situation. Under Finnish rules it gives the vessel size limit to a smaller one than the COLREGS rules.

Bringing out the question concerning to narrow channels, which may take a difference when sailing in ice channels and certainly sailing through Finnish archipelago. Drafters leaving the definition out from the text when drafting the 1972 COLREGS, against what was proposed, have caused some issues in all seas. It can be only guessed why this was the case, perhaps it was seen that sea fearers should recognize a narrow channel when they are in one.<sup>126</sup>

Internationally this narrow channel question has not got a clear definition what it is and what is required it to have. Basically there can be found a distinction to separate narrow channels and fairways from other waterways, by looking characters like, "narrow and shallow waterway, geometry, blind bends, sharp turns, tide and river stage fluctuations, powerful and sometimes unpredictable currents and the forces of hydrodynamic interactions."<sup>127</sup> Proposed action, in the US waters is given for vessels to ask guidance from Coast Guard to tell them is the channel issued to be a narrow channel of a normal channel.<sup>128</sup> Without having a proper source to determine what channel is a narrow channel or a normal one, there will be collisions on continuous basis, at least close calls, when a one vessel is taking the channel

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<sup>123</sup>Finnish ice classes equivalent to class notations of recognized classification societies, TRAFI/31299/03.04.01.00/201, (Classification),

<sup>124</sup> 2010 Ice Class Regulations, TRAFI/31298/03.04.01.00/201.

<sup>125</sup> Meriteiden säännöt, [Seaway Rules], 17.5.1977/30.

<sup>126</sup> Craig H. Allen, Taking Narrow Channel Collision Prevention Seriously To More Effectively Manage Marine Transportation System Risk, *Journal of Maritime Law & Commerce*, Vol 41, No 1 January 2010, Page 4, Hereinafter referred to as Craig H. Allen.

<sup>127</sup> Craig H. Allen, Page 4.

<sup>128</sup> Craig H. Allen, Page 50.



as a narrow channel and the other one is taking it as a normal channel. This because the sailing rules differs quite significantly in these two, what is seen from the COLREGS rule 9.

In this relation the Finnish legislative practice have bring out the issue by not giving out a clear definition for a narrow channel. Meaning what does it have to have for creating a narrow channel. Common assumption for a definition being today for being a narrow channel, from legal perspective is that, if the fairway is marked with buoys, light boys or other appropriate measures it is held to a narrow channel regardless of its wideness.<sup>129</sup>

In addition, to already mentioned rules, the one that have to mentioned in this context is the 1910 International Convention for the Unification of Certain Rules,<sup>130</sup> which will have certain rules unified to meet some standards in Worldwide perspective.

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<sup>129</sup> Hannu Makkonen, Urho, 26.3.2011.

<sup>130</sup> 1910 International Convention for the Unification of Certain Rules of Law Related to Collision Between Vessels and Protocol of Signature, Adopted Brussels, Belgium on 23 September 1910.

# 8 Finnish Case Law

## 8.1 Ice Channel / *MV Geulborg*

The main question and argument in *Geulborg* case<sup>131</sup> is concerning damages. However, in this consensus, research is focusing into a question of ice channel and how it was discussed in court. The court tried to find a liable party taking actions to solve the ice channel navigation during trial to find out what was the main reason behind this collision.

### 8.1.1 Facts

Vessels involved to this case are *MV Geulborg* and *OOCL Newskiy*. *Geulborg* started its voyage on 12.2.2003 from the port of Hamina, and headed towards the discharge port. When she was navigating through Finnish archipelago waters, two nautical miles from the south waypoint of Stora Brändö/ Brändö Klacken, the local VTS station reported a heading course between her and *Newskiy*. *Newskiy's* pilot and *Geulborg's* pilot communicated between each other of the vessels positions and standings. In addition, *Newskiy's* pilot suggested that they should do passing by keeping to the right of the fairway.

When vessels were approaching, *Geulborg's* second officer was on watch with the pilot. Pilot was reading one radar, and second officer was trying to do the same by using the other radar. However, he was unable to do that, because of the disturbance on radar readings what he ice caused. *Newskiy's* pilot was following *Geulborg's* actions and he noticed that *Geulborg* was heading for the starboard side of his ship. This was the time when *Geulborg* had reached the turning area, where *Newskiy* was completing her own starboard turn. After this, *Newskiy's* pilot took the rudder fully over to starboard, and shortly afterwards *Geulborg's* second officer saw *Newskiy's* fore-castle light and realized that vessels were about to collide. Same time *Geulborg's* pilot took hard starboard and the second officer put the engine in reverse. Nevertheless, head-on collision could not be avoided. Parties are not able to agree what is the actual place where the collision took place.

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<sup>131</sup> Raasepori District Court, 11/337, 11.1.2011, Vahinkovakuutusyhtiö Pohjola vs. MS "JAN" Schiffahrtsgesellschaft GmbH & Co. KG and Verwaltungs MS "ATHENA" Schiffahrtsgesellschaft MbH and Rainer Fred August Drevin KG, Rainer Drevin.

## 8.1.2 Court Ruling

First of all it has been more than seven years when the accident took place, and now the district court gave its opinion and the information given, this case is going to move forward to face appeal court, which will take some more time.

In its actual findings the Court find out that the question present is not concerning how a channel or fairway is defined under maritime rules. Moreover, the issue is to define, whether the ice channel and how sailing rules apply there in comparison to open water situations.

According to GPS positions, the ice channel was off from the lane alignment in the place where the accident was claimed to take place. 500 metres before of the waypoint the ice channel was on the lane alignment. When continuing the route at north east, the ice channel and lane alignment comes together after 1.5 kilometres. These numbers are based on pictures taken from a helicopter. Plaintiff have also stated that the ice channel have kept its position and have not moved after the collision took place. This claim is based on the satellite pictures taken by Finnish Maritime Administration. Plaintiff have also stated that *Geulborg* have stayed at her own side when using the ice channel, whereas Newskiy have used the left side of the ice channel during her turning, which was the actual reason to set these two vessels on collision course. Plaintiff have stated that, an ice channel forms a clear fairway area and in that reason there is a clear channel existing, where sailing rules has to apply and vessels shall obey those rules, while navigating in ice channels. In this case the midpoint rule of a channel exists in same way as it would in open water conditions and in this meaning vessels should have kept their own side.

Defendant presents, there are no chance that the ice channel have kept its position, as simply by the reason of time passed, and the traffic passing the accident place. There goes give and take 80 vessel per day, which will cause draft and floatation to ice floes. To respond to sailing rule question, defendant brought out the fact, that the ice channel was located wholly, on the south side of the defined lane alignment. Therefore, under the applying sailing rules *Geulborg* navigated on the wrong side of the lane. However, according to COLREGS sailing rules, there are no special definitions or references to ice conditions, so the basic rules is seen to be in force and applicable to ice conditions as well as open water conditions. When there is no clarification of the ice channel, there is no way that the rule 9 (a) of the COLREGS can be applicable. If the rule 9 (a) could be applicable to ice channels, then the ice channel shall be seen as a defined shipping lane. According to general sailing rules on winter transportation, vessels should obey navigation rules and navigation guidance's given at that moment. Here, when the ice channel located on a right side of the shipping lane alignment, means, that a heading vessel, should give room or give a free lane for a passing vessel.

The district court states that, according to legislation and other authority regulations and recommendations, there cannot be found any definitions to determine an ice channel. Therefore, when a vessel is navigating in an ice channel, she should obey the sailing rules in best possible way, unless something else is ruled or recommended by authorities. The fact, that maritime field, understands that the ice channel is a floating object and changes all the time, has come clear to the court. However, prevailing conditions at the time of the accident has not come clear to a court. The district court, sees no reason to give any special status for an ice channel. Therefore, all vessels navigating in existing ice channels should obey the sailing rules and follow the principle of good seamanship. However, if a situation, where heading vessels are not able to follow applying sailing rules, they shall obey the special regulations that applies to those situations, as they should automatically do in all cases.

While considering the ice channel, it cannot be held clear, that an ice channel have a clear midpoint, which defines where and how vessels should act in a heading situation. The fact that, the ice channel is clearly located on the other side of a shipping lane, does not automatically create a situation, where either of the vessels is navigating on a wrong side of the lane. Situations like this should be looked in case by case basis.

In the case, persons on board, specially pilots, of both vessels are experienced professionals, who should have known all the special needs, what the prevailing conditions creates, and they should have been acting under the rules and regulations. Especially not to forget the principle of good seamanship. Navigating in ice channel, should not create any difference to that situation. In addition, the ice channel in matter locates in archipelago waters, which creates a situation where vessels must be conducted with utmost care.

In addition, plaintiff presented the thought, that a stronger vessel should give room for a weaker one. Because, the stronger vessel carries a stronger chance to break through an ice field, where the weaker one just gets stuck or not even getting out from the ice channel. Defendant sees that this kind of action is not required to do under the good seamanship or from the practice side. Pilots on board did not conduct any kind of communication relating to this sort of action, therefore it cannot be found that there was born this kind of assumption. There were no information between vessels concerning which is the stronger one. In this relation a stronger vessel means, a vessel which have better ability to manoeuvre in ice conditions. The district courts found the inaccuracy to use the term “stronger vessel” in this relation. Because of the single facts of vessel’s specs of size and power does not reveal vessel’s ability to manoeuvre in ice conditions. What the good seamanship would have required to be done, is that *Geulborg* should have told to *Newskiy*, that she is not able to move anymore on her right side. The final solution of district court’s decision is, if *Geulborg* and *Newskiy* had kept the port – port heading, they would have been able to managed their

headings and pass them without causing any harm, in prevailing conditions at the time of accident.

## **8.2 Communication between Vessels / *MT Argentum***

### **8.2.1 Facts**

This case<sup>132</sup> shows the fact, where the shipping lane is or at least is imagined to go when vessels are using ice channels. A collision occurred between two vessels, while navigating in the ice channel. Vessels involved are an icebreaker *JM Voima* (Finnish Flag) and a chemical tanker *MT Argentum* (Swedish Flag).

How this collision was seen from *Argentum's* side. *Argentum* was navigating by using the ice channel and sees that she is under the assistance from *Voima* and waits her commands to navigate forwards. Then *Argentum* sees that *Voima* is in the middle of the lane and is not showing any signs, (lights or sound) of its current status. Actions done by *Voima*, Finnish FTA should bear the costs of SEK 118.110,00 and legal costs.

How this collision was seen from *Voima's* side. There was an ice channel existing, and the *Voima* was standing proximately 200 meters away from that ice channel, which was meant to be a shipping lane used for over a week at that time. Another ice breaker *Varma* gave route points for *Argentum* to follow. Therefore, there were no assistance relation between *Voima* and *Argentum*. *Argentum* was aware more than half an hour before facing *Voima*, where it is standing. At the time of collision the *Voima's* position was still the very same one. *Argentum* was not following the existing ice channel, which was used as a shipping lane. Because of the *Argentum's* action, Shipowner should bear the costs of FIM 419.047,69 and legal costs.

### **8.2.2 Court Ruling**

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<sup>132</sup> District Court of Kotka, S 88/72/4, State of Finland and Finnish Maritime Administration vs. Partrederi för M/T *Argentum* and Laurin Maritime ab & Co, Göteborg.

Issue of icebreaker assistance is ruled, and *Argentum* was not under the assistance of *Voima*. Therefore that there were any assistance contract made and it needs to be done before such a relationship exists.

Winter conditions affecting and an ice channel in use, it shall be seen that the shipping lane is that certain ice channel and follow that one. If a vessel cannot be sure if the ice channel has kept its location for comparison to time when it was opened and where it should be, she should ask where it goes. If this is the case, it shall be assumed that vessels are using that open ice channel. However, *Voima* should have been aware of the possibility that vessels are using the light equipped lane, in that perspective *Voima* should have taken a standing point further away from the lane.

While standing in a full stop, and unable to manoeuvre, *Voima* failed to blast appropriate voice signals, what is set under the COLREGS rule 27.<sup>133</sup> When *Argentum* was not aware, where the existing ice channel goes, they should have asked it from *Voima*, instead of continue its heading and following the wrong ice channel, which was not meant to be used as a shipping lane. In addition, if *Argentum* had main its speed and course there have not been any collision view. In conclusion, *Voima* did violate the principle of good seamanship, by standing too close in to the actual ice channel, by violating COLREGS rules 34 (d),<sup>134</sup> 35 (c)<sup>135</sup> and 36.<sup>136</sup> *Argentum* violated COLREGS rules 6,<sup>137</sup> 7,<sup>138</sup> 8,<sup>139</sup> 18 (a),<sup>140</sup> 19 (b)<sup>141</sup> and

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<sup>133</sup> Vessel not under command or restricted in their ability to manoeuvre; (b) A vessel restricted in her ability to manoeuvre, except a vessel engaged in minesweeping operations, shall exhibit: (i) three all-round lights in a vertical line where they can best be seen. The highest and lowest of these lights shall be red and the middle light shall be white; (ii) three shapes in a vertical line where they can best be seen. The highest and lowest of these shapes shall be balls and the middle one a diamond; (iii) when making way through the water, masthead lights, sidelights and a sternlight, in addition to the lights prescribed in subparagraph (i); (iv) when at anchor, in addition to the lights or shapes prescribed in subparagraphs (i) and (ii), the light, lights or shape prescribed in rule 30.

<sup>134</sup> Manoeuvring and warning signals (d) When vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other, or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle. Such signal may be supplemented by a light signal of at least five short and rapid flashes.

<sup>135</sup> Sound signals in restricted visibility (c) A vessel not under command, a vessel restricted in her ability to manoeuvre, a vessel constrained by her draught, a sailing vessel, a vessel engaged in fishing and a vessel engaged in towing or pushing another vessel shall, instead of the signals prescribed in paragraphs (a) or (b) of this Rule, sound at intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts

<sup>136</sup> Signals to attract attention; If necessary to attract the attention of another vessel any vessel may make light or sound signals that cannot be mistaken for any signal authorized elsewhere in these Rules, or may direct the beam of her searchlight in the direction of the danger, in such a way as not to embarrass any vessel.

<sup>137</sup> See Foot Note 82.

<sup>138</sup> See Foot Note 84.

<sup>139</sup> See Foot Note 85.

35 (a).<sup>142</sup> Based to this *Voima's* influence to this accident have been 1/10 and *Argentum's* 9/10.

### 8.3 Crew's Knowledge / *JM Voima*

This incident<sup>143</sup> is a great example to show the importance of crew members knowledge to act in winter conditions, and being able to work during difficult circumstances, what the vessel may face during her voyage. In addition the guidance what the icebreaker gives for vessels under their assistance should be given with care.

Bulk carrier *Tanja* was approaching Helsinki, but because of heavy wind and moving ice it was instructed to wait outside the fairway of Porkkala. While navigating in ice channel *Tanja* asked icebreaker assistance. *Voima* started to assist *Tanja*, but she was unable to follow the trace and got stuck. The location where *Tanja* got stuck, was just next to rocks, but still laying on safe waters. *JM Voima* responded *Tanja's* call and approached the location of *Tanja* to start assisting her again.

When *JM Voima* tried to take its assistance position, in this case it required towage assistance, problems started to raise. *Voima's* crew experienced during the attachment, that *Tanja's* crew was unprepared and unable to attach cables in right and demanded way in towage situation. Because of the long time the operation took for *Tanja's* crew members to attach the cables, both vessels started to drift. *Voima's* crew did not saw that it would take such a long time, and their position was close to rocks, and they were unable to start the towage, because they were still trying to attach those cables properly and was unable to alter their position while attaching the cables, and as a result of that, *Voima* grounded.

Instead of one vessel being in trouble, now there were one carrier stuck and an icebreaker grounded, which will cause even more problems to other vessels who are in the need of assistance. The situation of *Tanja* being stuck, may have been avoided if the crew have been well trained to operate in ice conditions, but the circumstances can be in form, where that kind of ship is just unable to navigate on their own. In addition, the information

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<sup>140</sup> Responsibilities between vessels; (A) power-driven vessel underway shall keep out of the way of: (i) a vessel not under command; (ii) a vessel restricted in her ability to manoeuvre; (iii) a vessel engaged in fishing; (iv) a sailing vessel.

<sup>141</sup> Conduct of vessels in restricted visibility; (b) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate manoeuvre.

<sup>142</sup> Sound signals in restricted visibility; (a) A power-driven vessel making way through the water shall sound at intervals of not more than 2 minutes one prolonged blast.

<sup>143</sup> Accident Investigation Board of Finland, C4/2004M, Icebreaker *jm Voima*, Grounding at Ulkomatala of Helsinki on 11.4.2003.

given should have been better considered from *Voima's* side. However, the lack of knowledge to attach towing cables on rough conditions is something, that a vessel crew should be able to do. Especially, when a vessel is more likely to face such problems.

## **8.4 Navigational Equipment Onboard / *Okna***

### **8.4.1 Facts**

In this case,<sup>144</sup> the issue is concerning navigational equipment, what a vessel should have onboard when navigating on foreign waters.

*Okna* was approaching a pilot station with an intention to take a pilot onboard. However, its route was going too far in east, which was reported from the pilot station. After this the guidance to alter their course *Okna* should take a heading more into the south when entering the approaching lane. Pilot entered onboard and shortly after that *Okna* grounded next to a Varmbådan's light buoy, which was not working at that time. In addition the Northern light buoy of Smultrongrundens was also not working.

### **8.4.2 Court Ruling**

Finnish court based its ruling into a fact that *Okna* was not carrying proper navigational equipments. In this case, she did not have a Finnish chart onboard. They only had a Finnish chart available, when the pilot came onboard the vessel, which in that time was way too late. In this perspective, the non-working light buoys did not have any actual relevance to a reason why *Okna* grounded. Problems started when *Okna* was making its turning without proper charts onboard, and taking a long turn and was not anymore inside the shipping lane. At that time the chart she was using, created the breach of respecting a good seamanship in safe navigation. In that reason it was *Okna's* fault in all parts and she should bear all the legal fees what was caused to Finland.

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<sup>144</sup> The courts of appeal, S 00/150, Compagnie de Transport Maritime and Al Amane vs. State of Finland and Finnish Maritime Administration.



*Okna's* ship owner Compagnie de Transport Maritime brought this in front of the court of appeal. Court of appeal did not see any need for changing the district court's ruling.

## **8.5 Ice Causing Distractions to Radar Readings / *MS Baltic Progress***

### **8.5.1 Facts**

In this case<sup>145</sup> the main accusation is directed towards two persons on watch when the grounding occurred. These persons are the pilot onboard Mr. Erikson and the first mate Mr. Latter. The main accusation was concerning the negligence of persons' actions who were on watch when the accident happened.

Surrounding conditions were hard to navigate, because there were numerous ice floes and in addition to that a thick fog was prevailing, which were causing visual problems to observe where buoys are. The pilot, who was onboard, navigated the vessel, in a cooperation with the first mate, by using a radar, because they were unable to see anything from the windows. Using only the radar readings they were unable to locate all buoys, because the ice was causing disruptions to the radar outcome. In the end, they were able to locate Råklubb's and Svarklunn's buoys. However, vessel grounded when it was passing Råklubb's buoy and in the same matter the Råklubb's buoy was damaged.

### **8.5.2 Court Ruling**

In its ruling the court found that, Erikson and Latter, both have acted negligently and are the main reason why this accident happened.

Erikson's part; court found, that he failed to secure that the vessel is following the shipping lane, what was meant to be used. In addition, he should have kept better reading of the vessel's standing at all time, because of the prevailing weather conditions. And the last point, Erikson has failed to follow good seamanship by not telling about the required actions to

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<sup>145</sup> District Court, R 94/489, State of Finland and Finnish Maritime Administration vs. United Baltic Corporation Ltd.

maintain vessels security for vessel's officer of the watch. In these reasons Erikson should bear 3/5.

Latter's part; court found, that he failed to follow the good seamanship principle while observing the vessel's safety. In addition, he acted negligently when navigating and negligently stationed the vessel in to the position she ended. In these reasons Latter should bear 2/5

Under the Finnish Tort Liability act Chapter 3 § 7,<sup>146</sup> Finnish state does not have the liability to cover damages caused by on duty pilot, and in this reason the shipowner is liable to cover damages caused by Mr. Latter (2/5).

Both parties appeal and the case goes to Appeal Court, which did not change the outcome of District Court's decision. It was appealed further and the Supreme Court kept the District Court's decision in force.

## **8.6 Grounding while Navigating in the Ice Channel / *MS Finnboard***

### **8.6.1 Facts**

This case<sup>147</sup> brings out the liability question of icebreakers and state liability, when an ice channel is opened by using only a radar readings and not secured the position of the opened ice channel, and a vessels grounds by using the opened ice channel, even though it has been warned about the fact that the ice channel was opened by using the radar.

*Finnboard* grounded while navigating in ice channel. The ice channel was opened by using the radar, so it was not secured in any other way. When icebreaker *JM SISU* opened that ice channel, it did not report that there was any visual distractions. *Finnboard* was navigating through the ice channel and received a warning from *SISU*, that the ice channel is opened by using the radar nothing else, so while driving there, vessel should secure its position and have proper look out. Nevertheless, *Finnboard* grounded. Later checking showed that the upper light buoy was showing wrong readings.

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<sup>146</sup> "The state and the municipalities shall not be liable in damages for injury or damage caused in maritime piloting." This article has been revoked at January 1 2011 (LiVM 18/2010).

<sup>147</sup> The Supreme Court, KD 204/69/607, State of Finland vs. Finlines.

## 8.6.2 Court Ruling

The absolute responsibility lies in the vessel and its master side, and she should not trust for light buoys. In this reason the liability is divided  $\frac{3}{4}$  to *SISU* and  $\frac{1}{4}$  *Finnboard*. Under the Finnish law,<sup>148</sup> if there is a damage caused to a vessel by the action of icebreaker, Finnish government has no right to restrict shipowners liability. In that reason, the *Finnboard* should bear  $\frac{1}{4}$  of the damages, in the reason of its own negligence. Where icebreaker's master is free from charges under the Sea Act § 67 (3). The Finnish State should bear  $\frac{3}{4}$  of the damages for the damages *Finnboard* have suffered under this matter.

This ruling was applied to Appeal Court, where the only change was made that actual damage sums were raised. After that it was applied to Supreme Court, but they did not allowed the application.

## 8.7 Grounding and Navigation / *MS Arctic Wasa*

### 8.7.1 Facts

In this case<sup>149</sup> the main issue and discussion is concerning vessel navigation in areas outside of the actual shipping lane, and can they rely to chart readings or are vessels navigating there at their own risk.

*Wasa* left the port and joined a convoy where were slower vessels standing in front of *Wasa*. Icebreaker *JM Frej* was the convoy leader and breaking the ice in front of vessels. The convoy was navigating slower than *Wasa* was able to maintain, so *Wasa* decided to speed up and moved out of the ice channel and started to overtake other vessels. When *Wasa* was overtaking it suddenly grounded, when passing Altappen, where charts shows that nearest shallows are in 37 meters and 17 meters. However, the rocks that *Wasa* grounded were only in 9 meters depth. The touch was severe and there were serious damages and the crew was rescued, while the vessel was towed to lay on top of these rocks preventing it to sank down.

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<sup>148</sup> Sea Act, Section 9 § 10 (1)

<sup>149</sup> The Supreme Court, S 88/629, Sveriges Ångfartygs Assurans Förening, Göteborg and Försäkringsaktiebolaget Skandia, Stockholm and Partnerrederiet för m.s. Arctic Wasa vs. State of Finland and Finnish Maritime Administration.

## 8.7.2 Court Ruling

It was found out that the Finnish FTA was aware of that shallow which *Wasa* grounded, all the way from year 1971. However, it was never marked in charts. In this certain place, there are some uncertain points in traffic lines and the grounding place is defined to be an unsafe area for commercial vessels to navigate. In addition, the shallow where *Wasa* grounded has defined to be an outside area of traffic lanes. Therefore, case is dismissed.

Case was taken first to appeal court and then to the Supreme Court, but in all instances the case was ruled with same outcome.

## 8.8 Incorrect Placement of a Buoy / *MS Bore King*

### 8.8.1 Facts

In this case<sup>150</sup> the court placed its concern to the liability after a damage caused by a misplaced buoy. *MS Bore King* was approaching Port of Hanko, and was passing the ice buoy number 3, when its starboard side propeller got a hit and the hit caused damage. The hit actually damaged propeller blades and also caused a hydraulic oil leak in to the propeller hydraulics. *Bore King* was navigating proximately 20 – 30 metres on a right side of the lane, nevertheless of a proper look out, they were unable to spot a buoy, which supposed to be there.

### 8.8.2 Court Ruling

The District Court found that the buoy was moved from its original position and that should have been reported to all vessels using that lane in their navigation. Pilot institution have failed to serve their duty, when they did not reported this. In this reason, *Bore King* damaged its propeller by touching that loose or misplaced buoy. State should cover all expenses that *Bore King* suffered after this accident.

Case went to the Court of appeals, where the case was ruled as District Courts decision was. State faced disappointment after this decision and

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<sup>150</sup> The Supreme Court, S 91/852, Ömsesidiga Försäkringsbolaget Sampo Åbo and Oy Bore Line Ab, m.s. *Bore King*'s rederi vs. State of Finland and Finnish Maritime Administration.

made an application to the Supreme Court and they granted the appeal and in the end the whole verdict was changed around.

The Supreme Court<sup>151</sup> found that, the time factor should have been taken under consideration. Time in mind, there was plenty of time before *Bore King* was at the accident place and they should have been noticed that the buoy is not in its right place and asked about this and do all necessary actions to avoid hitting the buoy. Decisions from District Court and Appeal Court is reversed, and State cannot be held liable for damages caused by that buoy to *Bore King*. Parties should bear their own legal expenses.

## 8.9 Moving Ice Channel / *MS Marjesco*

### 8.9.1 Facts

In this case<sup>152</sup> German cargo vessel *MS Marjesco* was on her way in Saimaa and navigating in ice channel, which was made by the icebreaker *Jääkotka*. The thickness of the ice was about 40 centimetres at the time when accident occurred. Weather conditions were good, where the visibility was about 2 – 3 kilometres, however it was lightly snowing, which was disturbing the use of the search lights.

Normally vessels entering Saimaa lake, have round bow, which was the case here. Vessel having the round bow, means that its ice breaking ability is not that good, especially if the ice is thick and steady, which it was here. When the Pilot came on board, he noticed that the ice channel under the use have moved and *Marjesco* is following steadily that ice channel. Having the round bow, it made it impossible to crack through the ice and change the heading away from the ice channel, which was forcing *Marjesco* towards the bank. Inevitable happened and *Marjesco* touched the bank, but because of the low speed and knowledge that the vessel is heading towards the bank, there were no special damages caused to the vessel.

### 8.9.2 Case Findings

It was seen that the main reason that caused this accident, was the ice movement. It is proven that the icebreaker had opened that ice channel just 2

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<sup>151</sup> Ibid.

<sup>152</sup> *MS Marjesco*.

hours before *Marjesco* entered the accident place. Ice was moved towards the east side of the lane, regardless that the wind was from the east, so the movement is not caused by the wind. Therefore, it was seen that movement was caused by the draft of the water, as the pilot also showed suspicion to that thought.

The accident report<sup>153</sup> resulted that, the event chain that led to cause this accident can be held in this way; *Marjesco*'s pilot was doing this pilotage at first time after the winter close-up time. Icebreaker opened the lane two hours earlier, and the ice was proximately 40 centimeters thick. Ice channel was moved from its original position about 20 minutes after the starting point of pilotage. Ice channel's edge was pushing the ship too heavily towards the bank and the ship was unable, because of the round bow, to crack the ice to head back to follow the normal/ right lane. Darkness and snowy conditions and radar's head-up screen was disturbing the pilot's observations what was the actual situation and how dangerous it was at that moment.

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<sup>153</sup> *MS Marjesco*.

# 9 Case Analyses

## 9.1 Definition and Meaning of an Ice Channel

Discussion concerning of the legal status of an ice channel have not found its end, at least how it is seen to be handled through different cases. Especially, when there cannot be found a clear definition, what the ice channel really is nor in means of its legal status or a comparison to channels and fairway areas. Being in this way it makes it possible for parties to present arguments against both ways, whether it should be a part of a channel or it should not. Being in this way, it causes number of cases, which are caused by the confusion of the ice channel status, when vessels are not clear how to handle it.

A case where the ruling was handling this issue was the *MT Argentum* case, where it was not clear which is the right ice “channel” to take, and stay on the meant shipping lane. Confusing right and wrong, and choosing the wrong one which lead to a collision course with another vessel, which was even a standing vessel.

Another one to handle the ice channel issue is the *MS Finnboard* case, where location of ice channel was based on radar readings and was not checked to be in accordance with channel markings, and lead to a grounding case.

One of the most recent cases in Finnish courts concerning the issue of legal standing of the ice channel is done in the *MV GEULBORG* case as presented earlier.

There the court clearly pointed out that an ice channel does not have any special or defined statutes on its own. By saying this, the court saw it as a part of a shipping lane, without any meaning where it lays on a channel, right or left side of it. However, the court’s effort of trying to clear this question of ice channels did not managed to do any clarification, except the fact that, it should be handled in case by case basis, and in this case, it does not have any special standing, and same rules should apply in to the ice channel what applies to channels.

This case is going to face the Court of appeal later during this year, meaning that there might come more specified definition concerning ice channels, when it is clearly a question behind this accident, and who should bear damages caused after this accident.

When the Supreme Court ruled the Finnboard case in same way as the district court did at the beginning, it showed that, when the ice channel is opened to serve commercial needs for vessels of being able to navigate, and it is meant to be opened to follow channels, and when the ice channel does not do that, State is liable for all possible damages caused that error. In other words, vessels can rely to the ice channel, which follows the channel alignment drawn into charts, that shows they are on safe waters.

*MT Argentum* case is the clearest case to show what the necessity to have appropriate communication between vessels practically means. As this case shows, it is not clear to all vessels, where the actual ice channel lies, even though it has been used over some time. As mentioned the key aspect here was the lack of communication between two vessels. One reason for that, is the unwillingness for Finnish vessel to communicate by using Swedish and maybe the unwillingness from both vessels to communicate by using English. In addition, the court found that there was a clear lack of blasting signals from both vessels side. However, like Mr. Hannu Makkonen<sup>154</sup> states, when vessels are going through ice conditions, the noise is present, and crew will keep bridge doors closed instead of open and the ability to hear any signals is hard and pointless to blasting those voice signals, it is more about lights and communication through VHF between vessels.

In addition, to issues mentioned above, is the need for seafarers to understand how important it is to maintain in all cases the good seamanship actions. At least they should know how important it is seen in courtrooms.

Common issue in these three cases from courts view can be found to be the communication between vessel and the parties of occurred collision. In all these cases, the court has found that the communication was one fault why vessels actually collided in the end. Other reason, brought out in these cases, is the lack of definition of an ice channel. When vessels are not sure, how it should be handled confusions happens and vessels collide. Thirdly, the navigational equipments on bridge, in means that vessels can separate ice floats from vessels and spot where the actual shipping line goes.

## 9.2 Channel Markings

This chapter goes through the cases, where the main discussion has been around channel markings. Here the question is mostly dealing the liability question, who is responsible when there is a collision, that was caused by misplaced or a missing buoy. Nevertheless, that facts may differ a lot through different cases, there can be drawn a clear message, what courts are trying set to be as a general rule.

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<sup>154</sup> Hannu Makkonen.



First to look at the *Okna* case, where court's main focus was drawn into proper navigational equipments on board. Key to have successful maritime voyage for a vessel is to have proper charts on board. In this case, the court put the fact of non-working light buoys aside and reasoned it more substantial and meaningful for a vessel to have proper charts on bridge, than the ability to trust buoys specially installed to show a safe route. In addition to a chart issue, the court might keep that as a breach to follow a good seamanship in safe navigation, which have a nature of an inculpatory evidence and in that reason leave the buoy issue outside of its ruling.

Other important side notice can be taken from here, that vessel should not trust for mark buoys, while navigating. They should mainly and only trust charts and GPS locations, when locating their position in relation to a shipping lane. This being important statement from courts, when thinking situations, occurred in ice conditions, where buoys might be moved or are covered by ice and cannot be seen.

The case *MS Baltic Progress* and its outcome. Even though the conditions are hard to navigate and it is impossible to see visual buoys, it is not justified to use only radar readings. Both a pilot and a master should keep close look out, by using both visual signs and radar readings, and be extra careful with the vessel's position, that it is in a shipping lane, and not anywhere on an edge. Other key point is the fact that, when ice is distracting shippers knowledge of where the buoys are, and a ship damages those buoys, the vessel is liable to cover all damages. Even though, the buoy might not be in a place where it was originally planned to be or what the chart shows for its location.

From the *MS Arctic Wasa* case, it is clear from the court system through different instances that they wants to set a strong statement, by making it clear that there were no errors made in the district or appeal court decisions. By ruling this case in a way the court put a clear message for seafarers by stating that, if you are not on a shipping lane and position is on surrounding areas of the actual and precise lane, vessels cannot trust in the chart readings. In that reason, the only safe place where, shippers are able to rely and trust charts are the actual and precise shipping lane laid down by a chart and delimited areas by visual signs.

*MS Bore King* is the only one, which faced the total change from the District Court's and Appeal Court's decisions, when it faced the Supreme Court.. It is interesting that the District Court and Appeal Court are in opinion that a State should be in responsible of a placement of buoys and bear the caused damages what the misplacement might cause for vessels passing those buoys. In this point they have clearly seen that vessels cannot secure where those buoys should be, by reading charts produced by maritime authorities or placing it by radar readings. Whereas, the Supreme Court sees that the responsibility should be in the vessel's side to secure its position and do necessary look out to find those buoys. If not able to spot a buoy, they

should do a report for authorities, which one is missing. And navigate in a way that they are able to spot those buoys, which are misplaced or missing.

# 10 Thoughts from the Field

Considering the development of maritime world through history, the development either in legal or other issues have always been the use as a main source the practice from experiences. Meaning that, International Conventions and rules have been developed by consulting practitioners from the maritime field. Also, it cannot be forgotten that there are numerous severe accidents, which have been the starting point for the main Conventions considering safety issues.

Keeping in mind the focus of the paper's topic, next subchapters will focus to thoughts from the field by going through certain professionals from maritime field, how the ice channel issue should be handled. First part goes through the interview of a retired pilot Mr. Jyrki Viljanen, who also have 7 years experience from icebreakers and years of expertise from commercial vessels. The second part goes through the interview done with the Director of Winter Navigation at FTA, Ilmari Aro, with over 20 years experience from icebreakers before taking the FTA position. And third part, goes through the interview with Paavo Wihuri, who is the former head of FTA's seagoing safety person, and under his responsibility areas were safety and security issues concerning maritime field. Before, that position, he was the head of the Maritime District of Archipelago waters. In addition, before the time of being in public positions he has been the master of commercial vessels and icebreakers.

## 10.1 Pilot

This section will bring out thoughts from a pilot's point of view and how the ice channel situation is seen and what are the main reasons behind the reported accidents in ice channels. How communication is actually maintained between navigating vessels and are there any differences between vessels.

Pilots on duty mainly have all the information updates concerning ice movements and conditions from pilot to pilot basis and in addition, they got the basic lane information from icebreakers.

How then, the vessels navigation is seen from pilots view during winter times? Vessels ability to sail through ice have major differences depending on the vessel's ice class. And how vessels are loaded. When using ice channels, it makes it much more easier if the vessel's stern is higher than the bow. In this way it is easier to manoeuvre vessels, when their stern actually goes on the ice than trying to under or sweeping the ice.

Talking about the rules and practice used in crossing situations, there is a clear tendency of trying to act under the principle of good seamanship. However, this might not always be the case as previously presented chapters shows. When thinking about the crossing situation in conditions, where the ice causes some restrictions for vessels to navigate, the crew's knowhow and experience as well as the pilot's experience and knowhow of ice navigation comes in importance, also the ability to improvise has its importance. Example, sometimes the crossing rules cannot be used, or vessels are not able to act under those rules, because of the ice restrictions for vessels manoeuvrability. In some cases, vessels should have proper communication of being able to face each other in a starboard – starboard situation, instead of what the rules says for crossing at port – port. If the communication is not communicated properly this might be impossible to establish without a collision coming. In these cases the information is tried to catch the other vessel as early stage as possible, and also VTS centre is included to these kind of communications.

In addition, there are some differences between each crew, what they sees as a good seamanship and how vessels should be operated in ice conditions. Example, if the ice condition is rough the Russian crew has no rush to go forward, which might be related to that a problem faced during last winter, that there were over 20 days waiting, before a vessel was able to enter Russian port in the Baltic Sea.

It is hard for a pilot to guide the vessel what he sees for the best option if the vessel master does not agree and sees his own decisions and thoughts as best ones. To some masters it is hard to listen what the pilot things and tries to guide through ice channels, until it seems to be too late.

Most common reasons for accidents happening are the conditions, when there is heavy fog or sea smoke coming from the channel. Events or lack of certain actions done by a vessel, which creates most of the accidents are; lack of communication between vessel, not acted under the good seamanship, vessel's condition and navigational errors. One main issue comes far ahead in comparison to those as listed, is the lack of knowledge and knowhow to navigate in ice conditions. In other words, vessel's crew just do not have enough experience to sail through demanding ice conditions.

There might be some certain things, that might be done to make a difference for these faced difficulties that vessels experiences during their ice navigation. One, and especially for large tankers, might be necessary to have mandatory ice pilot, which is used in some occasions, with positive feedback. Also, the ice channel should have some special rules set to guide the navigation and situations, what may occur, which have been already experienced.

In addition, what crew members easily forgot to do, according to presented cases, is to locate where buoys are, especially when ice is floating around and moving those buoys. Look out should be managed with extra carefulness, and vessel's position should be double checked from charts and GPS locations, before making an assumption that the buoy is not there, and then touching to that. Also noticed that, especially vessels coming outside the Baltic Sea, have radar settings for high seas, when they are entering Finnish waters. In this meaning they are unable to spot small islets, even islands and lanes between islands are missing from their radars. So when pilots are entering into bridges, they have to use some time to correct radar setting to be in accordance with area the vessel is sailing, when they were expected to do something else.

## 10.2 Director of Winter Navigation

Main issues discussed during the interview was concerning icebreakers, ice channels and pilots. At first, presenting thoughts relating to icebreakers then ice channels and lastly to pilots.

Talking of icebreakers business in the Baltic Ocean, the most demanding areas are the areas in the Gulf of Bothnia and the Gulf of Finland. In most winters the Gulf of Bothnia freezes all up, where the Gulf of Finland requires colder winters and longer freezing temperature periods. When the Gulf of Bothnia freezes up in every winter, Finland and Sweden have done cooperation over many years and there is no difference for vessels who needs an icebreaker assistance, whether the icebreaker is Finnish or Swedish one. The practice is very much the same and all regulations concerning icebreaking operations and winter navigation are similar between both States.

When talking about the Estonian and Russian practice, it differs a lot in comparison to what it is between Finland and Sweden. The only cooperation between Estonia, Finland and Russia are the VTS guidance and other traffic tracking systems<sup>155</sup> over the Gulf of Finland. There are no regulations concerning icebreaking services or winter navigation, which can be said to be laid down in same manner. However, in a case where the Gulf of Finland wholly freezes up, Estonia may ask icebreaker assistance for Finnish breakers, and there are cases where breakers are offering services over the borders. In a case of Russia, Finnish icebreakers are not allowed to enter Russian waters and other way round.

Basically icebreakers are the main source producing ice channels, however, commercial passenger routes are mainly kept open by passenger ships. Example the route from Helsinki – Stockholm is kept open by four regularly

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<sup>155</sup> See paragraphs 2, 3 and 4.

sailing passenger ships. Two sails once a day from Helsinki – Stockholm line and other two from Stockholm – Helsinki line. Other lane, where are lot of passenger ships sailing is the Helsinki – Tallinn line, where goes at least six passenger ships at least once a day a return cruise. A common feature for these ships is that they all can manage heavy ice condition without an icebreaker assistance.

In relation to icebreaker services, are the convoys navigating though ice channels and problems, but more about this is presented in the chapter 6.3.

What is seen from pilot services provided to vessels in practice. One clear and main concern coming out from this interview, was the pilot's experience to navigate in ice conditions. Now there has been three following winters with heavy ice condition, where pilots were able to experience how vessels go through the ice and how it changes the vessels ability to manoeuvre. Therefore, now there are more experienced pilots to guide vessels through these conditions than it was the time before these winters, when there were quite the opposite weather, offering no heavy or hardly any ice conditions at all. This lead to an issue, which was faced during the following heavy ice winters, pilots have forgotten or never experienced heavy ice conditions. And when they were out there at the first time, there were several accidents recorded. In some cases the pure fact was, if pilots had the needed experience these accidents may have been avoided. But in some cases, there were no difference, when the vessels crew have no idea how to work through prevailing ice conditions, when the pilot is not on the bridge with them.

In relation to the question of having a mandatory ice pilot system, Mr Aro sees that, it is too complex system to have properly organized to work in the Baltic Sea areas. Few questions raised; how pilot's knowledge and experience could be tested to have such a certificate, expenses to shipowners might be too much, and this sort of system needs to have IMO level regulation, but how all bordering States of the Baltic Sea sees the issue. Specially States who do not have any ice problems. However, this "ice pilot" thing is not that far away, there are some shipowners, who are using special "ice pilots" to guide their vessels through ice conditions, mostly large tankers, which are heading to Russian ports.

## **10.3 Paavo Wihuri**

In his interview, Mr. Wihuri brought out that there are clear reasons, why vessels have so many accidents when navigating in ice channels and what might be the best way to prevent such accident happening in next winters.

First thing he brought out as a reason for these accidents, is the knowledge and knowhow of ship masters to navigate through ice conditions. Nowadays

there are several vessels navigating on ice conditions at very first time or having a minor or hardly any experience how ships should be handled when navigating through heavy ice conditions. Secondly, the good seamanship is easily forgotten, and masters are not considering, or are not able to form the whole picture of their instant actions may cause in following minutes into their own ship or towards the other ships. Thirdly, because the ice channel is a moving subject, masters should constantly be aware where the fairway goes, by following satellite location, because the position of buoys may vary a lot and ship's crew should be aware of this and constantly secure that they are not running over a buoy.

In his opinion, there are no mean and sense to set any rules concerning ice channel alone. Because ice is constantly changing its position and there are no chance to make clear guidance how to handle a situation like that, because the key factor is the ice, which moves are hard to predict as Mr. Haapala stated after his research.<sup>156</sup>

Solution to this could be and, if really pushed is easily managed to do a working one, is to furnish an institution of "ice pilot", which is set to be a mandatory to vessels entering ice areas. In this way, there are always the needed knowhow and experience to navigate and taking all necessary considerations in count concerning other ships to navigate safely through ice channels. This will create some extra expenses to shipowners, but in this way and in long run it will be much cheaper for shipowners to maintain these transportation routes.

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<sup>156</sup> Mr. Haapala's Interview.

# 11 Conclusion

When the paper's topic is raising out a question, what does a term "ice channel" actually mean, and how it is treated when there are some ambiguous questions raised from different parties through the field. As it is shown through the text above, there is no clear approach, just thoughts how this ice channel question should be handled when there are problems faced.

In the beginning of this process it came clear that it is necessary to look more deeply into all factors what are needed to create an ice channel situations at sea. This meant, doing a research to find out how the ice behaves, because that is actually the key element in this subject. Without it there could not even be any ice channels. In connection to ice, it is needed to have freezing conditions, and in maritime connection it means the conditions are in most cases very extreme for most seafarers out there. When prevailing conditions for vessel transit are cold and defined to be hard or extreme it usually means, that the risk of having accidents increases. As proven through the field, when conditions are hard for vessels to navigate, there are lots of accidents, and in other words, there are equal amount of claims for seeking damages and a search to find liable parties to cover those damages.

Considering collisions covered in this paper occurred during the winter months vessels have been navigating in ice channels when they faced the problems. That because, an ice channel is basically the only possible way to navigate through the waters which are covered by ice. In this perspective it is worth to point out that the question of clear legal definition for an ice channel is still missing. Nevertheless, the fact that, there are many accidents faced each year in the Baltic Sea and are maybe faced in other areas when the Northeast passage is opened for commercial transportation and the number of vessels navigating in ice channels is rising.

The other issue raised in this paper is concerning the definition of a narrow channel, and could it be held that an ice channel have the status of the narrow channel.

It has come clear that the ice movement is causing problems to handle the ice channel issue through legal definitions. This because it makes it hard to clarify clear rules to cover all situations what might come out. However, the situation now, when it is sort of a question mark to all parties how to start their case, or actually it is very clear how to start their case. Just took the way, which seems to suit your goals in best possible way. Nevertheless, that is always the case, but when there are no rules existing the starting point for each of these cases, whose fault it was and what was supposed to be done, are so far in opposite sides and will mean more time taken when trying to solve just what are the rules applying to this very situation. Like the



presented cases shows, there are same questions always presented and the final outcome is something you cannot predict, when the point is missing in which way the fault is going to raise under international or national rules.

While doing the research for this paper, it was pointed out that the icebreakers role under this issues is quite remarkable. They are actually making the ice channels, with some exceptions, and are assisting vessels to navigate them safely through. However, as shown through cases, icebreaker is sometimes the actual reason why that accident occurred. Sometimes this is caused purely by weather conditions and sometimes it is just a sum of various mistakes done during the process. When looking icebreakers' role, it is very clearly defined by several laws and regulations, how they should act in each situation. However, icebreakers are still facing several problems while giving assistance to other vessels. Maybe, and mainly because of the prevailing conditions makes it too hard for vessels to survive and obey given rules and guidance.

In this same connection the responsibility of pilots should be pointed out. When being a mandatory service in certain areas, they should offer proper assistance for vessels. As pointed out by Mr. Aro, and Mr. Viljanen, it is not that simply, when the condition may vary a lot during following winters. Sometimes there are many winters when there is no ice anywhere, so it is impossible for pilots to have proper training. And when the first ice winter is following warm winters, problem exists, when inexperienced pilots are guiding vessels, which crews are also inexperienced to navigate in ice conditions.

In last 5 to 10 years different authorities have started to worry about the issues surrounding ice navigation. This have had some influence, when there are several programs going on and trying to solve vessel issues, by researching ice class issues, traffic and guidance issues in a hope for preventing collisions. All these have worked in some manner, but the main step is still missing, which will lower the number of accidents.

As shown, there are several programs doing good work, but the work group to determine the legal standing of an ice channel is still missing, as well as the definition of a narrow channel. There have been some actions to develop these issues but nothing concrete has come out. Best efforts are the court rulings, which will bring it out in some points, but you can always appeal of that ruling and nothing is certain.

Taking the working group's position which drafted the 1972 COLREGS, who left out the definition of a narrow channel away, nevertheless, it was proposed to be there. As Craig H. Allen brings it out, maybe the working group just thought that seafarers should be able to notice if a narrow channel comes in question. When the practice is laid down in this way and what Mr. Makkonen brought out in his outcome, it is considered that all channels in Finnish waters can be considered to be treated as narrow channels. In this perspective if you are using an ice channel, which is following a channel,

which is meant to be a narrow channel, the ice channel is then a narrow ice channel.

As Mr. Wihuri and Mr. Aro presents, it is hard to create any special rules concerning ice channels. However, like Mr. Viljanen presents, there is a clear need to have clear “game rules” concerning ice channel navigation. Both these ways are well supported. Firstly, it is hard to create any defined and special rules for an object or a situation, which is hardly ever going to come in question more than once in those facts. However, the situation out there today, is showing that without any clear definitions, vessels are just navigating and causing problems to other vessels, or just to themselves or then to the buys. In this point, it is supported through the vessels action that there is a need to have a definition of an ice channel. In this meaning to create clear navigating rules for vessels to adapt and obey in a light of preventing collision in ice channels.

It can be done by not making specified and defined rules like the passing and crossing rules, where certain degrees are defined and so on. Just to clarify the main rules and points, in means of the importance to obey the principle of good seamanship, and mainly point out the meaning of vessels ice breaking ability to break its way from the ice channel when heading situation comes alive and which vessel is in responsible to break out from the ice channel and letting another one to pass. And most importantly a system, which will bring this information available to all surrounding vessels to adapt. This can be done, when the development of the ice class regulations is improving and actually the stage it already has makes it possible. In addition, clear rules pointing out where vessels can and are allowed to pass other vessels, either heading or passing situation. Example, preventing heading situations while turning, could have prevented the collision between *Newskiy* and *Geulborg*. Last points, which need some rules, are the communication and radar issues. These two being one of the main reasons creating at least the starting point of several collisions, are worth to be guided through regulations. Example, it should be clear for all masters to check their radar setting to be in a relation to waters they are approaching, which unfortunately is not the case as Mr. Viljanen pointed out. Then the communication should be done in a way that masters or pilots are aware of their following actions when facing each other before it is going to be too late, as it was example in the *MV Geulborg* case.

Last point to bring out in a relation to improve navigational environment in ice channels is the possibility to regulate certain regulations to concern crew members in a matter of ice navigation experience. It might sound obscure to regulate and observe, or how it could be controlled when there are various nationalities in crew members who are sailing in the Baltic Sea. The concept is not new, when there are clear regulations to set restrictions, based for vessels ice classes, to enter the Baltic Sea depending on the prevailing ice conditions. In this way, authorities have made it, or at least are trying to improve vessels conditions and maneuverability to survive prevailing ice conditions maintaining the principle of safe navigation. In same way, this

could be done to serve the purpose of having appropriate skills on board by setting regulations to control the required knowledge of crew members' experience of ice navigation. In the end, it does not help if the vessel have proper ice class certificate, when the crew onboard does not know how to use full potential of that vessel. These rules do not necessarily have to apply to all crew members, just those who are actively working with bridge duties and maneuver issues, and making general requirements for officers to have needed knowledge and experience to navigate in ice conditions.

When these issues are covered by regulations, it will create clear navigational behavior in ice channels, which will make it easier for pilots and icebreakers and also to all vessels to maintain safe navigation.

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