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Legal and Administrative Issues of Arctic Transportation

WP6: WORKSHOP ACTIVITY

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Legal and Administrative Issues of Arctic Transportation

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DELIVERABLE SUMMARY SHEET

Short Description
The workshop 7 report consists of the presentation abstracts and slides, a record of the discussions as well as the conclusions and recommendations.

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PREFACE

Arctic Operational Platform ARCOP is a research and development project co-funded by the Directorate General Energy and Transport of the European Commission under the 5th Framework Programme for Research and Technological Development. The project coordinator is Aker Finnyards.

The project aims to develop efficient and environmentally safe oil shipping by the Northern Sea Route. The three-year (2003-2005) project has been participated by 21 organisations from the EU, Russia and Norway. The work has been divided into 6 parts:

- Development of collection methods for ice information and ice forecasts in view of choosing transport routes (WP1)
- Assessment of the rules and regulations on transport by sea and of insurance and payment systems (WP2)
- Development of an integrated transport system for Arctic oil and gas transport (WP3).
- Development of the environmental impact assessment method and the environmental hazard management system (WP4)
- Trial in practice of the solutions developed and recommendations given during an actual transport assignment (WP5)
- Organisation of expert meetings between industry, authorities and representatives of technology to direct the project, to assess the results and to give recommendations (WP6)

Every year, during the three years of activity, the project has organised three workshops in which the results have been presented to representatives of industries, authorities and scientific organisations. The participants of the workshops have given guidelines for the project and also evaluated the achievements.

The workshops have been arranged by the Ministry of Trade and Industry of Finland. During 2005, 109 participants, representing 92 organisations from all over the world, attended them. In 2004, the meetings were participated by 102 persons from 55 organisations, and in 2003 the figures were 57/35, respectively.

In the course of time, the workshops have formed a popular forum for the experts to meet and discuss the topical issues of Arctic transportation. The seventh workshop of ARCOP, the third meeting bearing the title "Legal and Administrative Issues of Arctic Transportation", was held in Oslo, in September 2005. The meeting focused to discuss the effects of the legal and administrative framework on the economics of the transportation system. The meeting gathered 35 experts from 22 organisations.

This workshop report consists of the presentation abstracts and slides, a record of the discussions during the event as well as the conclusions and recommendations. The conclusions and recommendations have been compiled by the project coordinator and the workshop organisers based on the presentations and the discussions heard during the workshop.

We wish to thank the chairmen, speakers and panellists for their valuable input to the successful and interesting seventh ARCOP workshop.

In Helsinki, 1.2.2006

Liisa Laiho
Piia Nordström
Kimmo Juurmaa

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EXECUTIVE SUMMARY

The main themes of the seventh ARCOP expert meeting, the economic impacts of the administrative issues and the development of the regulatory environment, have remained among the most topical themes throughout ARCOP.

During the project, crucial changes have taken place in the business environment of the Arctic transporters. Due to the rise in oil price, an increasing number of companies are planning to use the Northern Sea Route for oil and gas transports. The experts present at the meeting stated that a marked increase in the volume of transports is to be expected.

Continued lively debate on rules

One of hottest discussion themes during the entire project has been the forthcoming harmonised rules of the International Association of Classification Societies IACS and the new guidelines for navigating by the Northern Sea Route. The new guidelines for navigating by the Northern Sea Route have been presented to the Russian government that has not adopted them, yet. The new guidelines of the Northern Sea Route will mainly be based on the rules of the Russian Maritime Register of Shipping and not on the harmonised IACS rules.

The power requirement has become the essential issue that is stressed by the Russian Maritime Register of Shipping and that has not been mentioned in the harmonised rules focusing on navigation safety. The power requirement is included in the new guidelines for navigating by the Northern Sea Route – although in another form than in the rules of the Russian Maritime Register of Shipping. The third power requirement, which is totally different from those mentioned above, is included in the Finnish-Swedish ice class requirements.

We should, however, not forget that the harmonised IACS rules do not exclude addition of complementing requirements by national authorities concerning, for instance, the power required.

Fairway fee policy

The Fairway fee system is, at its best, an effective instrument of steering the development of transports, which can be used in affecting the properties and the capacity of ships navigating by the Northern Sea Route and the navigation routes they use. The Fairway fee system can also be used for encouraging the growth of transport volumes.

The purpose of the fairway fee system for the Northern Sea Route is to fully cover the costs of support services. In the system proposed, the fees are based on the volume and the value of the cargo. The present level of fees is based on current cargo flows. In future, the fees may be reduced while the cargo flow increases. The system also involves certain exceptions. For instance, no charges are levied on vessels operating under the Northern Delivery Program.

The experts concluded that the present fairway fee system involves a risk from the investor's point of view, because the fairway fees are unpredictable. The experts recommended that the system should be based on some reliable estimation of future transport volumes. In order to increase transparency, the intended total revenue should be non-confidential information. In addition, a wish to introduce urgently needed fee waivers to encourage technological development and investments in the system was expressed. The experts finally concluded that the fee proposed, exceeding USD 16 per ton, is completely unsustainable with a view to the economic viability of transports.

Calculations made within the ARCOP Project reveal that infrastructure costs on the route Varandey–Rotterdam would be USD 1,2 per ton excluding cost of ice breaking and USD 5,5 per ton when costs of icebreaking services are included. The above figures are calculated assuming that the annual costs of icebreaking services amount to USD 120 and the costs for the maintenance of waterways are in the same range. The total transportation costs excluding infrastructure costs is approximately USD 13 per ton for independently operating tankers and approximately USD 17 per ton for conventional tankers including the actual icebreaker costs.

New Finnish Act on Fairway Fees

Director General Markku Mylly, Finnish Maritime Administration, gave a presentation of the new Finnish Act on Fairway Fees that will enter into force on 1 January 2006. Among several optional solutions, a system based on ice classes was chosen. The objective is that future ice class certificates will be granted on the basis of certificates remedied by accredited certification bodies. In that case, certification bodies shall maintain in their rules specific Baltic classes parallel to IACS Polar Classes. As concerns Baltic classes, uncertainties about the draught for which ice strengthening should be made have existed. In the IACS rules, this problem will be solved by providing for a specific ice draft. The Finnish Maritime Administration has not finalised its position on this matter, yet.

In Finland, fees are imposed on all traffic, which means that the average cost is USD 1,2 per ton. The fee includes all services, also icebreaking, and is collected throughout the year unchanged. The bases of fees are public, and the experts wish that this practice would continue also in the case of the Northern Sea Route. The new Act lightens the burden of charges, for instance, for tankers, dry cargo vessels and passenger vessels of ice class 1AS. The fees collected on tugs and barges will be markedly increased, while the increase in fees on bulkers will be quite moderate.

The numerous economical effects

The delays in Arctic transports by the Northern Sea Route due to controls made by authorities may, according to surveys, be as long as 8 hours per journey. The accumulated calculated loss because of controls made by authorities during the life cycle of an ARCOP transport scenario would amount approx. to USD 340 million. Delays of this kind are one of the problems reducing the economic viability of the Route, and marked savings could, accordingly, be achieved through more effective operations.

The ARCOP researchers have studied insurance companies' willingness to grant insurances to business operations by the Northern Sea Route. Plans on vessels to be used and relating operations drafted within the ARCOP Project were presented to insurance companies. An estimate based on the plans was made on the insurance costs for vessels and transports. The experts claim that the insurance fees for the Northern Sea Route calculated in this way are not markedly higher than those for other sea routes.

Norway is considering measures under international law of sea meaning that its territorial waters would be extended from present 12 nautical miles to 20 nautical miles. The purpose of this is to ensure that the oil tankers coming from the Arctic regions of Russia would be at a safe distance from the Norwegian coast. The estimated delay due to this is about 1-2 hours. The experts discussed whether or not the initiative should be interpreted as a discriminatory requirement, because it mainly affects Russian oil exports. The representatives of oil companies held the view that the requirement is based on environmental safety aspects and can thus be regarded as acceptable.

PROGRAM September 28, 2005 Legal and Administrative Issues of Arctic Transportation	
Chairman: Arild Moe, The Fridtjof Nansen Institute	
Opening address: The outlook for oil transportation in the Arctic	Arild Moe The Fridtjof Nansen Institute
Legal status of the NSR and Westover	Douglas Brubaker The Fridtjof Nansen Institute
EU regulations - WTO/GATS	Douglas Brubaker The Fridtjof Nansen Institute
The international shipping industry and oil transportation in the North: Expectations and requirements	Sverre Björn Svenning Fearnley Consultants
Rules and Regulations - The new RMRS requirements	Andrey Andryushin Russian Maritime Shipping Registry RMRS
Arctic Shipping Rules	Victor Santos-Pedro Transport Canada
Rules and Regulations - The new NSR guidelines content	Loly Tsoy Central Institute of Marine Research and Design CNIIMF
Panel Discussion	
PROGRAM September 29, 2005 The Economic Framework of Arctic Transportation	
Chairman: Herbie Battye, Shell Shipping	
Opening address: The Economic Framework of Arctic Transportation	Herbie Battye Shell Shipping
Risk Management for NSR Navigation	Peter L. Wright
NSR Risk Management	Loly Tsoy Central Institute of Marine Research and Design CNIIMF
Immigration and custom procedures at Russian oil terminals	Anton Nikulin Central Institute of Marine Research and Design CNIIMF
Fee Policy	Anton Nikulin Central Institute of Marine Research and Design CNIIMF
Finnish fee policy development	Markku Mylly Finnish Maritime Administration
Effect of the legal and administrative framework on the economics of the transportation system	Kimmo Juurmaa Aker Finnyards

1. THE OUTLOOK FOR OIL TRANSPORTATION IN THE ARCTIC

Arild Moe, The Fridtjof Nansen Institute

Abstract

The presentation describes the trends and drivers of the growth of Arctic shipping. The most important driver is naturally the growth of the oil export from Russia. Russian oil industry lacks efficient export routes because the main directions, the Druzhba pipeline to west and the southern marine shipping routes have reached their limits.

Another important driver is the high oil price, which allows investments to new, demanding export routes. New technological solutions allow oil production and oil shipments in areas, which have for a long time been unprofitable business environments.

Third driver is the need for independency from the state oil pipeline monopoly Transneft, whose investment plans and tariff policies are becoming costly for the oil exporters.

The presentation concludes, that there will be room also for foreign shippers in the market.

(See: Appendix 1)

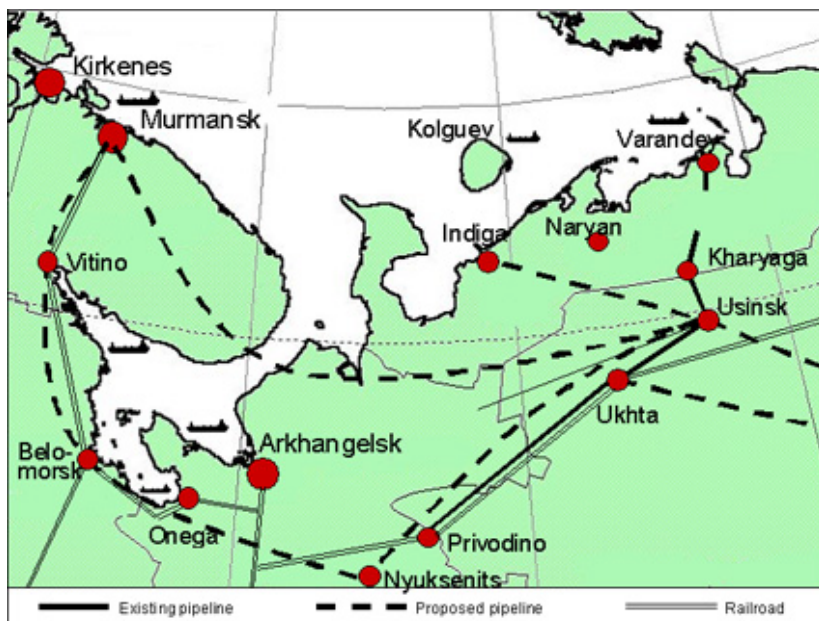


Figure: Map of Northwest Russia. Existing pipelines, proposed pipelines and railroads

Discussion

The growth of oil production in Russia has been drastic. The domestic consumption has remained constant pushing oil abroad as exports. The drivers of this development are numerous.

The location of fields, the insufficient pipeline capacity, and the absence of alternative oil outlets and the climbing oil price has encouraged oil firms to invest in sea terminals.

The large-scale oil export at the Barents is starting even as we speak. The new terminal projects predict doubling of the oil transport in the area. Currently two harbours, Murmansk and Onega, are able to receive tankers of size 100000 dwt. Later it might also be possible to have direct traffic from smaller harbours. The floating storage facility Belokamenka,

which is located in Kola Bay outside Murmansk, is an example of the kind of activity that is likely to expand.

Monthly oil shipments from the northern ports of Russia have decreased from 2004. The establishment of the other oil channels and the deceleration of the oil production growth mean that although export growth will be seen, it will not be rapid as in the latest years.

Murmansk Shipping Company, LUKoil, Rosneftflot and Sovcomflot are currently the most active shipping companies in the NSR. The question is, is there room for foreigners? With the rising oil shipments, the answer to the question must be yes. The answer must be yes. The Russian shipping industry is very ambitious; especially Sovcomflot has many interesting projects. But at the same time, there are attempts at monopolization, which is worrying. On the other hand, companies that are involved in oil production operate on a commercial basis, and wish for competition between carriers.

The nuclear icebreaking fleet is aging, making ice class more and more important.

2. LEGAL STATUS OF THE NSR AND WESTOVER

Douglas Brubaker, The Fridtjof Nansen Institute

Abstract

Russia appears to be extending its NSR regime, based upon UNCLOS Article 234, ice-covered areas, westward to Kolguev Island in the Pechora Sea. There are certain elements of consistency in the common interpretation of existing law and behaviour of the large Arctic littoral States, Russia, Canada and the U.S. surrounding this regime. These elements seem to have put in action the process of formation of a specific customary international law with respect to the passage of vessels, including State vessels, through the Arctic area in general and its international straits in particular. *This means that Russia enjoys substantial support from the large Arctic littoral States, the U.S. and Canada, for its legal regime regulating Arctic navigation.* Especially the regime governing commercial vessels appears to stand strong. The present navigational provisions probably will remain the same for some time into the future, despite developments under the complicated UNCLOS Article 76 defining the continental shelf.

Under UNCLOS Article 234 coastal States have the obligation to adopt and enforce non-discriminatory environmental provisions. The main thrust of the Russian provisions is based upon environmental protection and safety, thereby seemingly implying that *all* vessels including Russian are encompassed. The principles are stated under Article 2 of the 1990 Rules¹ to be to regulate navigation free from discrimination for navigational safety and to prevent, reduce and control marine pollution caused by the presence of ice. All vessels including State regardless of nationality are subject under Articles 1.4. and 2, and the implication of the supporting legislation is the same.

However concerning 'fees for services rendered', set forth in Article 8.4. of the 1990 Rules, there may be questionable compliance with the requirement of non-discrimination. Article 8.4. requires vessels navigating the NSR to pay for services rendered by the Marine Operation Headquarters (MOH) and the Northern Sea Route Administration (NSRA) in accordance with the adopted rates. Apart from the question of non-discrimination the issue remains whether fees themselves fall outside the scope of 'due regard to navigation' under Article 234. As noted, it may be questioned whether the current Russian fee rate, of \$3.33 per ton to \$73.02 per ton depending upon cargo, is required of the Russian vessels. This raises the issue whether non-discrimination is meant only to be *among* foreign vessels of different nationalities, or also *between* foreign vessels and Russian vessels. The better view appears to be upon analysis that related to Article 234, both Russian and foreign vessels are probably encompassed, especially since that is what seems stated explicitly in the 1990 Rules.² Thus, the fees, if justified under Article 234, must apply to all vessels, and the previous and likely current Russian practice on this point is contrary.

It is difficult to examine specific Arctic State practice on this issue, which may be contrary, since it is only Russia, which appears to have a blanket fee structure. Passage rights under both the Canadian and the U.S. legislation are not dependent upon the payment of

¹ 'Regulations for Navigation on the Seaways of the Northern Sea Route', in accordance with the U.S.S.R. Council of Ministers Decision No. 565 of 1 June 1990 and approved by the U.S.S.R. Minister of Merchant Marine, 14 September 1990 (1990 Rules). Russian text published in *Izveshcheniya Moreplavatelyam* (Notices to Mariners), No. 29, 18 June 1991; English translation published in *Guide to Navigating Through the Northern Sea Route* (St. Petersburg: Head Department of Navigation and Oceanography, Russian Ministry of Defence, 1996), pp. 81–4.

² See R. D. Brubaker, *The Russian Arctic Straits – International Straits of the World*, pp. 55, 80 and 84.

fees.³ The Russian authorities indicate a possible relaxation under Articles 8.1.–3. of the 1990 Rules of initial ‘control of navigation’, if the vessels and captains are familiar, however the issue of fees has not been mentioned.⁴

The study of the State practice with respect to passage through NSR nevertheless demonstrates that due to the region’s strategically sensitive geographical situation, there is a continuous risk for disputes and may need practical solutions for preventing and resolving potential disputes. This may likely be extrapolated to the Barents Sea.

Norway is considering measures for the Barents Sea under international law of the sea to include,

- extended limit of territorial sea (20 nautical miles (nm) is possible);
- vessel traffic service (VTS);
- traffic separation schemes (TSS) including position of traffic separation scheme, automatic identification system (AIS) including distribution and coverage through stations;⁵
- tow vessels at strategic locations;
- electronic chart display and information system (ECDIS);
- implementation of routing regime;
- contingency management and planning regime including environmental risk analysis and oil spill contingency assessment;
- places of refuge and beaching;
- measures related to loading and unloading of cargo;
- control of emissions to air;
- management of oily wastes, sewage and garbage including reception facilities; and;
- ballast water management.

A Barents Sea management plan from Norway is expected in 2006.

The establishment of a PSSA is also being considered by the Norwegian government. ‘Appropriate associated measures’ looking cumulatively at the 10 PSSA’s already designated include areas to be avoided, areas for compulsory pilotage, prohibition of discharges including ballast water, prohibition of dumping of most other wastes, installation

³ See Y. Ivanov, A. Ushakov and A. Yakovlev, ‘Russian Administration of the Northern Sea Route – Central or Regional?’, *INSROP Working Paper* No. 106, (1998), IV.2.5.’, 19-20.

⁴ A. Ushakov, ‘Interview’, 24 February 1994, Moscow. A. Ushakov is Deputy Director of the NSRA. Flag State was not indicated to play any role.

⁵ Norway and Russia are working to establish the Barents Vessel Traffic and Information System (VTMIS). This will be based on the exchange of AIS data between the authorities, with the traffic control centres in Vardø and Murmansk playing central roles. Norwegian authorities have also engaged in dialogue with tank vessels in international traffic in the Russian Barents Region, and the *vast majority* now volunteer information demanded. An AIS is now installed in all tank vessels, which makes it possible for Norwegian authorities to track them when they are set in motion. Information is also provided on cargoes carried. Norwegian authorities desire notification of hazardous cargoes two days previous to the vessels entering the Norwegian Exclusive Economic Zone.

of reception facilities, no anchoring, and enhancement of surveillance and monitoring capacities for illegal discharges. Norway could follow suit.

Currently the Norwegian Military's Command in Northern Norway, (Landsdelkommando Nord-Norge (LDKN)) tracks vessel movements on radar along the Norwegian coast and notes in 2005 that flags freighting hydrocarbon products from Russia through the Barents Sea are chiefly from Liberia, Marshall Islands, GBR Isle of Man, Russia, Cyprus, Bahamas, Norway NIS, Sweden, Finland and GBR Gibraltar in that order.⁶ The main cargoes are crude oil, and main ports are Murmansk and Rotterdam by a large margin. The tracks indicate that most vessels hug the Norwegian territorial sea 12 nm. boundary or cross it on the way to the Netherlands. This would indicate clearly in terms of protecting biodiversity the need for sealanes 20 nm. or more seawards or particularly sensitive sea areas (PSSA's) extending seawards 50 nm.⁷

At the same time, problems with a Barents Sea PSSA as outlined by Det Norske Veritas (DNV) north of Finnmark down to Lofoten about 50 nm. out to sea may include discrimination issues, both against Russian oil and gas tankers on the way to Europe and possibly Norwegian fishing vessels. All vessels in international shipping are subject to the measures taken by Norway. If Russia becomes a member of the World Trade Organisation (WTO) which may happen early in 2006, and oil is freighted solely on Russian tankers, it may be questioned whether these are discriminated under General Agreement in Trade in Services (GATS) by being required to sail 50 nm. to sea to Europe?⁸ Although not a problem currently since Russia is only one of 15 flags, albeit the fourth largest, it seems uncertain the effect reflagging of Russian owned vessels to a new Russian international register will have. Will this cause the tankers navigating the Barents Sea to be predominantly Russian? One Russian diplomat indicates that the reasons behind this relate to expedite taxation as well as facilitate the tracking of tanker ownership in case of accidents for liability purposes.⁹ Fishing vessels though not technically regulated under the PSSA regime which governs international shipping, have in practice been strictly regulated or excluded in approximately 67% of the Australian Great Barrier Reef Marine Park - PSSA, and roughly 50%, looking at large trawlers, of the Florida Keys Sanctuary Area - PSSA.¹⁰ What is to guarantee that Norway or other States may not establish a coincident 'Marine Park' - PSSA, containing 10 marine zones with 10 differentiated activities? A legal representative for particularly trawler organisations may with reason be concerned, and Norwegian fishery interests generally fear unnecessary regulation of fisheries.¹¹ Issues surrounding the Convention on Ballast Water need addressing as well for tankers returning to Murmansk and loading ballast water with possible alien species. Parties undertake to prevent, minimize and ultimately eliminate the

⁶ See <http://www.mil.no/sjo/start/article.jhtml?articleID=102534>. Information obtained from Landsdelkommando Nord-Norge (LDKN), 6 September 2005. The latter four are equal in number of navigations.

⁷ See Figure 6. See Sections 5.2. and 6.2. for PSSA's.

⁸ See http://www.wto.org/english/tratop_e/serv_e/gats_factfiction_e.htm. It appears only Russian oil tankers are permitted under the current production sharing agreements Russia has with Norway. The EU production sharing agreements allow other flags, which would seem to allow other flags vessels in the Barents Sea traffic should EU States be involved in this oil production.

⁹ Y. Petrenko, First Secretary, Embassy of the Russian Federation, Oslo, Norway, 'Interview', 7 September, 2005.

¹⁰ The large ATBA in the Florida Keys applies to all vessels but only over 50 meters, and U.S. trawlers in the area are generally shorter. Many Norwegian trawlers on the other hand are over 50 meters would be excluded.

¹¹ P.J. Schei, Director, FNI, 'Interview', 28 June 2005.

transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments.

Many weighty policy arguments exist as well, possibly weighing against a Norwegian PSSA, outlined in the expert report 'Mot Nord',¹² as well as the recent Government White Paper, St.meld.nr.30.¹³ These include untraditional bilateral co-operative agreements between Norway and Russia.¹⁴ A Barents Sea management plan is expected developed by Norway by 2006, covering specific activities and dealing with the interactions between the hydrocarbon, fisheries, transport, biology and security interests.¹⁵ Due to the balance attempting to be achieved by Norway in the Barents Sea, the legal controversy at all levels regarding PSSA designation,¹⁶ current boundary delimitation negotiations with Russia, security concerns in relation to the U.S. and the EU. and NATO, the influence Norwegian shipping, oil and gas, and fishing interests carry, the weight good relations with Russia carries, possible discrimination of Russian tankers sailing 50 nm. to sea, the sensitivity bilateralism with Russia entails, a thin population base in the district Finnmark on the Russian border, as well as the present controversy over Sámi property rights in Finnmark under International Labour Organisation Convention 169,¹⁷ the Norwegian government may well decide not to proceed with PSSA designation. It may decide to achieve much the same through quicker and less controversial measures under SOLAS and other relevant IMO treaties.¹⁸ Enforcement under SOLAS would also seem easier to facilitate due to the vessel identification systems.

On the background of the international developments noted authorities of the International Oil Pollution Compensation Funds (IOPC Funds) associated with the IMO 1992 Protocols to the International Convention on Civil Liability for Oil Pollution Damage (CLC Protocol) and International Convention on the Establishment of an International Fund for Oil Pollution Damage, (Fund Protocol)¹⁹ have in practice acknowledged *the necessity to meet more*

¹² 'Mot nord! Utfordringer og muligheter i nordområdene', (To the north! Challenges and possibilities in the northern areas) *NOU 2003:32*, pp. 25-6. This is an independent expert group's report and proposals published by the Norwegian Foreign Ministry. Translation by author. See <http://odin.dep.no/ud/norsk/publ/utredninger/NOU/032001-020003/dok-bn.html>.

¹³ See <http://odin.dep.no/fkd/norsk/dok/publ/stmeld/047001-040002/dok-bn.html>.

¹⁴ Norway has under the Cold War been fearful of entering bilateral agreements in most areas with the more powerful Soviet Union/Russia. Fishery administration has been the chief exception.

¹⁵ The prospect of transport of nuclear spent fuel from Japan along the Northern Sea Route to the U.K. and France and reprocessed fuel back again has also been discussed, implicating both the Barents Sea and Western European Waters. See generally Steven G. Sawhill and Claes L. Ragner, 'Shipping nuclear cargo via the Northern Sea Route', *Polar Record*, Vol. 38, (204), January 2002,

¹⁶ PSSA designation is particularly sensitive for Russia in the Baltic Sea and sensitive for Norwegian fishing interests in the Barents Sea, the former because of a belief of breach of law of the sea rights of vessel passage and the latter because of a fear of unnecessary regulation of fisheries.

¹⁷ See <http://www.ilo.org/>.

¹⁸ A routing system can encompass mandatory sealanes, traffic separation systems and sailing rules in and out of a definite zone, recommended sealanes, deepwater lanes and precautionary areas, the latter which vessels must navigate with special care and through which recommended sealanes can be established. Areas to be avoided (ATBA) can also be established, where because of a particular danger or a particular sensitive ecological or environmental condition all vessel traffic or a certain type of vessels are forbidden to sail. A routing system can consist of several different of the above in combination. Mandatory or recommended vessel reporting systems are also allowed subject to application to the IMO. As part of this an automatic vessel identification (AIS) system of oil tankers is allowed, making reporting and a reporting scheme superfluous.

¹⁹ International Convention on Civil Liability for Oil Pollution Damage, 29 November 1969, (CLC), *New Directions*, Vol. II, (1973), p. 602; International Convention on the Establishment of an International Fund

demanding clean-up standards in areas associated with important wildlife values and/or tourism. From this one expert believes,

While oil spill damage in ecologically sensitive PSSA's has so far not been an issue for the 1992 Fund Executive Committee...the committee is likely to take a more generous view of reasonableness in order to meet stringent environmental reinstatement costs. Were that to be the case the preventive environmental rationale of marine protected areas would at least prompt a sympathetic realignment in the economic compensation system for oil pollution damage, although the high biodiversity value of such areas is likely to expose more acutely the absence of recompense for eco-system damage per se.²⁰

However, a strong European reaction to the oil tanker accidents with regards to *liability for damage from pollution* occurred and may perhaps be extrapolated to other areas of international environmental law. Viewed globally, the extension under the UNCLOS Part XII of coastal and port State jurisdiction with MARPOL 73/78 probably has not had much impact on pollution prevention, reduction and control. Various problems have been noted. Though practice may have become somewhat 'greener' in the last years, it is unlikely that dramatic changes have occurred. Therefore *the unilateral developments currently taking place in Europe as well as North America should not be underestimated.*

The 1999 *Erika* incident caused much turbulence in the liability and compensation regime governing oil pollution and was the first tanker pollution incident in which the European Commission (EC) has taken a strong role in proposing changes in the international IMO regime. These proposals revolve around increasing available compensation for damage available through, the limitation rights, channelling of liability and a third tier fund, and some experts believe that these may pose a serious threat to the existence of the international liability and compensation regime.²¹ The EC argues first that limitation rights are too protective that should be broken only in cases of 'gross negligence'. This argument finds support from the U.S. OPA 1990²² which marks a significant move and increase away from the limits of liability provided for in the IMO, 1992 Protocol to the CLC.²³ Counter arguments include that the right of limitations would be rendered very vulnerable, the determination of the existence of fault or privity (knowledge) often delays the compensation process, and with more serious consequences, different interpretation of 'actual fault or privity' by national courts would lead to disparities in compensation. It is also argued that the limits under the 1992 Protocols were planned raised by 50.37% by late 2003, unless 25% of State parties objected.

The EC argues secondly that by channelling, liability is imposed in a manner that may not adequately reflect the responsibilities of the parties. Counter arguments include that holding multiple parties responsible encourages litigation, thus slowing down the compensation

for Oil Pollution Damage 18 December 1971, (Fund Convention), *New Directions*, Vol. II, (1973), p. 611. Protocol of 1992 to Amend the CLC, in force 1996 with 91 State parties, 1 June 2003. Protocol of 1992 to Amend the Fund Convention, in force 1996 with 85 State parties, 1 June 2003. See www.imo.org. See also Gauci, G., 'Limitation of liability in maritime law: an anachronism?' *Marine Policy*, Vol. 19, No. 1, (1995), 73. See *ibid.* generally 65-74 for further arguments against limitation of liability.

²⁰ Mason, M., 'Civil liability evolving,' 7.

²¹ See Wu, C., 'Liability and Compensation for Oil Pollution Damage: Some Current Threats to the International Convention System,' *Spill Science & Technology Bulletin*, Vol. 7, Nos. 1-2, 109-11 from which the following is obtained.

²² United States Oil Pollution Act of 1990 (OPA 1990), 33 *United States Code (USC)* 2701, *Public Law* 101-380, August 18, 1990.

²³ See www.imo.org. See also Gauci, G., 'Limitation of liability in maritime law: an anachronism?' *Marine Policy*, Vol. 19, No. 1, (1995), 73. See *ibid.* generally 65-74 for further arguments against limitation of liability.

process and wasting money on transactional costs. Such is argued to damage the negotiated balance under the 1992 Protocols, including the prompt and certain compensation to claimants, set against a financially manageable regime with predictable insurance requirements for liability parties. The current level of coverage of \$1 billion is argued by the IMO to be possible because of the reinsurance given to underwriters by the limitation rights. If the \$1 billion were called upon, there is a real risk it would cease to be available, even at increased cost.

Concerning the third issue, a third tier fund, counter arguments include that a European third tier fund paid for by cargo owners would upset the balance achieved by the 1992 Protocols between ship-owners and oil companies, and consequently undermine the regime. Financial sharing the last 10 years has been approximately 50/50 between oil companies and ship-owners, with the former rarely involved but paying substantial contribution in the large spill clean-ups through the IOPC Funds.²⁴ If forced to contribute to a new purely European oil company-financed fund, European oil companies could put pressure on national governments to move out of the 1992 Fund Protocol, or even move themselves out of European States or pursue re-structuring to allow smaller companies to import smaller amounts below the threshold for Fund contributions.²⁵

Developments surrounding liability coverage for pollution damage associated with oil transport thus should be carefully followed both under the IMO 1992 CLC and Fund Protocols, and also the evolving EU base, including any interrelation between the two. Some turbulence will likely continue due to the European dissatisfaction. The area of law is crucial, both seen in a remedial perspective, as well as a preventative perspective.

Finally, general statements have been made should current claims by the Arctic littoral States to the Arctic continental shelf be recognised, there will remain two small doughnut holes in the Arctic Ocean, with all countries having extended their regulatory regimes out past 200 nm. This is somewhat misleading, since the continental shelf regime under 1982 United Nations Law of the Sea Convention (LOSC)²⁶ Part VI is separate, from the navigational regimes represented by LOSC Parts II (territorial sea and contiguous zone), III (international straits), V (exclusive economic zone, including fisheries) and VII (high seas).²⁷ Also thus far it is only Russia which has made an official submission to the Commission for the Continental Shelf's Outer Limit (CLCS) related to the Arctic, though Denmark and Norway reportedly are in the process of drafting submissions. Though certainly interrelated, these regimes have been functioning separately for at least 10 years, and most longer under other treaties and customary international law. This means in practice that not only will the present navigational provisions probably remain the same for some time into the future, despite developments under the complicated LOSC Article 76 defining the continental shelf, at the maximum out to 350 nm. from the baselines, but also that any navigation associated with developing the continental shelf, will remain

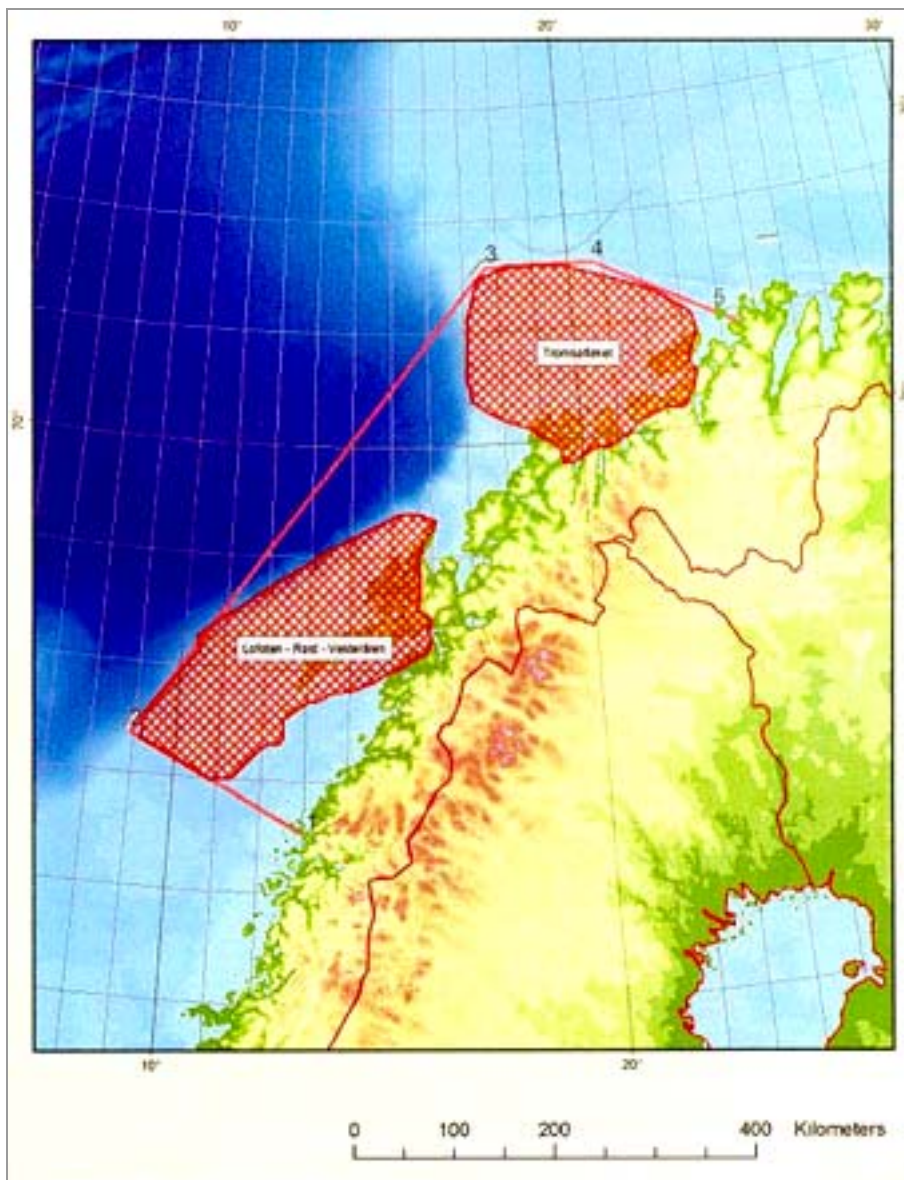
²⁴ See www.imo.org.

²⁵ Gold, E., *Gard Handbook on P&I Insurance*, 5th Edition, (Arendal, Assuranceforeningen Gard-gjensidig, 2002), p. 414, notes the EU has already set the basis for an environmental liability regime for Europe to make polluters strictly liable for environmental damage they cause, which appears to take the EU towards a more U.S. oriented compensation and liability regime. This consequently has serious implications for existing IMO international regimes.

²⁶ 1982 United Nations Convention on the Law of the Sea (LOSC). *United Nations Treaty Series (UNTS)*, reprinted in *International Legal Materials (ILM)*, Vol. 21, (1982), p. 1261. The LOSC came into force 16 November 1994. For the IMO regime see generally <http://www.imo.org/>.

²⁷ LOSC Parts XI (the Area) and XII (Marine Environmental Protection) will also have application, as will the 1994 Agreement on the Implementation of Part XI of the 1982 Law of the Sea Convention, *ILM*, Vol. 33, 1309 (1994).

subject to the international and national provisions already in place. Separation is as well noted in LOSC Article 78. This, as will be seen below, is already extensive for 85% of the Arctic exclusive economic zones, and these marine areas must be crossed by vessels in order to reach the continental shelves lying under the high seas areas. What can be imagined should future navigation increase for any reason, including developments on the Arctic shelf, may be even greater navigational regulation in the Arctic exclusive economic zones, including particularly by Norway and Denmark/Greenland.



Area proposed designated as PSSA in northern Norwegian Sea and the Barents Sea, indicated by a red line. Areas given in red hachure are of high environmental vulnerability. Sectors indicated in grey are suggested Traffic Separation Scheme. Obtained from Figure 10.1., Det Norske Veritas, *Report No. 2002-1621*, p. 112. Please note that distances appear in kilometre (km.). 1 nm. equals 1.852 km. Thus, 100 km. on the chart equals approximately 54 nm.

Discussion

Legal issues are currently developing fast, especially what comes to the EU regulations.

The Norwegian government is considering extending the territorial sea to 20 nautical miles from the current 12 nm. This change would push the shipping lanes another 8 nm off the Norwegian coast, taking 1-2hrs more time on the way to Europe.

There's even been discussion on 50 nm territorial sea, which could come into force if Particularly Sensitive Sea Areas, PSSA's are established at the Norwegian coast. That would prolong the duration of the transport by another 5-6 hours. This kind of extension is not acceptable, for time is money especially in logistics. The ARCOP experts debated on whether PSSA's could be seen as a discriminatory action, for they would mainly fall on the Russian oil traffic. The representatives of oil companies noted, that for the reasons of protecting the environment, the delay in transportation should be seen as a reasonable one. Experts also noted that Norway could avoid controversy by running the protective measures through IMO.

The experts discussed dispute resolution mechanisms that have been established for some waterways, for instance for the St. Lawrence sea way between Canada and the USA. The arbitration mechanism for St. Lawrence was a very successful experience and also very economical one. No such mechanism has been established for NSR, even though it has been suggested.

The boundary limitations were found controversial by some of the workshop participants. Norway has been positive towards these. The US supported them but pulled out. Big states want bilateral agreements because they want to remain in control.

Several assessments conducted by the Arctic Council concentrate on large marine ecosystems. These areas differ from state boundaries, meaning that one has to deal with several legislative conventions. Legal experts of ARCOP were sceptical about the enforcement of the convention of large marine ecosystems. The US has not ratified the convention; flags of convenience have not ratified it either. 25-30% of the shippers transporting Russian oil are flying flags of convenience, and not necessarily taking care of safety issues, so it is not likely that they would exercise this convention either. Western oil companies are recommended to apply the rules they have developed in their own waters. Russia also has developed regulations, but the implementation is lagging behind.

Conclusions

The presentation discusses the main elements of the legal framework of the NSR, including the UNCLOS 234 and 76, the Civil Liability Convention and mentions recent developments in Norway, namely the Particularly Sensitive Sea Areas, which might be established along the Norwegian coast.

It is concluded, that based on UNCLOS 234, there are no major disputes regarding commercial shipping.

The transportation costs from Russian Arctic ports might be affected by the PSSA's under consideration, due to the increase in sailing time. It however seems, that the industry accepts even the costly regulations to protect the environment.

The convention of large marine ecosystems, LME's, is not generally accepted as basis for legislation.

3. EU LAW – TRENDS AND EXTRATERRITORIALITY

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Abstract

EU Trends

Several trends will be noted in EU law in addition to those under civil liability for oil pollution damage noted previously. Then extraterritoriality will be addressed. Related to oil and LNG tankers trafficking the NSR and westover, issues to be dealt with originally included clarification of WTO/GATS and EU requirements for competition, the establishment of a treatment-no-less-favourable regime under GATS, and trade in services under GATS. The Russian Federation is applicant Member State for 10 years and not yet party to the WTO.²⁸ It was determined underway that the WTO/GATS regime would have relevance in the long term, but less so currently. It appears in spite of probable Russian membership in WTO within the next years, the GATS regime governing shipping is still under formation. Thus, EU law will be specific focuses of this speech. However, since Russia is working towards that accession take place in 2006, an overview of the WTO/GATS regime will be given in the final paper, together with Russian views regarding WTO/GATS membership.

Criminal Sanctions

Related to criminal sanctions, the EC and the European Parliament (EP) are drafting what appears to be moving beyond what the IMO has been attempting to do, due to differences in implementation by States of MARPOL 73/78, *particularly related to the imposition of sanctions for discharges of polluting substances*.²⁹ The scope is increased holding not only the ship-owner or master of the ship criminally liable, but also cargo owner, the classification society or other involved persons. This is applicable in all maritime zones for infringements in accordance with international law, committed with intent, recklessly and or by serious negligence.

PSSA's

Similarly, *Western European Waters* were designated 'in principle' at MEPC 49 as a PSSA.³⁰ MEPC 52 agreed to the final designation of this PSSA³¹ In the October 2004 IMO/MEPC meeting Western European Waters were finally designated, with a new mandatory yet free vessel reporting system as an 'associated protective measure' under SOLAS Regulation V/11 which will enter into force in June 2005.³² NAV had approved a

²⁸ The Working Party on Russian accession was established on 16 June 1993. For the status of the negotiations. See http://www.wto.org/english/thewto_e/acc_e/a1_russie_e.htm

²⁹ See Brussels, 28 Feb. 2005, Doc. No. 6614/05, MAR 24, ENV 29, CODEC 100; and Brussels, 17 Feb 2005, Doc. No. 6408/1/05 REV 1, MAR 21, ENV 73, DROIPEN 11, CODEC 93. Italics added.

³⁰ See J. Roberts, M. Tsamenyi, T. Workman, and L. Johnson, 'The Western European PSSA proposal: a 'politically sensitive sea area'', *Marine Policy*, Vol. 29, Nr. 5, 2005, 431.

³¹ See <http://imo.amsa.gov.au/public/resolution-titles/res-mepec.html> (subscription) and www.uscg.mil/hq/g-m/mso/docs/MEPC_52_Delegation_Report.doc.

³² See MEPC 52/24 p. 47 citing MEPC121(52) and SOLAS Regulation V/11. See MEPC 52/24/Add.1, Annex 10, (Annex 3) for specifics regarding the new mandatory ship reporting system for the Western European PSSA. Detailed descriptions of the characteristics of the maritime traffic, the transport of

mandatory ship reporting system, which was proposed by Belgium, France, Ireland, Portugal, Spain and the U.K. to serve as an 'appropriate protective measure' for this *large marine area*. Other APM's already in place and adopted by the IMO include traffic separation schemes, deep-water routes, areas to be avoided, routing measures, mandatory ship reporting systems, and coastal vessel traffic services (VTS).³³ This PSSA covers the Western coasts of the United Kingdom, Ireland, Belgium, France, Spain and Portugal, from the Shetland Islands in the North to Cape S. Vicente in the South, and the English Channel and its approaches.³⁴ Sensitive areas include a very high species diversity of both macro-fauna and flora, including seabirds. Offshore waters of Ireland contain some of the richest fishing grounds in Europe. Various specially protected areas (SPA's) already exist off the coasts of Ireland, Belgium, Spain and Portugal. Off the coasts of Belgium lie areas known for fishing, and off France areas known for great biodiversity and biological wealth. Spain and Portugal enjoy coastlines with areas containing species of fauna and flora with a high degree of endemism. The marine and shore environment of the Belgian, French, Irish, Portuguese, Spanish and U.K. coasts, the English Channel and its approaches are thus particularly vulnerable to the risks of vessel transport. This area is one of the most international significant sea routes due to the number of ships and quantities of dangerous or polluting goods transport. 25% of the world commercial traffic converge on the English Channel, on the way to the industrial areas and harbours of northern Europe. additionally significant cross channel commercial traffic exists between Ireland and the U.K., between Ireland, the U.K. and the European mainland, and North European traffic bound for Western Atlantic ports. Because of the size of the PSSA and the location and the EU coastal States, future environmental and safety measures concerning international shipping should be watched. This area will undoubtedly be of importance in defining the PSSA regime, including in relation to the Barents Sea.

Vessel and Port Security

Along the same lines, the International Ship and Port Facility Security Code (ISPS) as was adopted in the IMO with amendments in SOLAS to increase security and measures against terrorism on board vessels and in ports.³⁵ The EU adopted Provisions 725/2004 implementing the IMO provisions, *but expanding the scope and requirements for vessels and port terminals*, and through this, parts of domestic traffic are also encompassed. A new EU Directive may be adopted in 2005 that expands the scope, especially with respect to facilities that handle large quantities of dangerous and polluting cargoes, located near populations centres. Norway is implementing these provisions, both for vessels and ports at a substantial cost, to hold a standard with Norway's most important trade partners.

Competency

Although the European Court of Justice stated already in 1964 that the European Community represents a hybrid conglomerate situated somewhere between a State and an intergovernmental organisation, much controversy still affects the field of the Community's

harmful substances, and the threats from disasters, including a description of the meteorological, oceanographic and geographical conditions is found in MEPC 49/8/1 and MEPC 49/8/1 add.1 and MEPC 49/8/1 Corr.1.

³³ See MEPC 52/24/Add.1, Annex 10, (Annex 2) for specifics areas and measures.

³⁴ See MEPC 52/24/Add.1, Annex 10 for the following description. See MEPC 49/8/1 for detailed descriptions of the ecological, socio-economic and cultural, scientific and educational criteria of this area.

³⁵ See <http://www.ilo.org/ilolex/english/convdisp1.htm>

role as an actor under international law.³⁶ In particular, problems arise in case the Community's member States accede to a multilateral convention dealing with a subject for which they subsequently transfer competence to the Community. This may be demonstrated by referring to the case of the IMO. Whereas all member States of the Community are IMO members, the European Community itself may at present neither become a member to the IMO since membership is restricted to States, nor may it accede to the conventions negotiated within the organisation. According to Article 80 of the European Community Treaty, however, the Community holds internal and external competence in respect of shipping. Therefore, the Community's member States are bound to the obligations deriving (directly or indirectly) from their membership to the IMO as well as to the shipping standards enacted by the Community. The question of which obligations enjoy primacy in case of conflicting obligations deriving from international law on the one hand and from European law on the other is still being answered.

These developments might be followed closely, particularly with respect to the growing EU legislation, as well as the U.S. OPA 1990³⁷ and related legislation. Should a PSSA in the Barents Sea not be designated, the protective measures and implementation of such taken by the EU, the U.S. and perhaps Canada could be modelled by Norway, or other States, for example with similar or slightly less strict provisions in order to achieve less resistance from adversarial interests such as shipping. It remains to be seen how these developments will affect the Barents Sea, however, the EU and U.S. coastal environmental regimes may likely have an effect on the hydrocarbon vessel traffic in the Barents Sea, including port entry requirements in both of these federations for vessels carrying Russian hydrocarbons.

The territorial scope of European Union shipping services acquis – with a special emphasis on free trade in Russian arctic oil and gas shipping services

As the proposal for an international competition law³⁸ is deadlocked,³⁹ unilateralism seems the most plausible alternative for efficient regulation of intra State activities. The hypothesis is that solutions emanating from an extensive extraterritorial reach of the European Union shipping services *acquis*, are sufficient in the case of the EU-Russia transportation trade.

The aim of this project is to display the EU-Russia *oil and gas transportation market* lie under the legal regime of the EU trade in shipping services, irrespective of the citizenship or location of the subject addressed. *In casu*, what is the territorial scope of the 1986 *Maritime Service Regulation* (No 4055/86), the 1986 *Maritime Competition Regulation* (No 4056/86) and the 1979 *Liner Conferences Regulation* (No 954/79)?

³⁶ A. Proelß, University of Tübingen, Speech – ‘EC Competence in Respect of Shipping: Is the Community Bound to Obligations Arising from IMO Conventions?’ University of Oslo, 23 November, 2005.

³⁷ United States Oil Pollution Act of 1990 (OPA 1990), 33 *United States Code (USC)* 2701, *Public Law* 101-380, August 18, 1990.

³⁸ See WTO Doc. WT/WGTCP/2 of December 8th 1998, Doc. WT/WGTCP/3 of October 11th 1999 and Doc. WT/WGTCP/4 of November 30th 2000.

³⁹ Harry First. *The Vitamins Case: Cartel Prosecutions and The Coming of International Competition Law*, 68 *Antitrust Legal Journal* (2001) p. 711 ff., at 727-33 which still is the US-position under the ongoing Doha-round, see Kerrin M. Vautier. *International Approaches to Competition Law: Government Cooperation for Business Competition in Yang-Ching Chao & al. International and Comparative Competition Law and Politics* (2001) p. 199.

No attention is directed to the material law of trade in shipping services.⁴⁰ Nor is discussion addressed to the national States' option to refrain from compelling legislation, which leave it open to trade partners inside and outside Russia to opt for the EU maritime regulations. Freedom of contract demands a national declaratory prescription policy,⁴¹ which is the codified solution for trade in goods but not yet for trade in services.⁴²

Zero tolerance for double standards: The international law frame

As justified i.a. by the International Court of Justice (ICJ) the unilateralist approach *ratione terrae* and *ratione personae* should be balanced against international law.⁴³ Thus, focus is upon the international law 'effects doctrine',⁴⁴ the *notion of comity among States* and the *ban on double standards*, which imply the principle of reciprocity, often called *the golden rule* among nations. The reciprocity requirement makes national States' actions unlawful if identical actions in the hands of other States are opposed by that State. The EU cannot carry out results that receive its condemnation elsewhere.

The EU condemned U.S. extraterritorial provisions

The litmus test of the EU comprehension of illegal implementation of the 'effects doctrine' is the EU position concerning the 1996 *Blocking Statute* (No 2271/96) to the U.S. extraterritorial legislation over what has been called 'a most questionable example of USA's imperialistic behaviour in international jurisdictional conflicts'. Due to the *zero double-standards principle*, this position should also curb the EU's extraterritorial jurisdiction. Characterizing the U.S. extra-territorial position as statutes that 'violate international law', the international societies of States will request that the EU itself follow identical requirements under international law.

The EU envisages that four instances of extra-territorial application violate international law, all four of which originate in the U.S.⁴⁵ Thus the legal consequences of these provisions are claimed 'null and void' *vis-à-vis* EU subjects:

⁴⁰ See however the Commission of the European Communities. White paper on the review of Regulation 4056/86, applying the EC competition rules to maritime transport COM (2004) 675 final of October 13th 2004.

⁴¹ An option that reaches back to 13th January 1987; The Soviet Union legislation on equity joint enterprises to be formed with partners from Western countries on the territory of the Soviet Union, See W.E. Butler, Joint ventures and the Soviet Arctic, *Marine Policy*, March 1990, 175.

⁴² See the 1980 Vienna U.N. Convention on International Contracts on Trade in Goods.

⁴³ See *i.a. U.K. v Norway (Fisheries Case)* ICJR 1951, 116, at 132; 'Although it is true that the act of delimitation is necessarily a unilateral act, because only the coastal State is competent to undertake it, the validity of the delimitation with regard to other States depends upon international law'.

⁴⁴ This concept is also called the principle of objective territoriality. This doctrine relies on unilateral actions to what are observed as conflicts of law issues. As made clear by the ECJ in the *Ahlström*-case 'the Community's jurisdiction to apply its competition rules to such conduct [abroad] is covered by the territoriality principle as universally recognized in public international law.' ECR [1988] p. 5193, at paragraph 18.

⁴⁵ See respectively National Defence Authorization Act for Fiscal Year 1993, Title XVII Cuban Democracy Act 1992, sections 1704 and 1706, Cuban Liberty and Democratic Solidarity Act of 1996 and Iran and Libya Sanctions Act of 1996. Code of Federal Regulations, Chapter V Part 515 - Cuban Assets Control Regulations, subpart B (Prohibitions), E (Licenses, Authorizations and Statements of Licensing Policy) and G (Penalties).

No person referred to in Article 11 shall comply, whether directly or through a subsidiary or other intermediary person, actively or by deliberate omission, with any requirement or prohibition, including requests of foreign courts, based on or resulting, directly or indirectly, from the laws specified in the Annex or from actions based thereon or resulting there from' (1996 The Blocking Statute Article 5 – italics added)

The non-compliance order also relates to U.S. justification or public decisions:

No judgment of a court or tribunal and no decision of an administrative authority located outside the Community giving effect, directly or indirectly, to the laws specified in the Annex or to actions based thereon or resulting there from, shall be recognized or be enforceable in any manner (Article 4).

In all cases referred to in the Annex to the 1996 The Blocking Statute,⁴⁶ the EU subjects affected should engage in international trade or the movement of capital and related commercial activities between the Community and third countries. The persons affected according to EU's interpretation, are EU legal subjects defined as:

1. any natural person being a resident in the Community and a national of a Member State,
2. any legal person incorporated within the Community,
3. any natural or legal person of the Member States established outside the Community or shipping companies established outside the Community and controlled by nationals of a Member State, if their vessels are registered in that Member State in accordance with its legislation
4. any other natural person being a resident in the Community, unless that person is in the country of which he is a national,
5. any other natural person within the Community, including its territorial waters and air space and in any aircraft or on any vessel under the jurisdiction or control of a Member State, acting in a professional capacity' (1996 regulation Article 11 and 1986 regulation Article 1 (2)).

As indicated, this listing includes natural and juridical persons. It covers persons that are residents, incorporated, or present within the EU. Being a resident in the EU means, being legally established in the EU for a period of at least six months within the 12 month period immediately prior to the date on which, under this Regulation, an obligation arises or a right is exercised.⁴⁷ According to *the golden rule* of international law, the EU cannot condemn an U.S. position and likewise follow identical practice vis-à-vis foreign legal subjects abroad.

*The extraterritorial reach of the Liners Conferences provisions*⁴⁸

An issue of interest is whether the headquarters or founding place of Liners Conferences are relevant for the application of that provision. Should shipping services – irrespective of the State for incorporation of the Liners Conferences or the nationality of the ship – subsume under the EU shipping trade *acquis*? As regards the active subject – the offender – it should be stated that it is sufficient that his dominant position *'may affect*

⁴⁶ Council Regulation (EC) No 2271/96 of 22 November 1996, Official Journal L 309, 29/11/1996 p. 1 - 6.

⁴⁷ 1996 Regulation note 4.

⁴⁸ The Liners Conferences system is now threatened. A liberalization drive towards trade in services is under way. For consideration in the European Parliament is currently the Draft Directive on Services in general (September 12-17, 2005), See Financial Times, September 12th 2005 p. 15: Ian Byatt: 'Europe's Directive on Services must not be diluted'. Further liberalization provisions are advertised.

trade between Member States'. It is sufficient that the position held have a possibility for the negative implications on the trade.

As with the Article 81 discussion, the effects are manifest *within* the EU, but there is no matching claim in relation to the location of the active part, the offender. Thus we experience also here unlimited competency *jurisdiction ratione terrae*, a discretionary power that the Council may use according to the *1986 Maritime Shipping Regulation Article 7*.

Article 82 is triggered by the presence of a dominant position. Whether it is caused by, unfair purchase or selling prices or competition, production quotas, market limitations, market discrimination or other dominating draws, is of minor interest, as the list mentioned is only illustrative. The remaining question is to figure out whether agencies fully take advantage of the competencies.

The analysis of the specific Conferences⁴⁹ indicates, that the EU trade in shipping services provisions is designated to the Liners Conferences, without respect to the nationality of the conference members and irrespective of the location of the conferences' headquarters as long as internal effects are apparent in the EU shipping trade market. Conferences having its main office or place of incorporation outside the EU are included. So is also a foreign ship that operates under a Liners Conference, whether or not that ship is owned by non-EU citizens or flies a foreign flag. In this respect the EU is in the same position as the heavily criticized position of the U.S. as indicated in the 1996 Blocking Statue.

Thus from this it is seen that the EU – under the Liners Conferences Regimes – fully practices the '*effects doctrine*'. Charter parties negotiated and signed in Russia outside such conferences by Russian inhabitants taking Russian petroleum to destinations in EU, escape however these provisions, because no Liners Conferences apply to the Russian harbours that ship Arctic petroleum. Amending the TAA Liners Conferences so as to affect the northern and eastern part of Russia would however incorporate Russia oil and gas charter parties, and thus bring members of this trade under the auspices of the EU Treaty Articles 81 and 82, as implemented in *1986 Maritime Service Regulation*.

Applying the EU legislation to such shipments requires a bilateral EU-Russia agreement justifying principles of the 1986 Regulation. A model here could be the European Economic Area Agreement (EEA) which requires the associated members of the Union – Iceland, Lichtenstein and Norway, to fully implement the EU *inner market acquis*. In this respect, the EU is close to the U.S. in its broad application of the '*effects doctrine*'

The 1986 Trade in Shipping Services Provisions

Leaving the area of Liners Conferences it is found that ships registered abroad are excluded from the freedom to provide services according to the *1986 Maritime Service Regulation Article 1 (2)* if the owner is not a national of a Member State. For example, a ship incorporated in Russia is under the EU *acquis* as long as the ship-owner is a citizen of one of the EU Member States. This is not without modification; a shipping company incorporated outside the EU is still under the EU shipping *acquis* if it is controlled by nationals of a Member State even though these ships are not registered in the EU

This being a starting point, the picture is not at all clear, taking case law into consideration. The 1988 *Ahlström Case* was related to concerted practices between undertakings

⁴⁹ The most important Conferences are the Trans-Atlantic Agreement (TAA) of 31 August 1992, Associated Central West Africa Lines (Cewal), Continent West Africa Conference (Cowac), United Kingdom West Africa Lines Joint Service (Ukwal) and Mediterranean West Africa Conference (Mewac).

established in non-member countries that affected selling prices to purchasers established in the Community.⁵⁰ The foreign sellers claimed that the Commission by imposing fines on them infringed the home countries' sovereignty and thus breached the principle of international comity.⁵¹

Even more extensive use of the EU competition *acquis* is illustrated by the *Gencor Case*. Here Gencor Ltd., a company incorporated under South African law, established in Johannesburg was, by its purchase of an English company, Lonrho Plc ('Lonrho'), thereby created an illegal dominant position (EC Regulation No 4064/89). The company applied for the annulment of Commission Decision 97/26/EC of 24 April 1996, declaring an amalgamation to be incompatible with the common market and the functioning of the EEA Agreement.⁵²

It was stated that the Regulation No 4064/89,

...does not require, in order for a concentration to be regarded as having a Community dimension and, accordingly, for it to fall within the scope of that Regulation, that the undertakings in question must be established within the Community or that the production activities covered by the concentration must be carried out in Community territory.

The application of this regulation,

...is justified under public international law when it is foreseeable that a proposed concentration between undertakings established outside the Community will have an immediate and substantial effect within the Community.⁵³

...as regards the consistency of that approach with public international law, the German Government states that both the conflict rule contained in the Regulation and its application in the present case fulfil the criteria arising from the 'effects doctrine', otherwise known as the principle of objective territoriality. The achievement by each of the two undertakings involved in the concentration of a turnover within the Community of at least ECU 250 million constitutes a sufficient connecting factor. Furthermore, the facts referred to by the Commission in its analysis of the impact of the concentration on the EEA confirm that the extraterritorial application of the Regulation is consistent with international law.⁵⁴

Thus the '*effects doctrine*' is no remote wish but a firm characteristic indicating the EU legal position.⁵⁵ The EU Commission Competition Directorate draws similar conclusions during the latest years. Here it is sufficient to mention the merger between foreign companies such as Boeing/McDonald Douglas,⁵⁶ Exxon/Mobile,⁵⁷ General Electrics/Honeywell⁵⁸ and

⁵⁰ *A. Ahlström Osakeyhtiö and others v Commission*, Judgment of the Court of 27 September 1988, Joined cases 89, 104, 114, 116, 117 and 125 to 129/85 [1988] ECR p. 5193.

⁵¹ L.C. paragraph 8.

⁵² *The EU Commission Case No IV/M.619 - Gencor/Lonrho*, OJ 1997 L 11, p. 30.

⁵³ *Case T-102/96 Gencor Ltd v EU Commission* [1999] paragraph 2-3.

⁵⁴ *Op.cit.* paragraph 74.

⁵⁵ The Court of First Instance (CFI) in the 1999 *Gencor Case T-102/96*, [1999] ECR 753 paragraph 74 confirms this. However as Richard Whish, *Competition Law* (4th ed. 2000) at p. 399-400 states we still fail to find any ECJ explicit confirmation of the '*effects doctrine*' as such.

⁵⁶ 1997.

⁵⁷ 1999.

⁵⁸ 2001.

AT&T.⁵⁹ The EU jurisdiction to the amalgamation were in all cases acknowledged by the involved companies.

Russian or third country ships owned by companies controlled by non-EU nationals are however beyond the competition law jurisdiction of the EU, and it would not be expected that any justification of the 1986 Regulation would bring any changes. In this respect the EU trade in shipping *acquis* – with the exception of charter parties that are covered by the Liners Conferences Agreements – goes clear of the harsh criticism addressed to the U.S. legislation listed in the 1996 Blocking Statute.

Discussion

EU is going beyond IMO with respect to safety and demanding more. Russian tankers need to agree with both EU and US sea laws and port restrictions. This might be considered extraterritorialism.

Conclusions

The presentation mainly focuses the development trends of the EU law with respect to shipping, for the WTO/GATS implications are currently considered less relevant, although Russia is in the process of joining the WTO. The question of extra territorialism is also addressed.

EU tends to go beyond the IMO regulations and demand more. When trading with the EU, shipping is subjected to EU regulations, which might favour transshipment schemes: IMO regulations apply in the ice-covered areas, in open water the EU regulations are in force. In this case the EU regulations would be in force only on the open-water part of the transportation route and the actual Arctic part of the route would be covered by the IMO regulations. A lot of open questions related to free competition remain, for the third country ships owned by companies controlled by non-EU nationals are not subjected to the competition laws of the EU.

⁵⁹ Financial Times September 29th 2004. The legal issue that was decided against the Commission was of a procedural character, blocking the commission from taking a stand if the merger is reversed, which was here the case.

4. THE INTERNATIONAL SHIPPING COMMUNITY AND OIL TRANSPORTATION IN THE NORTH

Sverre Bjørn Svenning, Fearnley Consultants

Abstract

The presentation gives an overview of the current terminal and shipping activities in the Northern ports of Russia.

The most active terminals engaged in oil shipping are Murmansk, Archangelsk, Vitino and Varandey. Prirazlomnoye and Dikson are among the projects that are expected to launch during the nearest years.

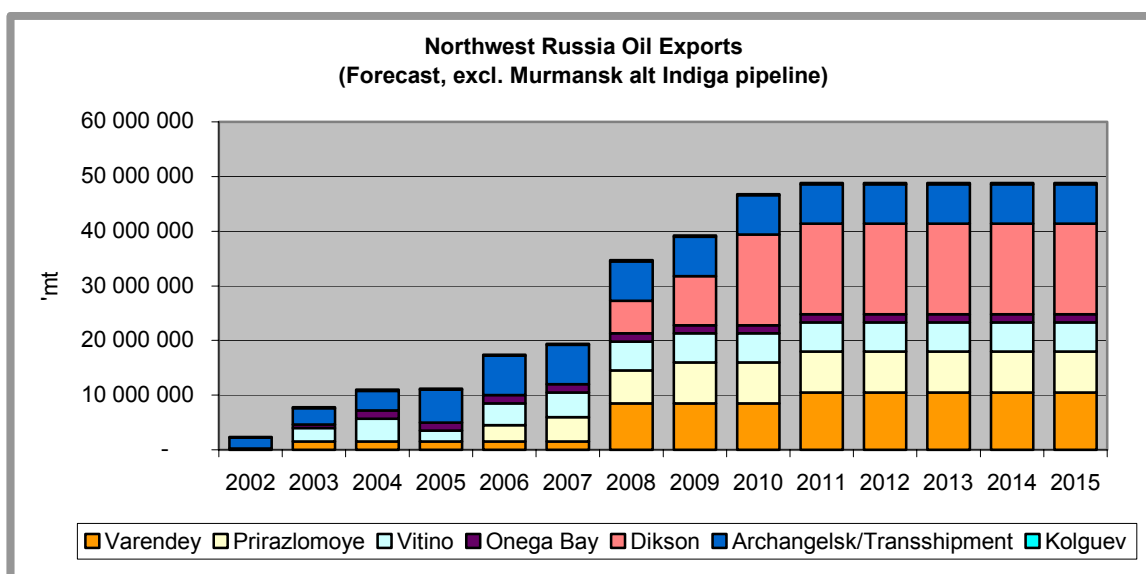


Figure: Oil Export from ports in Northwestern Russia 2002-2015 (forecast) for Kolguev, Archangelsk, Dikson, Onega, Vitino, Prirazlomnoye and Varandey)

Murmansk port is an important transshipment hub. Murmansk receives oil by railways and also by shuttle tanker connections from the rest of the Arctic ports. Murmansk port has undergone a development program and is expected to grow further until 2015.

Archangelsk terminal handles mainly Rosneft's oil shipments. Archangelsk shipping activities are limited by the shallow waterways. The estimated throughput in Archangelsk towards to end 2005 is expected to be at around 100.000 tons per month.

Vitino has suffered from the raising railway tariffs. During 2005 the shipments were halted altogether for a period of time. Novatek has announced plans to invest in Vitino to expand condensate transportation through the port.

LUKoil has announced big investments to expand the Varandey terminal in the Pechora Sea after Transneft's Indiga terminal plans were shelved in 2005. The new terminal is scheduled for operation in 2008, but some delays are expected.

The Pechora and Kara Sea oil shipments face a number of special environmental conditions, which make demands especially for crew and the technical solutions. Based on the plans of the oil companies, it can be safely forecasted that the tanker traffic along the NSR will grow substantially. There will also be room of foreign operators. These forecasts do not include the enormous gas resources of Yamal Peninsula.

(See: Appendix 2)

Discussion

The large-scale exports from the Russian Arctic are about to start. Mr Svenning was asked whether it would be more profitable to take the oil straight to the market instead of the transshipment scenario that requires facilities and consumes time. Mr Svenning commented that the transshipment system is actually more economical. For instance a project that produces 240.000 barrels of oil per day needs 4-5 tankers to transport it during winter. If direct transportation from an Arctic port to Europe would increase the number of needed ice-going vessels, for a round-trip from Murmansk to Rotterdam only takes 12-13 days. Taking into account that a roundtrip from Murmansk to Varandey takes 3-4 days in summer and 5-6 in winter, it would simply be too expensive if transshipment systems were not in use. During summer it is possible to take the oil straight to the buyer for other than ice-going vessels can be used, but not in winter.

The experts discussed the cabotage and export transportation requirements. In cabotage operations, Russian flag is needed. In export transportation Russian flag is not needed. If oil is taken straight to the customer, the number of needed ice-capable ships will double.

Russia wants to protect its interests. It was noted that projects like Primorsk terminal, Burgas pipeline and the pipeline to China are not economically driven but have strong geopolitical and geo-economical drivers behind them.

Placing terminal outside the territorial waters emerged as a solution in a situation where only Russian vessels are allowed inside the Russian territorial waters. The experts were not sure about whether that kind of transport would be considered export or not.

According to the Norwegian radar tracking, the average age of the ships operating in Russia is 5 years, which is quite impressive.

The future of the icebreaking services was discussed. Russia needs to renew the vessels after year 2015 but only one vessel is currently under construction, the "50 Let Popeda". New solutions to avoid the limitation of the declining icebreaking fleet are emerging as the Prirazlomnoye operator Sevmorneftegaz has announced to contract icebreakers for the project.

The trends of the ship flagging were discussed. In the future most of the contracts will go to far-eastern companies. Singapore for instance is growing. Singapore is nowadays very strict, but at the same time they have changed the tax scheme: today a ship-owner who takes a Singaporean flag will have a tax free operation for 10 years. The Chinese shipping community is also active, Hong Kong, Shanghai among other harbours.

The author concludes that in the future tanker trade in NW Russia will increase substantially.

However, number of tankers will not become high. With the growing shipping needs, there will be opportunities for both domestic and foreign ship-owners.

Conclusions

The produced oil volumes are increasing in the Arctic, causing needs for new export routes. Marine shipping of the Arctic oil is growing, as companies are investing in terminal facilities.

The shipping requires newbuilding of crude carriers. According to the calculations of the Fearley Consulting, the near future needs for the Russian Arctic are in total 16 open water tankers and 21-26 ice-going tankers. The estimations on the tanker needs show that the number of tankers might even decrease due to increase in sizes. There are opportunities for both domestic and foreign shippers, even though the shipping activities in the Russian Arctic are at the moment dominated by Russian companies.

5. DEVELOPMENT OF RMRS REQUIREMENTS FOR THE PROPULSION SYSTEMS OF ACTIVE ICE-GOING VESSELS INCLUDING DOUBLE-ACTING VESSELS

A.V. Andryushin, Russian Maritime Register of Shipping

Abstract

Ensuring the propulsion system safety is one of the main tasks for the modern icebreaker construction industry and the classification societies. This is due, in the first place, to the high level of ice loads applied to these ships during their service.

Development of relevant requirements becomes imperative in view of the tendencies of the modern icebreaker fleet development. At present, azimuth thrusters with fixed-pitch propellers (FPP) and controllable pitch propellers (CPP) are being installed aboard active ice-going vessels. Aker Finnyards are designing a double-acting ice-going vessel (DAT), which will be equipped with an Azipod azimuth thruster. Under ice conditions, the azimuth thruster operates as a bow thruster. Similar propulsion systems will be installed in arctic DAT designed for oil transportation from the oil fields of the Pechora Sea. The current strength requirements for the propulsion system components of icebreakers are based on static strength and experience of earlier operation. Ensuring the strength of modern propulsors goes beyond this experience. Besides, when assigning scantlings, fatigue is to be considered. Therefore, the modernization of existing requirements and the development of new requirements are indispensable. In view of the importance of the problem, the Register is constantly elaborating its normative basis proceeding from research, experience of technical supervision, consultations and exchange of experience with the leading manufacturers.

The above trends of icebreaker fleet development, generalization of operation experience and research results have, for the present, determined the lines of RS Rules development for the propulsion systems of ice-going vessels. The main lines listed below are as follows:

- ensuring the strength of the main components in the power line flux proceeding from the condition of the fatigue and pyramid strength (propeller: blades, CPM components; shaft; thrust bearing);
- requirements for the engine moment to ensure the propulsion system operability during propeller-ice interaction;
- development of requirements for the main engine power and propulsive pull.

The development of requirements for the strength of propulsion system components is based on a scientifically substantiated approach: loads – strength criteria (safety criteria) – scantlings of components. The strength criteria (safety criteria) are formulated proceeding from the modern theory of reliability as well as by means of FSA.

The following requirements have either been developed within the framework of this approach or are at the final stage of development:

Load and strength criteria requirements:

- requirements for ice loads on the propeller (axial ice loads and moment);
- dynamic load requirements for the propeller-shafting system;
- requirements for the maximum blade-breaking force;
- requirements for the statistical probability criteria of reliability;

- strength criteria requirements proceeding from the condition of ensuring fatigue strength;
- requirements for the deformation criteria of strength in stress concentration areas after a single application of maximum loads;

Requirements for the scantlings of:

- propeller blades proceeding from the condition of fatigue and ensuring static strength;
- flanged connections (blade-to-hub connections, azimuth thruster-to-hull connections) proceeding from the condition of ensuring pyramid strength;
- CPP CPM components proceeding from the condition of pyramid and ensuring fatigue strength;
- propeller shafts;
- main thrust bearings.

The principal requirements for blades, propellers, CPM components, pyramid strength were included in our preceding report delivered in 2004 in Helsinki, and the details of these are to be found in book 12 of RS [1]. Propeller scantlings are assigned proceeding from the condition of fatigue and ensuring static strength. This approach enables a scientifically substantiated assignment of propeller scantlings proceeding from operation mode and propulsion system location. The requirements thus developed apply to double-acting vessels whose propulsion system undergoes more intensive ice effects, which, in its turn, makes an additional strengthening of propellers indispensable proceeding from the condition of ensuring fatigue strength.

The scientifically substantiated strengthening of the propeller blades of double-acting vessels makes it possible to strengthen other scantlings of the propulsion system as well proceeding from the condition of ensuring pyramid strength. The fatigue strength is to be considered, too.

At present, the requirements developed are in the checkout phase, and they were used for the design and approval of the propulsion systems of modern ice-going vessels including icebreakers and double-acting ice-going vessels.

Recently, the requirements for propeller shaft scantlings were updated [2] and requirements for thrust bearings were developed proceeding from the condition of fatigue and ensuring static strength. Within the framework of those proceedings, research aimed at developing the requirements for ice loads upon the propeller and for dynamic loads in the propeller-shafting system is partly completed and partly still going on.

Bearing in mind the experience gained in operation and when considering the technical documentation, the timeliest were the tasks of ensuring the strength of propulsion system components under the effects of dynamic ice loads as well as the ensuring of engine operability in the process of propeller-ice interaction. These problems are the most urgent in the case of double-acting vessels characterized by an increased intensity of propeller-ice interaction.

Lately, the problem of scientifically substantiated assignment of power to ensure safe operation in ice has taken on great importance.

The principal results are presented in the report as well as approaches to solving the above tasks and developing relevant requirements including those for double-acting ice-going vessels.

Reference

1. Collection of regulating documents, book Twelve (12)// Russian Maritime Register of Shipping, Saint-Petersburg, 2005
2. Collection of regulating documents, book eight (8)// Russian Maritime Register of Shipping, Saint-Petersburg, 1998

Discussion

The representative of Russian Maritime Register of Shipping, RMRS, was asked, whether RMRS has a meaning to accept the IACS harmonized rules. The RMRS representative confirmed this and noted, that the new RMRS requirements have been submitted to IACS and IMO in Book 12. The requirements that were presented in the workshop will be submitted as well.

The RMRS representative was also asked about their approach to reliability in developing the rules. He answered that a statistical approach was applied and that model tests are also welcomed as an alternative testing method to define ice loads for propulsion. The new rules have been validated by actual cruises, with existing ships and models. There have been some problems related to large tankers regarding displacement. He noted that it is difficult to determine power requirements for these kinds of vessels.

Conclusions

The propulsion system safety of icebreakers and Arctic cargo vessels is one of the main priorities for the construction industry and the classification societies. The development of the relevant requirements is emphasized by the need for reliability in the extreme conditions of seas of the Russian North.

Russian Maritime Register of Shipping RMRS will, as IACS member, accept the IACS rules for hull and machinery. But in addition, RMRS will retain their own regulations

In the discussion regarding performance vs. safety, many opinions were heard. The ARCOP experts concluded, that performance has to be considered a safety issue.

Currently, the regulations for navigating at the NSR do not consider independent navigation. Special regulations for double-acting vessels are however under preparation.

6. ARCTIC SHIPPING RULES

Victor Santos-Pedro, Transport Canada

Abstract

The presentation gives an overview of the current situation of the IACS harmonised rules preparation process. The many years' work to establish a unified rule system has been criticized by some. Still, the shipping community, ship-owners, classification societies and many other organisations have difficulties coping with the unclear and confusing variety of rules. There is a demand for the unified rules, but finding consensus has been proved difficult.

The first chapters of the IACS harmonised rules have been submitted to the IMO for review. The preparation of the rules regarding machinery is underway. The working group hopes to have the rules ready, approved by the IMO and by the classification societies by mid 2007.

Discussion

ARCOP has given the opportunity to discuss the timely subject, for the IACS has been preparing the harmonized rules. IMO adopted them in 2002 by the name of "Guidelines for ships operating in Arctic ice covered waters". The IACS harmonized requirements are ready, but have not been put into action yet. The chapters regarding hull are ready, whereas the part regarding machinery is not quite yet. Mr Santos-Pedro noted that it is an important development and credit for the people involved, that the working group has been able to have a common goal. The work is now almost completed.

By the situation now at hand, it's very difficult for ship-owners and everybody involved to know what rules to use. Investments in this industry are big. With the new rules, there would be the possibility of knowing, that there is a set of rules available that is developed by experts and which is reliable. The certainty in the safety aspect of the work is also important.

Conclusions

The preparation of IACS unified requirements is finally reaching the closing phase. They are considered to fulfil many needs in the industry, even though their contents have been heavily discussed.

The latest topic that has emerged during ARCOP has been the fact, that the IACS unified requirements only deal with structural safety. They do not consider performance, which is considered a considerable deficiency especially by the Russian shipping register officials. It should however be remembered, that even though the issue of performance is not touched in the IACS rules, it does not rule out additional requirements issued by the national authorities.

7. THE NORTHERN SEA ROUTE - Requirements to ships and interrelation between ice classes

Loly Tsoy, Central Institute of Marine Research and Design CNIIMF

Abstract

Russian "Regulations for navigation on the seaways of the Northern Sea Route" were worked out and published in 1991 after the Soviet Union had declared the opening of the Northern Sea Route for international navigation.

The Arctic is a very sensitive region and any accident at sea may cause serious consequences. Therefore, ships are to navigate on the seaways of the NSR under reliable State control and being escorted by Russian icebreakers. The NSR shipping control is affected on the non-discrimination basis for ships of all states.

"Regulations for navigation on the seaways of the Northern Sea Route" are now being prepared for republication. The Regulations will be brought into line with provisions of the Federal Law "On inner sea waters, territorial sea and adjacent zone of the Russian Federation" published in 1998.

Geographical sphere of action of the new "Regulations" will extend to adjacent ice-covered areas of the Barents and Bering Seas.

The fee for the icebreaker and pilotage services, navigational and hydrometeorological support of ships is to be collected by the tariffs fixed by the Russian legislation.

In addition to the new "Regulations" the following documents will be published in the new edition:

- "Requirements for design, equipment and supply of vessels navigating the NSR";
- "Regulations for marine operations headquarters on the seaways of the NSR";
- "Regulations for icebreaker-assisted pilotage of vessels on NSR".

The present report contains the principal supplements to be introduced into the new edition of "Requirements to structure, equipment and supply of ships navigating the Northern Sea Route", and for the identification of ice classes of ships built in accordance with Rules of different classification societies it is suggested to provide a table of interrelation between ice classes of the different classification societies and IMO Polar Guidelines.

Table: Russian rules for the Northern Sea Route

No.	Rules	Date of promulgation
1	Guide to Navigation through the Northern Sea Route	1996
2	Regulations for Navigation on the Seaways of the Northern Sea Route	1991
3	Regulations for Icebreaker-Assisted Pilotage of Vessels on the Northern Sea Route	1996
4	Requirements for Design, Equipment, and Supply of Vessels Navigating the Northern Sea Route	1996
5	Regulations for Marine Operations Headquarters on the Seaways of the Northern Sea Route	1976
6	Tariffs for Icebreaking Fleet Services on the Seaways of the Northern Sea Route	2004

Draft of new Regulations for Navigation on the Seaways of the Northern Sea Route

1. Regulations for navigation on the seaways of the Northern Sea Route

Current "Regulations for navigation on the seaways of the Northern Sea Route" worked out after the Soviet Union declared the opening of the Northern Sea Route (NSR) for international navigation and published in 1991 in accordance with the USSR Council of Ministers Decision and approved by the Ministry of Merchant Marine of the USSR are now being prepared for republication. The Regulations will be brought into line with provisions of the Federal Law "On inner sea waters, territorial sea and adjacent zone of the Russian Federation" (1998).

In the Draft of new "Regulations for navigation on the seaways of the NSR" it is legislatively stated that the NSR is historically established national integrated transport communication of Russia in the Arctic.

The new "Regulations" take into account Russian normative legal documents of late years, experience of the shipping control over the NSR as well as rules of navigation on national seaways in straits and channels of other states.

Russia as being interested in the development of international shipping through the NSR takes care of high standards of maritime safety and protection of the environment.

Geographical sphere of action of the "Regulations" extends to adjacent ice-covered areas of the Barents and Bering Seas.

The NSR shipping control is affected on the non-discrimination basis for ships of all states. Purpose of the control is to ensure safety of navigation and to prevent pollution of the marine environment from ships.

Ship's application for the icebreaker support on the NSR is complied with under condition that ship meets the special requirements and has a certificate of the appropriate financial provision of the civil liability of ship-owner for damage from the pollution of the marine environment.

The fee for the NSR icebreaker and pilotage services, navigational and hydrometeorological support of ships is to be collected by the tariffs fixed by the Russian legislation.

The "Regulations", according to the Law "On internal sea waters, territorial sea and adjoining zone of the Russian Federation (1998), are approved by the Government of the Russian Federation. In this way the legal position of the "Regulations" is raised and at the governmental level the safety of navigation of ships of all states along the NSR is guaranteed.

In addition to the new "Regulations" the following documents will be published:

- "Requirements for design, equipment and supply of vessels navigating the NSR";
- "Regulations for marine operations headquarters on the seaways of the NSR";
- "Regulations for icebreaker-assisted pilotage of vessels on NSR".

"Guide for the through navigation of ships along the NSR" is also to be republished. This is stipulated by the publication for open use of sailing directions for all arctic seas.

The Arctic is a very sensitive region and any accident at sea may cause serious consequences. Therefore, ships are to navigate on the seaways of the NSR under reliable State control and being escorted by Russian icebreakers.

2. *Requirements to structure, equipment and supply of ships navigating the Northern Sea Route*

Published in 1996 "Requirements for Design, Equipment and Supply of Vessels Navigating the NSR" account for the particularly complicated and dangerous navigational conditions on the NSR and aim at securing safety of navigation and at preventing marine environmental pollution from vessels.

Particular requirements apply to the hull, machinery installation, systems and arrangements, stability and watertight integrity, navigational and communication facilities, supplies and emergency outfit, manning.

At present, considering the large amount of liquid hydrocarbons, which began to be developed and transported by tankers from the Arctic fields, a new draft of the "Requirements" has been developed. This draft reflects the provisions of:

- "Merchant Shipping Code of the Russian Federation", 1999;
- "Rules for the Classification and Construction of Sea-Going Ships of the Russian Maritime Register of Shipping", 2003;
- "International Convention on Civil Liability for Oil Pollution Damage", 1992;
- International "Guidelines for Ships Navigating in Arctic Ice-Covered Waters" published by IMO, 2002.
- Developed by IACS since 1993 "Unified Requirements for polar ships".

2.1. *Draft of the new edition of the Requirements to structure, equipment and supply of ships navigating the NSR*

To have idea about the extent of the intended renewal of the existing "Requirements", principal supplements introduced into the new edition and concerning icebreaking capability of icebreakers and power of transport ships admitted for the navigation on the sea ways of the NSR are given below.

2.1.1. *Icebreakers*

Icebreakers are admitted for the navigation along the NSR under the ice conditions corresponding to symbols of their ice categories and ice classes.

For the assessment of required icebreaking capability providing for safety and reliability of icebreaker assistance dependent on the area and season of navigation in the Arctic it is recommended to use statistical data shown in fig. 1. The data are based on the long-standing experience on the duration of navigation, supported by icebreakers of different icebreaking capability and having the traditional ice-breaking forward end lines.

If icebreaking capability of the icebreaker is not known, it can be estimated by the experimental and empirical formula presented below which takes into account characteristics of hull shape and state of the shell plating, power (propeller thrust), dimensions and displacement of ship.

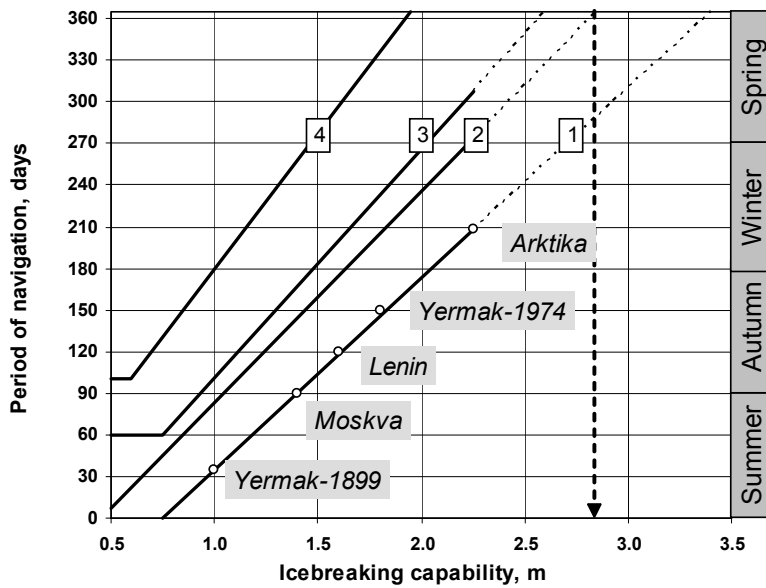


Figure 1

Duration of the navigation period in the Arctic versus icebreaking capability:

1. in transit navigation along the NSR and in the East Arctic region
2. in the West Arctic region
3. in the western part of the Kara Sea
4. in the south-eastern part of the Barents Sea (Pechora Sea)

The formula for icebreaking capability h_i , of icebreakers with hull lines of traditional type:

$$h_i = \frac{0,07 \cos^{\frac{3}{2}} \varphi \sqrt{\sin\left(\frac{\alpha_0 + \beta_0 + \beta_2}{3}\right)}}{2,6 \sqrt[5]{f_d} \sqrt[5]{L/B} \sin^{\frac{3}{2}}(90^\circ - \beta_{10})} \sqrt{\frac{P_e}{B}} \sqrt[6]{D} \quad (1)$$

where

φ – stem angle, deg

α_0 – entrance angle of design water line, deg

β_0 – flare angle of frame line No.0 (in the Russian practice the frame line No.0 is assumed to be at the fore perpendicular), deg

β_2 – flare angle of frame line No.2, deg

β_{10} – flare angle amidships, deg

L – vessel's length on DWL, m

B – vessel's breadth on DWL, m

P_e – total propeller thrust, t

D – vessel's designed displacement, t

f_d – coefficient of the dynamic ice/ship's hull friction.

Recommended values of f_d parameter:

- for stainless steel – 0.065,
- for *Inerta-160* coating – 0.072,
- for typical shipbuilding steel – 0.080.

Total propeller thrust needed for the calculation of the icebreaking capability under conditions close to the bollard pull mode of operation may be calculated by the formula:

$$P_e = k_p (d \cdot N_p)^{2/3}, \text{ kN} \quad (2)$$

where

N_p – total shaft power, kW

d – propeller diameter, m

k_p – coefficient taking into account geometric characteristics of propellers, their number and interaction with the ship's hull; depending on the number of propellers this coefficient takes the following values:

- for triple-shaft ship – 1.12,
- for twin-shaft ship – 0.98,
- for single-shaft ship – 0.78.

2.1.2. Arctic transport ships

Propulsion plants of the ships admitted for the navigation on the NSR should, depending on ice class, meet the requirements of the Rules of the Russian Maritime Register of Shipping or the requirements of the Rules of other classification societies for ships of respective categories.

Minimum shaft power of transport ships admitted for the operation in the Arctic under the escort of icebreakers may be estimated by the formula given below.

Formula for the determination of minimum admissible shaft power N_{\min} of arctic transport ships:

$$N_{\min} = k_\varphi k_s \frac{T}{d} b^{2.7} P_0, \text{ MW} \quad (3)$$

k_φ – coefficient taking into account ship's hull lines

$$k_\varphi = \begin{cases} \left(\frac{\varphi}{25}\right) & \text{- for ships of LU6, LU7 (ULA) and LU8 ice classes} \\ \left(\frac{\varphi}{30}\right)^{1.5} & \text{- for ships of ice class LU5 (UL)} \\ \left(\frac{\varphi}{40}\right)^{2.2} & \text{- for ships of ice class LU4 (L1)} \end{cases}$$

φ – stem angle, deg.

k_s – coefficient taking into account number of propeller shafts

$$k_s = \begin{cases} 1.0 & \text{- single-shaft plant} \\ 0.71 & \text{- twin-shaft plant} \\ 0.58 & \text{- triple-shaft plant} \end{cases}$$

T – ship's draft at DWL, m

d – propeller diameter, m

b – relative breadth of ship:

$$b = \frac{B_{sh}}{B_{ib}}$$

B_{sh} – transport ship's breadth at DWL, m

B_{ib} – breadth of icebreaker at DWL, m

P₀ – basic power, MW

$$P_0 = \begin{cases} 15.0 & \text{- LU8 ice class ships} \\ 10.0 & \text{- LU7 (ULA) ice class ships} \\ 7.0 & \text{- LU6 ice class ships} \\ 5.0 & \text{- LU5 (UL) ice class ships} \\ 3.5 & \text{- LU4 (L1) ice class ships} \end{cases}$$

Irrespective of the results of power determination by the formula, minimum power (MW) should be not less than:

- 8.0** - LU8 ice class ships
- 5.0** - LU7 (ULA) ice class ships
- 3.2** - LU6 ice class ships
- 2.0** - LU5 (UL) ice class ships
- 1.3** - LU4 (L1) ice class ships

Fig. 2 shows the dependence of minimum power on ship/icebreaker breadth ratio with optimum shape of the ship's forward end and a single-shaft propeller plant, with the screw propeller diameter $d = 0,6 T$.

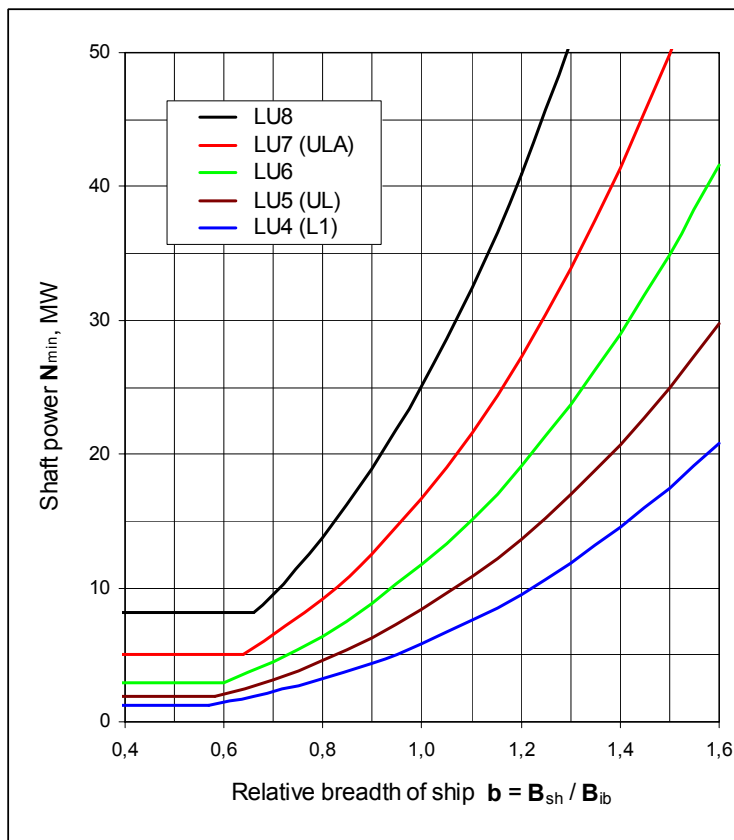


Fig. 2. Dependence of the required power of transport ship on relative breadth of ship b

The suggested estimation of minimum admissible power of arctic ships is based on the following original prerequisites:

1. In complicated ice conditions, principal mode of the navigation of transport ships (including those of the highest categories) is the navigation under the escort of icebreakers. Therefore ship should have adequate power to move in the channel made by the icebreaker through ice of thickness maximum for each class.
2. Speed of the movement of ship in the channel behind icebreaker should be at least 4-5 knots to ensure minimum steady running under conditions of ice compacting of numbers 1-2 at a speed of about 2 knots. Such speed margin is required when moving in old channels and to provide for a sufficient ship's manoeuvrability.
3. Design thickness of equivalent ice through which the channel is being made, taking into account hummocking, is taken as follows:
 - 4.1 m (multi-year ice) for ships of LU8 ice class;
 - 3.0 m (second-year ice) for ships of LU7 (ULA) ice class;
 - 2.1 m (first-year thick ice) for ships of LU6 ice class;
 - 1.4 m (first-year ice of medium thickness) for ships of LU5 (UL) ice class;
 - 0.9 m (first-year thin ice) for ships of L1 (LU4) class.

The methodology adopted for the calculation of speeds of ships in the channel behind icebreaker takes account of relative breadth of ship, forward end lines, draft, propeller diameter and number of propeller shafts. These factors seem to be principal ones upon which the propulsion of ship in ice canals depends.

2.2. *Table of conformity of ice classes of different classification societies*

For the identification of ice classes of ships built in accordance with Rules of different classification societies including the Russian Maritime Register of Shipping, annex to the “Requirements to structure, equipment and supply of ships navigating the Northern Sea Route contains a tentative table of interrelation between ice classes. This table is based on the results of the analysis of numerous comparisons made both by Russian and foreign specialists and organizations. For this purpose, various comparison criteria were used – by shell plating thickness, by total framing cross section area with a shell plating strake within one span, by mass of ice strengthening, by relative hull strength etc.

Fig. 3 and 4 show the results of comparison made by the American Bureau of Shipping (ABS) of IACS ice classes of polar ships with ice strengthening categories of the RMRS Rules now in force. The comparison was carried out as applied to existing Russian arctic ships both by the relative shell plating thickness and by relative frame cross section area. As one can see, the dependence of ice classes on hull plating thickness is more clearly pronounced.

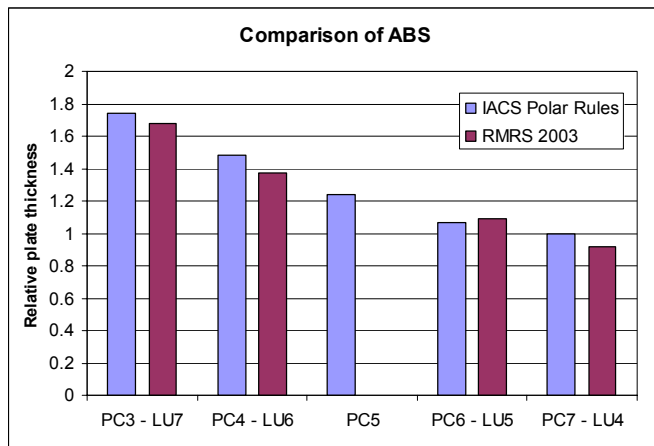


Figure 3

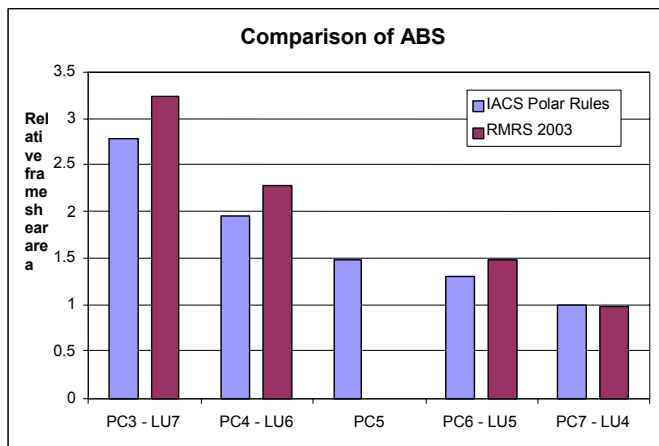


Figure 4

Fig. 5 shows the alteration of the relative hull strength level depending on IACS ice classes and RMRS ice categories presented by the Krylov Shipbuilding Research Institute (KSRI). Here also a curve is given of a relative ice thickness in accordance with the IMO/IACS classification of polar ships. The graph enables to estimate the extent of compliance between international classes and Russian ones.

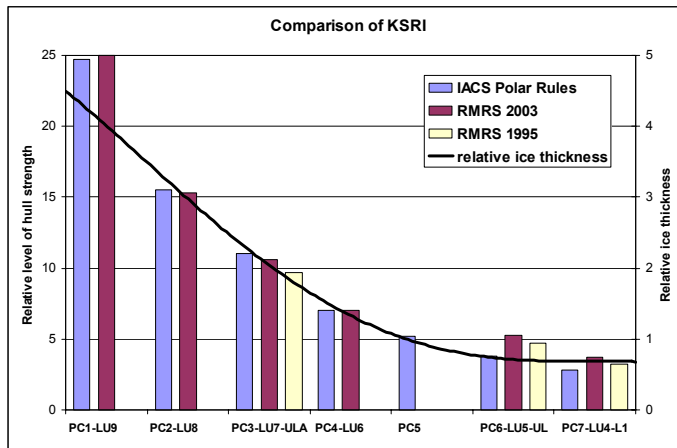


Figure 5

Finally, it is worthy to notice the estimation of the equivalency of classes submitted by the Russian Register. Results of this estimation are shown in fig. 6. The comparison is made by the total frame section and shell plating area within one span (lg F).

When considering last two graphs the attention is paid to the lack of convincing confirmation of compliance between Russian classes of the RMRS Rules published in 1995 and 2003 as well as between classes of Finish-Swedish Ice Rules (FSIR) and IMO/IACS. As it is known, the last RMRS Rules of 2003, contain table 2.2.3.7 permitting to obtain relationship between symbols of ice categories of 2003 and 1995 Rules. Pursuant to this table, new categories LU4, LU5 and LU7 are to be considered accordingly equivalent to old categories L1, UL and ULA. In turn, in the "Guidelines for ships operating in Arctic ice-covered waters" (paragraph G-1.5) published by IMO in 2002 there is a table of the equivalency of classes, where for the IMO lowest polar classes PC6 and PC7 accordingly classes IA Super and 1A of Finish-Swedish Rules and UL and L1 of the Russian Register Rules, 1995 are accepted. This correspondence established earlier by competent organizations was taken as a basis in the compilation of a table of equivalency of arctic ship ice classes to be attached to the new edition of the "Requirements to structure, equipment and supply of ships navigating the Northern Sea Route".

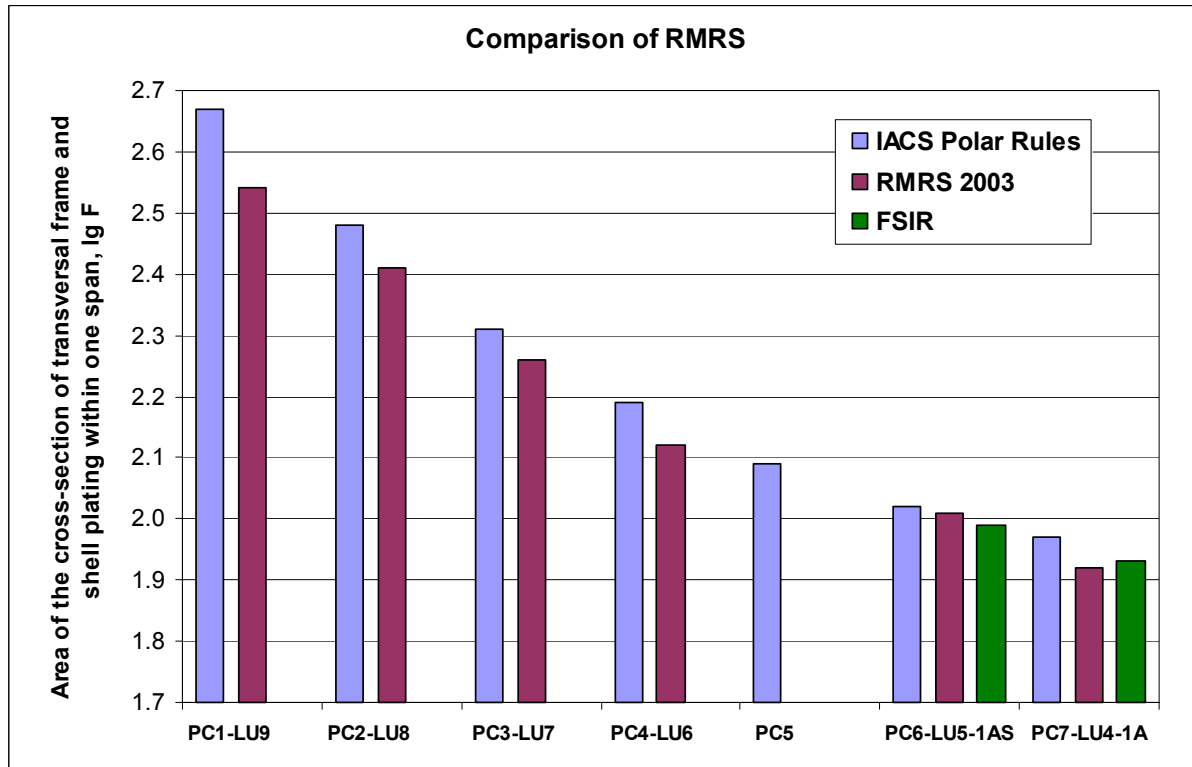


Figure 6

CNIMF, basing on the gained experience in establishing the equivalency of ice classes of different national rules, came to the conclusion that the ship's forebody shell plating thickness should be taken as the most representative and reliable parameter. Proceeding from such approach, table 1 gives the correspondence between the RMRS, IMO and of other classification societies arctic classes. It is obvious, that as practical experience is accumulated and new suggestions from the interested organizations are received, the table of equivalency presented will be specified and subject to appropriate corrections.

Table 1: Approximate correspondence between arctic classes of RMRS and ice classes of IMO Guidelines (IACS Polar Ship Rules) and other classification societies

Classification Society	Ice Class				
Russian Maritime Register of Shipping (Rules 2003)	LU8	LU7	LU6	LU5	LU4
Russian Maritime Register of Shipping (Rules 1995)	-	ULA	-	UL	L1
IMO Guidelines (IACS Polar Ship Rules)	PC2	PC3	PC4	PC6	PC7
CASPPR, 1995	CAC2	CAC3	CAC4	A	B
American Bureau of Shipping	A3 (?)	A2 (?)	A1(?)	1AA	1A
Det Norske Veritas	ICE-15 (?)	ICE-10 (?)	ICE-05 (?)	ICE-1A*	ICE-1A
Lloyd's Register	AC2 (?)	AC1,5 (?)	AC1 (?)	1AS	1A
Germanischer Lloyd	Arc3 (?)	Arc 2 (?)	Arc1 (?)	E4	E3
Finnish-Swedish Ice Rules	-	-	-	1A Super	1A

Classification Society	Ice Class				
Bureau Veritas	-	-	-	1A Super	1A
Nippon Kaiji Kyokai	-	-	-	1A Super	1A
Korean Register of Shipping	-	-	-	ISS	IS1
China Classification Society	-	-	-	B1*	B1
Registro Italiano Navale	-	-	-	1AS	1A

Note: designation of classes in cells with interrogative singes should be agreed with the appropriate classification societies

It should be noted that, as one can see from the above results of the comparison of IMO/IACS ice classes with RMRS ice categories, class PC5 turned to be practically intermediate between LU5 and LU6. If this class is ever required by foreign ship-owners, it will be equated to class LU5 until the RMRS ice classification is respectfully changed.

As a whole, the ice classification of arctic ships adopted by IMO and which provides for the division of ships into classes depending on generally accepted classification of ice conditions in the Arctic seems to be practical and convenient in its application. The only objection is the description of navigational conditions for ships of two lower classes PC6 and PC7. As it was mentioned earlier, these classes are seasonal and based on Baltic classes 1A Super and 1A; their ice strength corresponds to the operation in ice of the Baltic Sea. It is known, at the same time, that there is no multi-year ice in this area and, consequently, mentioning of multi-year ice in the description of classes PC6 and PC7 is absolutely irrelevant.

3. *On the use in the transportation between seaports of the Russian Federation of ships flying the flag of a foreign State*

This issue is discussed in Article 4 "Transportation and towing operations between seaports of the Russian Federation" of the Merchant Shipping Code of the Russian Federation, 1999.

Article 4 of the Code consists of the following two items:

1. Transportation and towing operations between seaports of the Russian Federation (cabotage) shall be carried out by vessels sailing under the flag of the Russian Federation.
2. In compliance with international treaties to which the Russian Federation is the Party or in cases and in accordance with the procedure established by the Government of the Russian Federation, transportation and towing operations in cabotage may be carried out by vessels flying the flag of a foreign State.

As an extension of item 2 of Article 4 of the 2000 Code, the instruction of the Government of the Russian Federation No. 404 "On transportation and towing in cabotage by ships flying the flag of a foreign State" was approved.

The content of the instruction is as follows:

In compliance with Article 4 of the Merchant Shipping Code of the Russian Federation the Government of the Russian Federation decides:

1. *To establish that transportation and towing operations between seaports of the Russian Federation (cabotage) may be carried out by ships flying the flag of a foreign State, if:*

- a) *for the transportation and towing specialized ships are required not available within the fleet of ships sailing under the State flag of the Russian Federation;*
 - b) *b) it is necessary to ensure urgent transportation and towing and it is not possible to carry out these operations by ships flying the State flag of the Russian Federation.*
2. *Transportation and towing in cabotage by ships flying the flag of a foreign State may be carried out only between the ports open for calls of foreign ships.*
 3. *Permission for the transportation and towing in cabotage by ships flying the flag of a foreign State is granted by the Ministry of Transport of the Russian Federation*

Chairman of the Government of the Russian Federation, M. Kasyanov, Moscow 24 May 2000

Discussion

A DNV representative noted that DNV classes ICE-15, ICE-10 and ICE-05 cannot be compared to PC2, PC3 and PC4, because they are for first year ice only. Instead, DNV Polar20 could be compared to PC2 and the Polar 10 could be compared to PC4.

The DNV representative noted also, that the comparison of plate thickness shows a very nice harmonized ratio between different regulations. Mr Tsoy added that the figure showing the harmonization applies to arctic ships of size 10.000-50.000 dwt.

Mr Tsoy told, that the NSR regulations are ready and it is possible that they will be published already this year. The requirements on the thickness of the hull are given here, but the requirements for the propulsion power are a separate part of the requirements that is not presented here. When working out the requirements for all these classes, CNIIMF proposed the icebreaking capability to be added. When it will be included in this table, then the requirements will be completed.

RMRS representative noted that the PC classes have been developed for hull strength only. The Polar Classes don't have any power or propeller requirements.

Mr Tsoy was asked how the new NSR deal with innovative concepts able to show similar performance with less power. He explained that data exists, but the experiences from other than traditional hull lines are controversial. New hull lines in a modernized icebreaker increased the icebreaking capability by 1,5, but the manoeuvrability decreased rapidly especially in ice-hummocks. With a spoon bow the capability was higher than in a traditional one, but the open water performance declined. The power requirement with this bow type was also higher than of a traditional one. This form of bow has a high resistance. The problems will be interesting in the future for the experts involved.

Dr Andryushin was also asked, whether the independent operations are considered a possibility. He explained that the ice class is a generalized description of a ships capability. It seemed logical to introduce NSR regulations and add requirements. The new NSR regulations regulate operation; they are not meant to be building requirements. RMRS provides regulations mainly for construction.

Conclusions

The new NSR regulations can be expected in the near future, but they are still to be officially approved by the Ministry OF Transport of The Russian Federation. The performance requirements will be included in them.

8. PANEL DISCUSSION

Some parts of the LU, Polar Class and the Swedish-Finnish rules conflict and their contents are not comparable. For instance, if a ship is designed according to IMO Polar Class rules, and class PC6 is chosen which is equivalent to LU5. LU5 classification is not granted unless the ship fulfils the power requirement, and these power requirements differ from the NSR requirements too. Again in Finland another set of rules regarding power requirements is in force, and it is difficult to know which class is granted there. The experts of the panel were asked to comment on the problem.

A representative of the Finnish Maritime Administration FMA commented that the Finnish-Swedish and the LU rules have been determined in the same way; they both have hull structural requirements. Both safety and operational matters are included in the rules. Machinery is related to operational needs: winter navigation operations have to run smoothly so that the icebreaker services are able to assist all the vessels that visit the Finnish ports. This is the reason for including the engine power requirements in the Finnish-Swedish rules. The power requirements have not been included in the Polar Classes for they emphasize safety. The needs are different in different areas. In Russia the engine power is also important. At the end, it is up to ship-owner to decide what is the basis of the classification of the vessel, based on a classification table and operational area.

The representative of Transport Canada Mr Santos-Pedro commented that in the IACS harmonization process the power has been considered purely an operational issue. The experts have not been convinced that minimum power can be defined in safety requirements. IACS does not want to use the word equivalency at all when comparing the rule conventions. IACS also emphasizes that the new rules are harmonized, not standardized requirements. When broken down to elements, comparison between classes can be made, but no classes that are mentioned here are equivalent to IACS harmonized rules.

RMRS commented that the NSR currently has two sets of rules, the rules by the Administration of the NSR and the LU rules, which is not acceptable from RMRS's or from the ship-owners' viewpoint. RMRS stressed that the power requirements are the main requirements for the NSR, for they determine safe speed of sail. A table of equivalency could be established based on capability to break level ice.

It was commented that there are a lot of opinions on how to approach the power requirements. Another way to see it is to establish maximum power, so that hull structure is in terms with the power.

DNV representative supported RMRS in proposition about the table of equivalency based on level ice breaking capability. That kind of a table could be determined by model tests. DNV supported the idea of accepting model tests as basis in the IACS rules as well.

DNV representative supported the idea of having performance-based requirements. The power would be taken out of the requirements and replace it with requirements regarding ships ability to break certain level ice at certain speed. DNV representative also told that the new IACS rules will define a special "ice draught" for which the ice strengthening has to be designed.

It was commented that the Finnish-Swedish rules define the engine power requirements in this way. According to Finnish-Swedish rules, a ship should be able to operate in ice channel at a minimum speed of 5 knots. In the open sea ships move in a lead, in archipelago there is no ice pressure, and the ships sail independently. If the level ice comparison were included in the Finnish-Swedish rules, it would lead to expensive cargo vessels, which is not in the interests of the FMA.

The Lloyd's register representative supported the IACS view that it's very difficult to define the power requirement or speed for these are operational requirements. The engine requirements should be defined by the coastal state.

It was reminded that the Polar Classes are for independent operation. It was commented that the proposal of the DNV could be used for guidance. DNV representative commented that HELCOM, and through HELCOM also Finland, has in principle accepted the level ice comparison. It was noted that a classification society is still needed to verify power and performance.

Steel plate thickness and corrosion allowance was mentioned as a comparison method. It was noted that the corrosion value is about the same in all rules and that the corrosion allowance depends on the age of the ship. Corrosion allowance was taken into account in the IACS PC rules. The Russian delegation commented that the corrosion has been included but is it not considered a significant issue.

Polar Classes will soon be elevated to the list the classification societies have. The IMO Council has approved the chapters regarding hull. Currently the IACS is waiting for the societies to confirm it. The IMO Council would like to approve the PC's as a unit (3 elements, general, hull and machinery). Machinery element will be approved with luck by 31.12.2005. Realistically the IMO Council would meet spring/summer 2006. After the Council has approved the rules the classifications societies have 1 year to include the new rules in their books.

Professor Tsoy from CNIIMF commented that the Russian delegation in IMO and IACS has proposed to prepare requirements for icebreaking capability but nobody supported. He noted that there is a close correlation between icebreaking capability and movement in ice channel. Icebreaking capability and movement in ice channel at certain speed (4-5 knots) was chosen as a basis. The needed power was defined. CNIIMF has also participated in the making the HELCOM requirements.

He continued to say, that as was already mentioned, ship-owner who orders a ship for arctic conditions, defines the level ice that needs to be broken. He does not define kW:s. If a vessel needs to operate independently, then we need to define the maximum level of ice. If we only operate behind an icebreaker, then the requirements are different: engine power is more crucial.

The Finnish Maritime Administration publishes ice class requirements for sail weekly during wintertime. In the NSR there are no such practice, but the requirements are constant and are published as a publication. In Finland and in Canada the required ice class is depending on the actual ice conditions and are not constant. Only 1AS are operating independently in the Baltic year-round and do not need assistance.

The RMRS recommends lower ice class only in summertime. NSR headquarters give orders according to weather and conditions, ship characteristics and icebreaker assistance. ULA-class is allowed year round.

The discussion around the rules remains lively, as the IACS unified requirements are nearing their completion. It was concluded that the IACS unified requirements should be approved and implemented as soon as possible to create basis for at least structural safety.

It is recommended that the unified requirements for performance will also be developed.

9. THE ECONOMIC FRAMEWORK OF ARCTIC TRANSPORTATION

Herbie Battye, Shell Shipping Technology

Abstract

The economic framework of Arctic transportation is influenced by all activities related to it. Not only investments to transportation infrastructure and vessel choices, but indirect costs of which many are related to regulations and other traffic administration.

The presentation gives an overview of the factors and how the author sees each of them influence the Arctic Shipping today.

(See: Appendix 3)



Figure: Model illustration of a loading system for Arctic seas

Conclusions

In developing an efficient transportation system, the transporters must be able to trust in the regulatory environment. The legal processes are developing in a favourable way in Russia, as experience is gained.

In a favourable environment all fees and dues are to be transparent (and reasonable). No delays due to customs and immigration should be accepted, for delays - especially the un-anticipated ones - decrease the efficiency of the system very rapidly.

10. MARINE INSURANCE COVERAGE FOR THE SEA CARRIAGE OF OIL AND OTHER ENERGY MATERIALS ON THE NORTHERN SEA ROUTE

Peter L. Wright, The Fridtjof Nansen Institute

Abstract

Previous ARCOP Workshops have confirmed that the regular transportation of Russian energy resources via the NSR was moving closer to reality.

The Helsinki Workshop 5 in 2004 also confirmed that the growing practical database previously developed by ARCOP would be of specific assistance to marine insurers assessing NSR risks.

Many changes have taken place since the conclusion of INSROP which may have an impact on the development of NSR and on associated marine insurance coverage's.

The principle purpose of ARCOP Sub-Project WP 2.4 during this period has been to provide an assessment on the availability of adequate and appropriate risk coverage for vessels and their cargoes, especially those cargoes which are potential pollutants and hazardous and noxious substances, navigating the Northern Sea Route and the Russian Barents Sea.

Without adequate and appropriate risk coverage, such navigation would not be economically or environmentally viable.

ARCOP – marine insurance aspects

At the end of the INSROP research period, it was clear that the global Marine Insurance Market was willing and able to underwrite NSR navigational and related risks, provided that appropriate and adequate information structures of the risks involved could be presented to Underwriters.

The risks that require coverage are as follows:

- Hull & Machinery
- Cargo
- Third Party Liability (Protection and Indemnity)
- A number of Miscellaneous Risks.

ARCOP – marine risk coverage – changes since INSROP

One of the principal purposes of ARCOP Sub-Project WP 2.4 was to determine what had changed in the next three-year period. Although it will be helpful to refer back the INSROP conclusions in order to illustrate changed scenarios, it is also necessary to point out the major global aspects that have occurred since 1998, which may have an impact on the development of NSR navigation and marine insurance coverages specifically.


ARCOP – general changes

1. growing world economy requires ever more natural resources including energy resources. In August, global crude oil prices had reached USD 65/barrel (i.e., the highest level in history.)

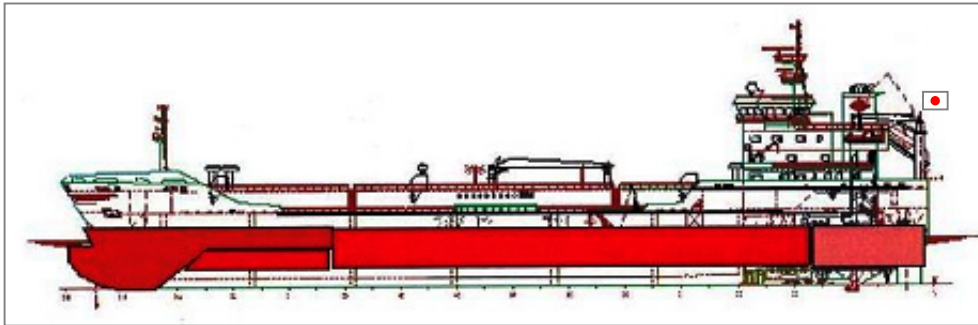
2. the world's premier energy producing region, the Gulf Area, is still beset by political instability. A number of other oil producing regions have or are reaching depletion.
3. China is expected to become one of the world's largest economies within a decade and will further strengthen its role as a major import and export market.
4. Russian oil production has significantly increased in recent year, from 303 million tons in 1996 to 421 million tons in 2003, with exports increasing from 145 million tons to 230 million tons during the same period.
5. the post 9/11 global security concerns have also focussed on the safety of energy supplies including its transportation aspects.
6. increasing global, regional and national marine environmental concerns have focussed on the shipping industry and its regulatory regimes that will result in the phasing out of older vessels, including single-hull tankers. This is also directly linked to strengthened liability and compensation regimes for marine pollution.
7. the world shipping industry, including its ship-construction sector, has been experiencing significant growth and increased profitability to unprecedented levels.
8. although there have been a number of internal, administrative and economic difficulties, the Russian Federation has, nevertheless, demonstrated a willingness and ability to become an integral part of the international commercial system through the stabilization of its legal, banking, regional and national administrative systems as well as the insurance and shipping sectors.
9. the global marine insurance market, despite regular, serious losses, continues to be strengthened by new investment interests, the broadening of its base and even greater competitiveness. This appears to underline a willingness by the market to accept new risks. As will be discussed further, this was fully confirmed in the research under this project.

ARCOP – specific changes

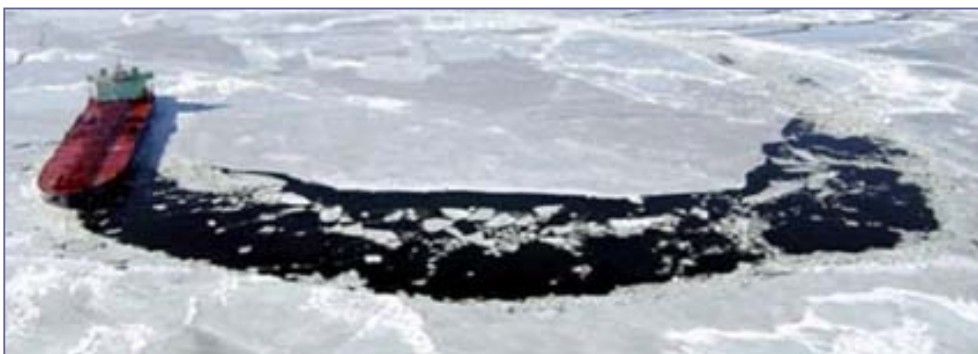
There are also a number of changes that have take place in this area since the conclusion of INSROP that can be compared to the points already outlined above:

1. There is still no indication that ship owners are willing to operate high-value vessels, such as new-generation container vessels on the NSR. At this stage, Russian vessels are still chartered for specific break-bulk or bulk cargo operations. Only certain Finnish ship owners have entered into specific NSR operations that involve the export of Russian energy and other resources from the Russian Arctic, Barents Sea Region. The vessels involved are insured in the international insurance market.
- 
2. Although there continue to be some year round NSR operations, mainly involving Russian and Finnish Vessels with Russian icebreaker assistance, most operations are seasonal (i.e., weather and ice condition dependent.)
 3. A number of purpose-built Finnish and Russian vessels operate regularly in NSR waters. New vessels are in the building or design stage. However, increased purpose-built vessels construction continues to be dependent upon the development of shore infrastructure (i.e., ports and terminals.) This is lagging behind due to lack of international investments.

4. The advantage of the NSR passage over the Suez/Panama Canal routes has become less relevant for ARCOP as resources from the Russian Arctic/Barents Sea region will not involve transit passage. On the other hand, if Japan and, possibly the US and China become involved, substantive economic feasibility studies will have to be undertaken.



5. Russia's present Arctic fleet is aging. There has been relatively little new construction. Although vessels that have been built have been constructed to the highest international standards, most of the older vessels will not be able to meet international standards when new international Maritime Organization regulations come into force.
6. Although Single-hull vessels are not yet precluded from operating on the NSR (or anywhere) their operational viability is strictly time limited. New IMO regulations (strongly supported by the EU) will phase out most single-hull tankers by 2007.
7. The current status of the Russian icebreaker fleet is uncertain. Although several new vessels have been constructed, many others are laid up, including most of the larger nuclear-powered vessels. There appears to be insufficient funding for proper maintenance. Furthermore, there continue to be questions of whether ice breaking should be on a full cost recovery basis. Some ice-breaking services operate on a specifically negotiated 'private' fee basis.
8. There is no new evidence that training in ice navigation is offered outside Russia, Finland and, to a limited extent, Canada.



9. At this stage, there appears to be little new evidence that cargo exporters and importers have expressed further interest in the use of the NSR. Furthermore, should Middle East instability affect the Suez Canal route and/or if there are continued drought conditions and delays in upgrading affect the Panama Canal, this situation may change rapidly.

10. There is clear evidence of renewed interest by European and North American energy and other natural resource importers in the development of Russian Arctic/Barents Sea resources. Although Finland has been the leader in this thrust, there is also investment interest from other states. Given the general global energy situation, the major focus is on crude oil and natural gas. However, other mineral resources, such as ores and coal, as well as forestry products, are also of increasing interest. This has and continues to result in limited infrastructure investment to access these resources. It is not clear if Japan, which, during the INSROP research period, expressed little interest in Russian resources, has had a change of policy.
11. Russian Arctic/Barents Sea administrative policies have been further developed. Much of this is due to a certain amount of de-centralization as well as privatisation in areas such as exporting companies, ports, terminals, etc. On the other hand, it is less clear if services in shipping (i.e., charting, pilotage, towage, salvage, repair facilities, electronic and other communications systems), are sufficiently developed for increasing NSR navigation. There appear to be severe budgetary difficulties combined with policies that seek total cost recovery for all services. This will continue to cause concerns for ship operations and obviously, marine insurers.

During this final phase of ARCOP, there has been a continuing flow of communication and of information with the London and Russian marine insurance marketplaces resulting in an increasing awareness of the Project.

Further, with the cooperation of the Joint Hull Committee in London and also London marine insurance brokers, a number of hypothetical indications have been confidentially developed on Hull and Machinery, Cargo and Charterer's Liability on representative model risks.

It is hoped that in the future, with increasing ARCOP information and positive underwriting experience that a competitive insurance marketplace could develop.

(See: Appendix 4)

Discussion

Russia is about to become a member of the WTO. It was noted, that despite this, legislative regime is not completely aligned. There is willingness at the high level, but in practice there are hindrances in the cooperation locally. Decision makers' orders do not reach the local levels; there is a big gap between the different levels. ARCOP legal experts noted that the experience from implementation of legislation in Russia is limited, even though Russian lawyers are very competent.

Finnish Maritime Administration commented, that there are still quite many officials and ministries in Russia that deal with shipping. The complexity of the situation becomes apparent in practical cases. For instance, when FMA asked for electronic navigational charts, they were promised by one official, but denied by another and never delivered. But despite these troubles, development has been seen as well.

Currently, the ports of the NSR are only temporary structures. Development of large-scale terminals is something still to be seen. The ships are also aging. There are very little new buildings for the Russian fleet. And not only the merchant fleet, but especially the icebreaking fleet is aging.

RMRS representative noted that Norilsk type vessels present the highest reliability. RMRS does not support the claims that old ships would not meet the international standards, even though they are aging. The old nuclear icebreakers are kept in good condition, as

Russia has the widest experience in the field. Icebreaker "60 Let Popeda" will be ready next year, and Sibir will be modernized.

One of the participants noted that the NSR transit traffic of the used plutonium from west back to Japan might start soon. During INSROP there were talks between Russia and Japan about the transports. A trial voyage was planned for 2003, but it was not realised.

The mentioned insurance fees were noted to be on a reasonable level when compared to the "normal" market. However, there are some cost elements that might affect the fees: ice conditions, travel time from port to another etc. With the continued good experience, especially the cargo insurance fees should decrease. It should be remembered that not only the ship technologies affect the safety. Crew has a big effect on the voyage. Fairly significant number of operations to transport Russian oil is under flags of convenience, according to Fearnley Consultants.

The transportation by the NSR has changed dramatically since Soviet times. In those times 20% damage was calculated and accepted. During INSROP there were difficulties to get information regarding damages at the Northern Sea Route, for ships were just repaired and put out again. Today the Russian insurance market is growing rapidly and the situation has changed.

Conclusions

The NSR insurance issues have been among the most interesting questions related to the economical framework of the NSR transports. In the absence of statistical damage data, the ARCOP work started from a situation in which the experts had difficulties in defining the risk levels.

The study however shows, that it is possible already today to get reasonable insurance terms for shipping in the Arctic. The terms might even be improved when more reliable damage statistics become available.

11. RUSSIAN VIEW ON THE RISK ASSESSMENT FOR NSR SHIPPING

Loly Tsoy and Vsevolod Peresyphkin, Central Marine Research & Design Institute (CNIIMF)

Abstract

Experience of the operation of domestic ships in ice of the Arctic gained over 70 years of the exploration of the NSR involving construction of powerful icebreaking cargo ships and icebreakers with the required ice strengthening, development of the precise systems of navigational and hydrographical support of the navigation along the NSR with the simultaneous transmission and processing of ice information as well as elaboration of the optimal tactics of the navigation in ice both in the independent mode and under the icebreaker assistance together with the integrated management of ice operations by the Marine Operations Headquarters in the Western and Eastern regions of the Russian Arctic allowed to achieve sufficiently high degree of the safety of navigation in seas of the Arctic Basin.

The Arctic Marine Transport System has been created in Russia to ensure the reliability and high safety level of the carriage of goods by sea in the Arctic. All the above provided a possibility of reducing, as much as possible, the risk associated with ice navigation conditions. Thanks to this, as the practice shows, the probability of the loss of ship on the NSR is considerably lower than that in the ice-free waters of the World Ocean.

While preparing this report the materials submitted by Arctic and Antarctic Research Institute (AARI) and Russian Maritime Register of Shipping (RS) were also used.

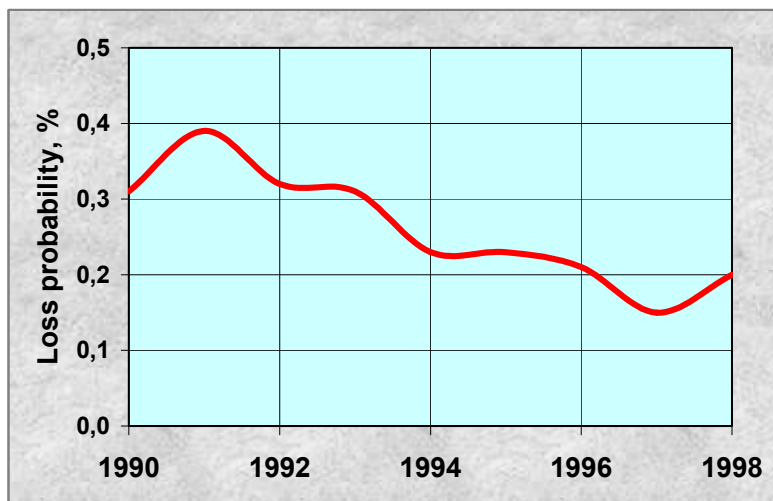
Risk assessment in the navigation of ships along the Northern Sea Route

1. Comparative assessment of the probability of the loss of ship while navigating along the NSR and in ice-free waters of the World Ocean
2. Statistic data on the ice damages of ships
 - Probability of water leakage ice damages of the ship's hull during the navigation along the NSR
 - Probability of the breakage of propellers
3. Structural safety of navigation of ships in ice
 - Ice classification and requirements of the Rules of the RS
 - Requirements of the Northern Sea Route Administration (NSRA) to the construction, equipment and supply of the ships sailing along the NSR
4. Safety of navigation of ships in ice in the process of their operation
 - Navigational and hydrographic support
 - Icebreaker escorting
 - Ice certificate
5. Prompt ice information and reliability of ice forecasts

1. *Comparative assessment of the probability of the loss of ship while navigating along the NSR and in ice-free waters of the world ocean*

Table: Probability of the loss of ship in the world ocean

Year	Number of lost ships	Losses per 1000 ships	Loss probability, %
1990	244	3,1	0,31
1991	321	3,9	0,39
1992	266	3,2	0,32
1993	278	3,1	0,31
1994	234	2,3	0,23
1995	248	2,3	0,23
1996	238	2,1	0,21
1997	181	1,5	0,15
1998	175	2,0	0,20



Probability of the loss of ship in the Russian Arctic – 0.04 %.

For 40 years of intensive operation of the renewed Russian fleet in the Arctic (from 1950 till 1990) 4 ships were lost in the NSR due to ice impact. Taking into account that annually about 250 ships participated in arctic navigation, the average annual probability of ship's wreck for this period amounted to

$$S = \frac{4}{40 \cdot 250} = 0.0004 \text{ (0.04\%)}$$

In the period of stable intensive shipping from 1970 till 1990 2 ships were wrecked in the NSR. At that time the number of sea transport ships used in arctic navigation reached approximately 300 per year. Accordingly, the average annual probability of ship's wreck can be evaluated by the value

$$S = \frac{2}{20 \cdot 300} = 0.0003 \text{ (0.03\%)}$$

For recent 15 years no ship was lost in the NSR. The annual probability of loss for this period is equal to zero.

Table: Principal characteristics of representative cargo ships of the ULA, UL and L1 categories

CHARACTERISTICS	Amguema	Norilsk	Dmitriy Donskoy	Samotlor	Volgoles	Pioner
Ice category	ULA	ULA	UL	UL	L1	L1
Length between perpendiculars, m	118.4	159.6	154.9	148.0	115.0	96
BREADTH, m	18.8	24.5	22.9	23.0	16.7	15.6
Depth, m	11.6	15.2	13.5	12.9	8.45	8
Draft, m	8,9	9,0	9,9	9,2	6,8	6,8
Deadweight, t	9050	14700	19890	17200	5895	4670
Load carrying capacity, t	6700	10340	18740	15100	5170	4090
Displacement, t	14160	25900	27340	24570	9220	7200
Type of engine	Diesel-electric	Medium speed	Low speed	Low speed	Low speed	Low speed
Shaft power, kW	4700	13300	8240	8360	2980	2300
Speed, kn	15,0	18,1	15,2	15,7	14,8	13,8
Icebreaking capability, m	0,6	1,0	0,6	0,5	0,3	0,3

Statistic data on the ice damages of ships

- Probability of water leakage ice damages of the ship's hull during the navigation along the NSR
- Probability of the breakage of propellers

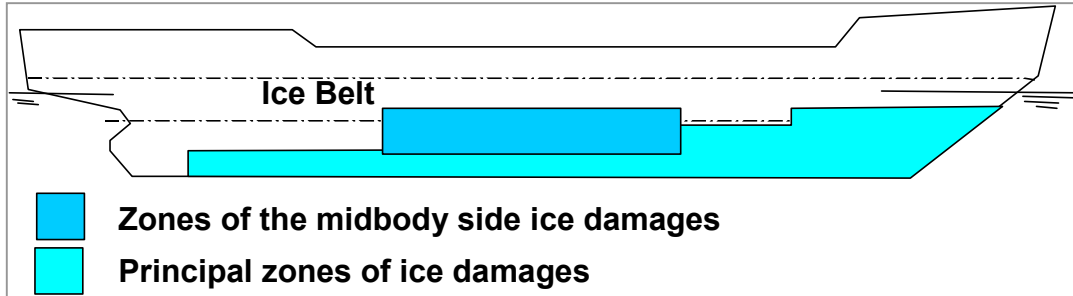


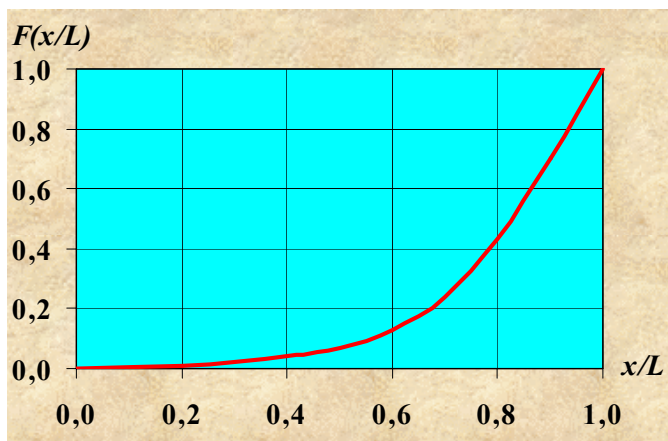
Figure: Distribution of permanent ice deflections over the underwater hull portion of ships of arctic navigation

In the Arctic seas ships were mainly operated in the seventies-eighties. by the early of nineties, approximately 200 ships of L1 category, 100 ships of UL category and 25 of ULA category were employed.

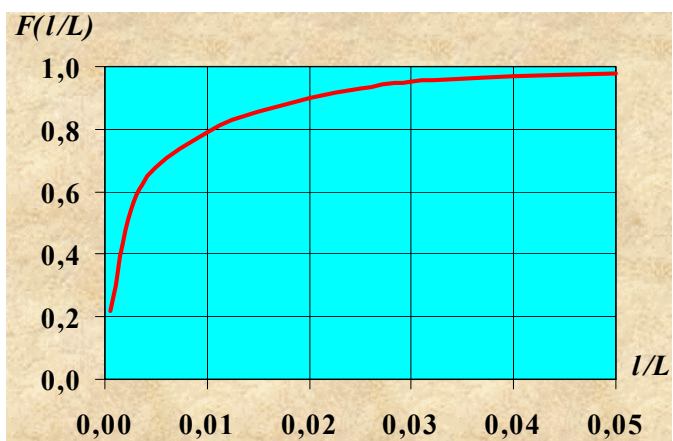
Damageability of hull areas as fractions of the total number of damages, %			
Area	ULA	UL	L1
Side	30	63	51
Bilge	37	20	23
Bottom	33	17	26

Probability of water leakage ice damages of the ship's hull during the navigation along the NSR

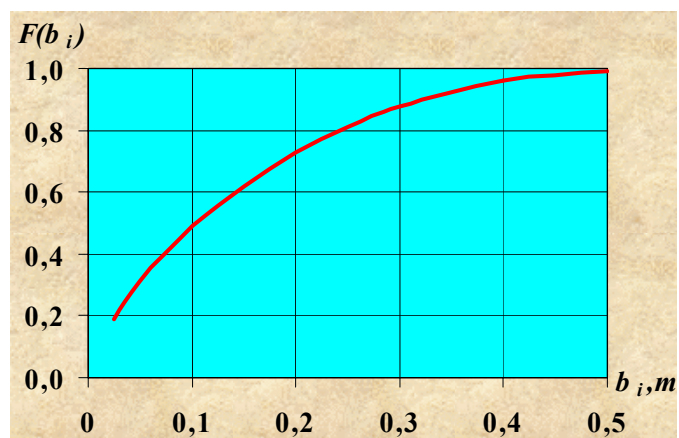
Statistical data on the parameters of ice damages are based on the information covering more than 200 cases of heavy ice damages of cargo ships in their navigation under ice conditions along the NSR.



Location of holes over the length of ship

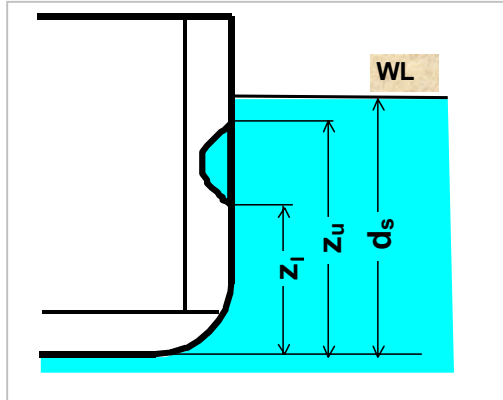


Distribution of the whole length

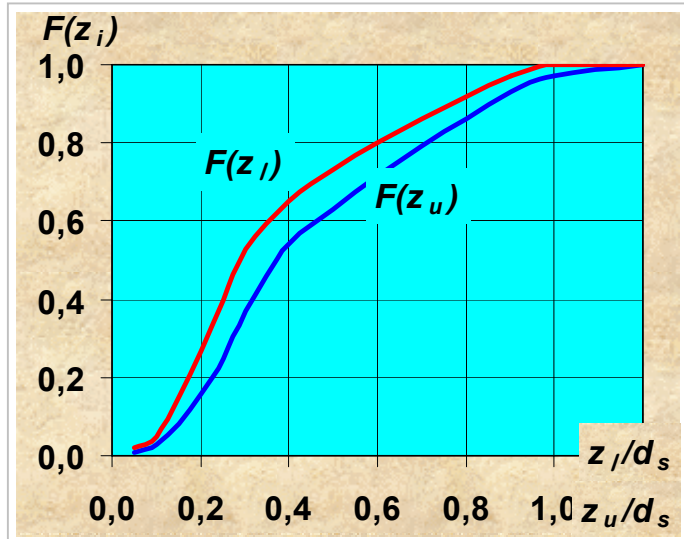


Distribution of the whole penetration

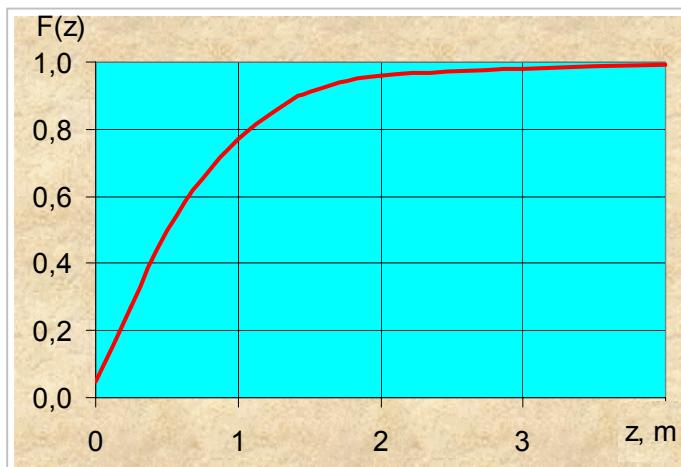
Vertical location of hole



Distribution of the location of the lower and upper hole edges



Distribution of an absolute vertical extent of holes



Results of the above statistical analysis allow making three principal conclusions:

- over the ship's length the most probable are holes in the hull's forebody;
- over the hull height the most probable are holes below the ice strake;
- ice hole penetration practically does not exceed 0.5 m.

These results were taken into account while developing and improving requirements of the RS the hull structure of ice ships.

Probability of propeller failures

Statistical data on the breakage of propellers on Canadian ships						
Parameters	Arctic	Newfound-land areas	Great Lakes	St Lawrence river		
NUMBER OF BREAKAGES	14	54	15	28		
Period of operation, years	18	18	18	18		
Average number of breakages per year	0.77	3	0.83	1.55		
Number of ships per year	40-50	40	40	40		
Statistical data on the breakage of propellers on Russian ships						
Western area of the Russian Arctic				Eastern area of the Russian Arctic		
1963-73	1974-76	1977	1978-93	1965-73	1974-78	1979-93
13	7	4	-	20	-	-

Comparison of data on the breakage of propellers				
Russian Arctic	Canadian Arctic	Newfoundland areas	Great Lakes	St Lawrence river
0.006	0.019-0.015	0.075	0.021	0.039
Average risk – 0.04				

2. Structural safety of navigation of ships in ice

- Ice classification and requirements of the Rules of the RS
- Requirements of the NSRA to the construction, equipment and supply of the ships sailing along the NSR

Ice classification and the requirements of rs on hull ice strengthening and ship's screw-rudder system

RS Rules for the Classification and Construction of Sea-going Ships establish the classification of ice ships which, depending on the purpose of the ship constructed, season and type of ice strengthening for Arctic navigation, and the need in the ice-breaker assistance, allows to assign the ship the particular category of ice strengthening.

The dimensions of hull ice strengthening steel grade for various hull members, reinforcements of screw-rudder system, power of main machinery of icebreakers and ice navigating transport ships are regulated by the Rules.

Furthermore, the RS Rules include the requirements to boat handling gear and other arrangements, navigational equipment and means of communication.

The RS Rules constantly monitor the experience of construction and operation of ships that enables to improve the Rules and up-to-date the editions.

The requirements of the NSRA to the design, equipment and outfit of ships navigating the NSR

Together with the RS Rules another fundamental document to ensure safety of navigation in the Arctic is the *Guide to Navigating through the NSR* including the *Regulations for Navigation on the Seaways of the NSR, Regulations for Icebreaker and Pilot Guiding of Ships through the NSR* and the *Requirements for the Design, Equipment and Outfit of Ships Navigating the NSR* being developed and updated by the NSRA and State Hydrographical Department together with CNIIMF.

The Regulations contain the detailed description of meteorological, navigational and ice conditions on the ice seaways, instructions on use of icebreaker assistance and arrangement of icebreaker convoys of groups of transport ships; the Requirements include the guidelines on the possibility to use ships of various ice classes for navigating in different parts of the NSR in variant periods of navigation, and the requirements to hull structure, machinery installations, equipment, systems and arrangements of ships navigating in the Arctic.

Besides, the requirements on stability and unsinkability, means of ship handling and communication. The Guide incorporates also a Table of tentative conformity of the Russian and foreign ice classes.

As mentioned above, the *Guide to Navigating through the NSR* not only state the structural requirements to the ships navigating through the NSR, but also regulate the complete process of safety of ice navigation, including arrangement of icebreaker and pilot guiding and supervisory control of navigation through the NSR by means of the Marine Operations Headquarters.

Safety of navigation of ships in ice in the process of their operation

- navigational and hydrographic support
- icebreaker escorting
- ice certificate

Navigational and hydrographic support (NHS) of sailing along the NSR

NHS is the main element of the transportation process on the NSR. The NHS belongs to commitments of the Federal Government in relation to seafarers irrespective of their departmental and national identity. The total length of the traditional route being 3500 miles the extent of recommended seaways, where safe conditions of navigation are provided, exceeds 16000 miles. There are the following directions of the NHS on the NSR:

- sounding works and exploration of seas to produce navigational charts, sailing directions, manuals, training aids;
- providing ships with charts, sailing directions and other training aids for the navigation keeping them at the up-to-date level;
- equipping seaways with navigational aids with set regulations of their operation;
- provision of pilotage;

- informing seafarers of changes in the navigational situation and regime of navigation;
- supervision of ships as far as prevention of pollution of Arctic seas is concerned.

In ports of Arkhangelsk, Dickson, Igarka, Zelyony Mys, Pevek, Providence there are operating hydrographic bases. The fleet of the enterprise consists of 21 ships.

Icebreaker-assisted navigation

Operation of the transport ships assisted by icebreakers ensures the high level of safety during the navigation along the NSR.

The main aspect which determines efficiency and safety of navigation at high latitudes is to select the optimal route. For these purposes one can use the information delivered from satellites, Marine Operation Headquarters and ice reconnaissance helicopters. Basing of helicopters onboard all the linear icebreakers is provided.

A transport ship assisted by an icebreaker comes in contact with the broken ice only. In case the convoy is faced with the difficult-to-navigate ice and the ship is put in the jeopardized conditions, the icebreaker-assisted navigation is to be suspended and renewed when the preliminary channel is made and "freshened" only by icebreaker. When facing an ice obstruction (hummock, ice isthmuses) that prevents continuous/unceasing movement of convoy, the transport ship is to reduce speed and fully stop and the icebreaker is to change to operation by bucking and prepare route for the ship to be guided.

One of the most difficult conditions in the navigation in ice under the icebreaker assistance is the effect of ice pressure when ships through loss of width of channel lose their speed down to the full stop. In the latter case the icebreaker breaks off the ship pressured in ice, fractures ice fields and crushes ice located alongside of the ship. Between ship's hull and drifting ice fields the "soften ice cushion" is resulted. Besides the danger of being crashed, the ship when looses her speed may be brought to shallow water by drifting ice. In that case the ship is to be towed by icebreaker.

Unwanted repercussions to be derived from ice pressure exerted on the ship's hull and propulsion installation as well as slow movement of convoy under such conditions may be avoided through changing of the method of the icebreaker-assisted navigation - "close astern towing" or "short line towing" are to be applied instead of "leader".

Table: Principal characteristics of Russian arctic icebreakers

<i>Characteristics</i>	<i>Ermak</i>	<i>Arktika</i>	<i>Kapitan Sorokin</i>	<i>Taimyr</i>
Year of construction	1974-76	1974-92	1977-81	1989-90
Number of ships in a series	3	5	4	2
Main area of operation	NSR	NSR	Estuary of the Yenisei river and shallow areas of arctic seas	
Length, m				
overall	135.0	148.0	129.4 / 135.5 / 141.4	150.0
on the design waterline	130.0	136.0	121.3 / 125.8 / 130.2	140.6
Width, m				
overall	26.0	30.0	26.5 / 26.5 / 30.5	29.2
on the design waterline	25.6	28.0	25.6	28.0
Depth, m	16.7	17.2	12.3	15.2
Design waterline draft, m	11.0	11.0	8.5	8.1
Design waterline displacement, t	20240	23460	14900/16020/17270	19600
Type of powerplant	DPP	NPP	DPP	NPP
Number and power of main engines, kW	9 × 3380	2 × 27580	6 × 3050	2 × 18400
Shaftpower, kW	26500	49000	16200	32500
Number of propellers	3	3	3	3
Speed in open water, kn	19.5	20.8	19.0 / 18.7 / 18.0	20.2
Icebreaking capability, m	1.8	2.25	1.35 / 1.80 / 1.90	1.95
Endurance as to fuel capacity, days	28	unlimited	28	unlimited
Crew	91	145	83	110

Table: Characteristics of arctic icebreakers of new generation

<i>Characteristics</i>	<i>LK-110</i>	<i>LK-60</i>	<i>LK-25</i>	<i>LK-7</i>
Length, m				
Overall	206.0	177.0	139.6	92.0
on the design waterline	193.6	164.0	129.6	85.8
Width, m				
overall	40.0	34.0	30.0	23.0
on the design waterline	38.0	32.2	28.0	22.0
Depth, m	20.3	15.8	13.2	9.8
Draft, m				
on the design waterline	13.0	10.5	8.5	6.0
minimum service draft, m	11.0	8.5		
Design waterline displacement, t	55600	33000	19500	6050
Type of powerplant	NPP	NPP	DPP	DPP
Shaftpower, MW	110	60	24	7

<i>Characteristics</i>	<i>LK-110</i>	<i>LK-60</i>	<i>LK-25</i>	<i>LK-7</i>
Number of propellers	3	3	3	2
Speed in open water, kn	24.0	22.0	19.2	17.0
Icebreaking capability,m	3.5	2.8	2.0	1.2
Endurance as to fuel capacity, days	unlimited	unlimited	35	25
Crew	127	92	45	28

Certificate for ice navigation (ice certificate)

In order to effectively operate transport ships in ice and select correctly the optimal speed under the particular ice conditions, characteristics of ships intended for ice navigation (propulsion qualities and strength, manoeuvrability under the ice conditions, method of the protection of propulsion installation) should be given. Thus, each ship is to be supplied with a specific document containing information for the justified selection of the main operation and tactical particulars influencing the successful operation of the ship under the ice conditions. This document is classified as a certificate for ice navigation. This type of certificate for various transport ships has been developed by Arctic and Antarctic Research Institute.

Conclusions on the suitability of ships for the operation in winter as well as ice certificates are issued by CNIIMF entrusted by the Instruction of the Ministry of Transport of RF No.VR-30-r of 17.02.2003 "On measures ensuring the safety of navigation of cargo ships calling at freezing ports of the Russian Federation".

The ice certificate includes the following:

- principal definitions, characteristics of the ship and its ice performance;
- diagrams for definition of the safe speeds in different ice conditions and safe distance between the icebreaker and the escorted ship, assessment of the shipside compression strength;
- general recommendations for navigators, conclusion on the possibility to use ship under conditions of winter navigation.

5. Prompt ice information and reliability of ice forecasts

For the time being, AARI establishes some specialized departments to collect on-line information on ice conditions in the Arctic seas, investigate and analyse it, develop various prognoses of meteorological factors and ice cover characteristics.

- Meteorological prognoses vary from short-term (3 days) to long-term (several months) ones. The prognostic specialized information is to be supplied to clients by means of bulletins and charts. Reliability of prognoses averages 80-85%.
- Ice information (prognoses vary from 3 to 5 days, from 5 to 30 days and over 1 month). Prognoses of 3-5 days are developed on the basis of the numerical thermodynamic models. by these models, one can forecast whether ice concentration, ice thickness, ice drifting, zones of ice compression and open ice are changed. This reliability amounts to 85-90%.
- In order to schedule marine operations and assess the ice conditions one can develop long-term prognoses. By some factors of the ice regime (ice cover,

area of ice massif) that assist in assessment of the general ice conditions in the Arctic seas during the summer navigation, these prognoses may endure 4-6 months. Reliability of the medium-term and long-term prognoses averages 70-75%.

Authors conclusions

High level of the safety of navigation of ships along the NSR is mainly ensured by:

- the long-standing experience of the exploration of the NSR;
- the construction of special arctic ships with the continuous improvement of their structures;
- the system of navigational and hydrographic support established in the Russian Arctic;
- Rules of the Russian Marine Register of Shipping for the building of ships;
- Guidelines for the transit navigation of ships along the NSR.

As the analysis has shown, the probability of the loss of a ship on the NSR is substantially lower than that in the ice-free waters of the World Ocean.

(See: Appendix 5)

Discussion

The ships that have sunk at the NSR have had too weak structures. The year 1932 is remembered as year, when the ice conditions particularly difficult, especially in the eastern sector of the Arctic. The situation was difficult in other parts too. The main reason for the expedition vessel "Tchelyuskin" to sink was, that the hull did not have enough ice strengthening. Especially the sides were weak. In another case a timber carrier was going too fast behind an icebreaker, so that when the icebreaker turned but the carrier could not follow. It was like the Titanic. All these experiences have been used to improve the regulations.

Conclusions

The existing damage statistics show that the risks in past NSR operations are on low level. This may be because of well-regulated operations and relatively low traffic volumes. In the future, the situation may be different, as the example of the Baltic Sea shows.

11. IMMIGRATION AND CUSTOM PROCEDURES AT RUSSIAN OIL TERMINALS AND THE FEE POLICY

Anatoly N. Yakovlev and Anton E. Nikulin, Central Marine Research and Design Institute (CNIIMF)

**Abstract: Organisation of customs and border-guard points,
Locating of customs and border-guard points**

1. According to the Decree of the Government of the Russian Federation № 60, 19.01.1998, the customs and border-guard control is exercised by specially created passage (check) points across the State border.

General provisions of the Decree (par.5) state that "...Passage points across the State border include corresponding buildings, premises, and structures on the basis of projects coordinated with the agencies and troops of the Federal Frontier Service of the Russian Federation and the customs and other agencies participating in control at passage points across the State border".
2. Passage points across the State border and seaports are in Federal (State) ownership. Relevant State border and contiguous sea areas are in their jurisdiction. Control functions of the passage points are extended to all vessels visiting the State zone of responsibility.
3. Sea road transfer complexes (SRTC) are cargo areas of ports; they shall observe "By-Laws" relating to the port of registry. Road transfer complexes are objects of special industrial danger and cannot fulfil functions of non-productive purposes.
4. If a passage point across the State border is permitted to be in an oil storage area located in the area of Sea Transfer Complex, one should provide necessary breaks in operation of the oil storage at least for 6 - 8 hours per each call of foreign tanker in compliance with Order 892 (12.09.01) of the State Customs Committee of the Russian Federation. If an average carrying capacity of rated tanker is assumed to be 120000 tons and an annual rated cargo traffic is 12 million tons one shall exclude 600-800 hours per year from the production time budget of the oil storage as the production activity of the oil storage shall be broken off for the period of work of the border-guard and customs control bodies or can be permitted in force-major circumstances.

Thus, in the area of SRTC development it is necessary to establish the Administration of port cargo area, the Administration of passage point across the State border including border-guard and customs service craft (a border control boat, etc.) and other industrial objects providing control functions, inhabited micro-district for workers, and welfare projects for the seamen visiting or servicing SRTC.

To bring SRTC to full loading capacity it is necessary to provide the sanitary, boundary registration and customs control clearance on the road in specially allocated places of anchorage.
5. Operational rules for SRTC are developed by the SRTC Administration according to the design documentation and By-Laws on seaport. Operational rules of SRTC shall include a SRTC situational plan, scheme of management under operational conditions, and also the information:
 - On means and procedures of communication, on exchange of information;
 - On procedures of clearance of vessels inwards/outwards;

- On vessel traffic control;
 - On transmission of weather forecasts and storm warnings;
 - On pilotage service;
 - On border-guard, customs and sanitary - quarantine registration (clearance) of vessels;
 - On tug support;
 - On procedures of reception / delivery of oily, bilge water and waste water, and dry rubbish;
 - On possibility of bunkering vessels and delivering cargoes to them;
 - On rendering medical aid.
6. SRTC operational rules shall have a reference to a plan of prevention and liquidations of emergency situations (comprehensive plan of emergency measures), including the following sections:
- Scheme of SRTC management in emergency;
 - Procedure of giving a fire alarm signal;
 - Procedure of giving an emergency signal;
 - System of communication and warning of cooperating organizations in case of emergency;
 - Emergency schedule determining particular duties of officials employed in the organizations involved in SRTC operation;
 - Full list of available means to be used for realization of Oil Pollution Emergency Plans (OPEP (LNR)) and fire extinguishing at STRC;
 - Methods and ways of evacuation of the personnel and rendering medical aid;
 - Readiness of personnel and equipment to operate in emergencies.
7. The control of SRTC production activity exercised by SRTC officials and by the State control bodies should be stipulated in the SRTC rules of operation.
8. RTC operation is carried out by the Administration of the Complex and under contracts with the organizations having relevant licenses according to the current legislation of the Russian Federation.

Organization of work of a passage (check) point.

1. The general schedule of work of a passage point (the beginning and end of work, technological breaks, schedules of registration of physical persons, vehicles and cargoes crossing the State border) shall be confirmed by joint decision of heads of the State control bodies and the sea, river port general director (further referred to as the Passage Point Administration).
2. The sequence of realization of all kinds of control over passage points is determined by typical organizational schemes of passage across the State border of physical persons, vehicles and cargoes by all available modes of international transport, which are coordinated with the Federal Executive authorities exercising various kinds of the control, and approved by normative legal acts of relevant transport ministries and departments.

3. Technological schemes of passage (across the State border of the Russian Federation) of physical persons, vehicles and cargoes through check points shall come into effect by joint decisions of heads of the State control bodies and Passage Points Administration in accordance with typical schemes of organization of passage (across the State border) of physical persons, vehicles and cargoes with allowance for local conditions.

Border control and customs examination

The Regulations for calling at and lying in the open ports (roadstead) have been established by the law «On the State Border of the RF» of 1993, other legislative acts of the RF and special Decrees of the RF Government published in the Notices to Mariners.

Foreign vessels proceeding to the RF ports (roadstead) shall advise port destination Authorities of their ETA. Vessels of foreign States which established for Russia vessels the «permissible» or «informative» regime for calling at their ports may call at the RF ports only after having received permission to do so from the Russian competent bodies according to the principle of reciprocity [4, Article 25].

The places and duration of lying at the stations of crossing the State border are to be indicated by seaport administration and approved by the Federal border-guard service of the RF and the state customs committee of the RF. The operational regime of the border-guard and customs stations in merchant seaports shall be established by the RF Ministry of Transport.

Border control

The border control is affected in compliance with the Law «On the State Border of the RF» of 1993. The border control includes:

- verifying the reasons for crossing the State border by people, means of transport, cargoes, goods and animals;
- examining means of transport, cargoes and goods;
- finding out and detaining persons breaking the rules of crossing the State border, transported, cargoes, goods and animals which are prohibited for import / export to or from RF by the RF legislation.

The order, means and methods of border control are established in accordance with the Law «On the State Border of the RF» through regulatory acts issued by the RF Ministry of Transport and agreed with the RF Ministry of Justice. The border-guard officials hold inspection on ship's and navigational documents and, in case of necessity, ship's spaces. The shipmaster shall, on the requirement of the border-guard officials, open holds, rooms, other spaces and the transported cargoes for inspection. The vessel may leave port only after border-guard control officials have issued a corresponding permission.

Customs examination

Customs examination is carried out in compliance with the Customs Code of 1993 [27]. When goods and means of transport have been brought on the RF Customs territory, the ship-owner (shipmaster) advises the RF Customs House of crossing the RF Customs border. The Customs House indicates time and place where the vessel must be taken to affect her clearing in. These provisions do not apply to vessels crossing the customs territory if they do not intend to make a stop in ports located on the RF territory. The shipmaster shall submit master's declaration, ship's papers and cargo documents for

carrying out customs examination. Customs officials may require opening holds, rooms, tanks and other ship's spaces, as well as packing of goods. After all stages of customs examination have been over, the corresponding document is stamped – «Cleared in».

Fees and duties are to be paid for border and customs registration as shown in Table 1.

Table 1: Fees and duties collected for border and customs registration

Type of customs registration	Rates of fees and duties
Border registration	Seven minimum monthly remunerations of labour for the examination of sea-going cargo vessels of 1000 GRT plus 0.1 minimum monthly remuneration of labour for each ton in excess.
Customs registration	100 000 roubles for customs registration if customs value of goods compose 30 000 000 roubles and more.

Dues and fees for the boundary registration, as shown in table 1, are defined by the law «On the State Border of the RF», 1993.

Fees and duties collected for customs registration are established by the Decree of the RF Government, dated December 28, 2004.

Abstract: Fee policy

This section of the report on fee policy of the Russian Federation is the second, independent topic suggested by the Organizers of the given workshop.

On the 8-th of September 2004 at the 4-th workshop our Institute (CNIIMF) set forth a system of dues as fees for icebreaker-assisted pilotage. Current icebreaker fees are determined by Order № 6 of the Ministry of Economic Development and Trade of the Russian Federation, issued on the 10-th January 2003.

The average rate of icebreaker fees is 23 dollars/ton.

The rate of fees for piloting oil-carriers makes 16 dollars/ton, for piloting oil-carriers sailing in ballast to a place of loading - 5 dollars/ton.

The report sets forth basic directions of a modern tariff-shaping policy:

- The order of approval of icebreaker fees;
- Indexation of icebreaker fees;
- Legal bases of icebreaker fees.

Procedure of approval of icebreaker fees

One of the results of the administrative reform carried out in Russia is a higher status of accepted decisions on tariffs - up to the level of the Government of the Russian Federation (Fig. 1).

The Federal Tariff Service which is under the authority of the Government of the Russian Federation was formed in 2004. The Federal Tariff Service estimates icebreaker-assisted services rendered along the NSR and approves icebreaker-fee rate by special Order.

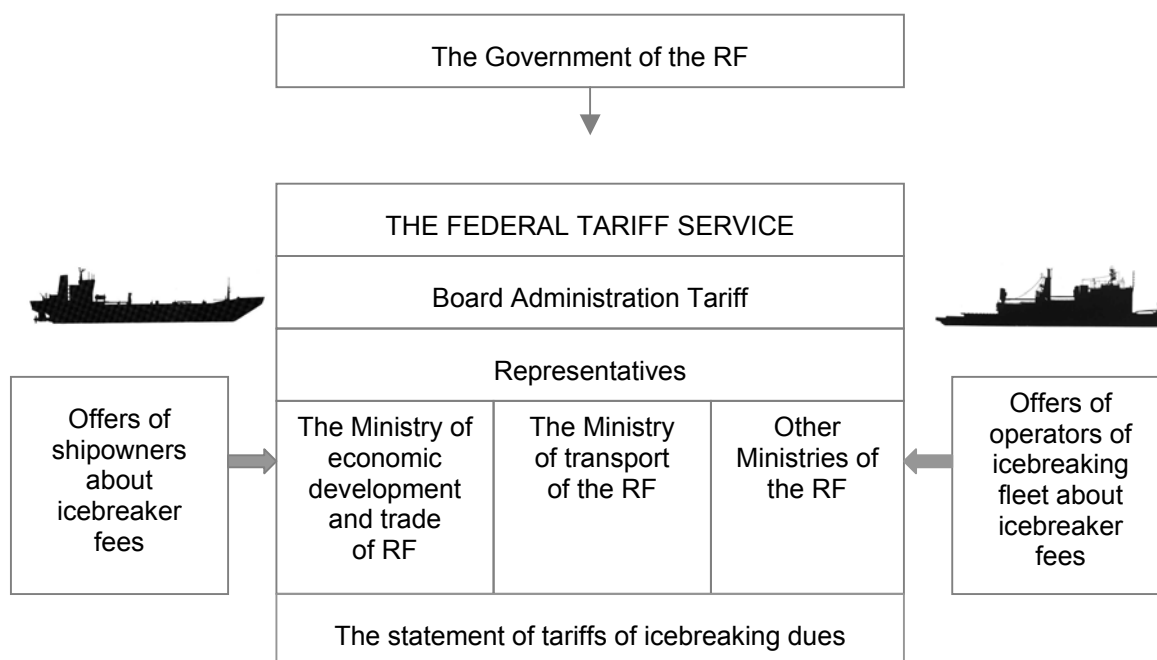


Figure 1

The Board Administration Tariff was organized within the framework of the Federal Tariff Service for the purpose of estimating services of icebreaker-assisted pilotage. The structure of the Board includes representatives of the Ministry of Economic Development and Trade, the Ministry of Transport of the Russian Federation and other ministries.

The Board considers tariff proposals of the Ship-owners and Operators of the icebreaking fleet operating on the Seaways of the NSR in view of the fact that the tariffs include costs of maintenance and modernization of icebreakers as well as charges on ice air-reconnaissance flights, hydro-meteorological support and satellite communication.

The Federal Tariff Service proceeding from the consideration of proposed tariffs shall issue Orders "On tariffs for services of the icebreaking fleet along the NSR".

Indexation of icebreaker fees

The necessity of indexation of tariffs for services of the icebreaking fleet shall be grounded by the Operator of the icebreaking fleet, that is, by the Murmansk Shipping Company. Within last two years there was no indexation of tariffs for icebreaking services. At the same time in connection with growth of prices for repair, nuclear and organic fuel and reactor equipment the expenses on the icebreaking fleet have considerably increased.

On the basis of the above-stated the tariff of icebreaker fees will be raised, in particular, for transportation of oil by 12 %.

The Government of the Russian Federation is considering the proposals of the oil companies ("Rosneft") planning transportation of oil through the Kara and Barents seas, to finance work on prolongation of the service life of nuclear icebreakers on condition that these means will be compensated in the long run by reduction of the tariff for icebreaking services.

Legal basis of icebreaker fees

The basic normative-legal and normative-technical acts on State regulation of icebreaker fees, except for the Orders issued by the Federal Tariff Service are set forth in “Guide to navigation through the Northern Sea Route”. The Guide is issued by the Administration of the NSR and the Hydrographic Enterprise of the Ministry of Transport of the Russian Federation in 1995 (№ 4151) in Russian and English.

The legal base of icebreaker fees is shown in Table 2.

Table 2: Legal base of icebreaker fees

№	Legal act	Year of publication
1	Order of Ministry of economic development and trade «About changing in rates for icebreaking fleet services of the NSR» (in force)	2003
2	Order of Federal tariff service «About rates for icebreaking fleet services of the NSR»	Future
3	Regulations for navigation on the seaways of the NSR	1991
4	Regulations for icebreaker-assisted pilotage of vessels on the NSR	1995
5	Requirements for design, equipment, and supply of vessels navigating the NSR	1995

“Rules for navigation on the Seaways of the Northern Sea Route” state that the Ship-owner or the Shipmaster is obliged to confirm in his request for pilotage a guarantee of payment of icebreaker fees (Rule 3.1).

Payment for the services rendered to vessels by the Marine Operations Headquarters and the Administration is made in accordance with the authorized tariffs as established by relevant procedure (Rule 8.4).

“Rules for icebreaker-assisted pilotage on the Northern Sea Route” state that:

- in this case payment shall be made in accordance with the additional tariff and at the submission of the request for pilotage on the NSR (Rule 2.2);
- Pilotage of substandard vessels and also docks, drilling platforms, monobuoys (wharf boats) is carried out under additional special or icebreaker support, with additional charges being paid (Rule 2.5).

“Requirements for design, equipment and supply of vessels navigating the NSR” determine that the Shipmaster having little or no experience of ice navigation on the Seaways of the NSR (not less than 15 day of navigating a ship in ice conditions), is obliged to take onboard an ice pilot and pay for his services.

As a whole the tariff policy provides for the State regulation of icebreaker fees not only on the Northern Sea Route, but also in the northern seas. As volumes of oil export increases the rate of icebreaker fees will be reduced. A scientific basis of the tariff policy shall become the project “Regulations of payment for navigation services on the NSR”, developed by CNIIMF.

(See: Appendix 6)

Discussion

The customs and border crossing processes of the Varandey terminal were brought up. The Varandey terminal belongs to LUKoil and they organised the procedures permanently. LUKoil has not reported problems. A special region has been established around the Varandey terminal to facilitate the formalities. Tankers come to this area every 10-14 days. The operations are taken care by a specialized staff and there is a special captain who leads these operations near the terminal. The customs personnel come aboard the tanker to prepare all the documents.

In Sakhalin Island, the Vityaz complex is north-east of the island in the Okhotsk Sea. The nearest port is Khorsakov, 42 miles to the south. There were problems in the early days with customs and port clearance. But on the island, they have actually sent a border guard to Vityaz.

In practical terms, each export, which is about every one week to ten days, the border guard is flown out to the ships. They have a physical presence there and the clearance is done near the field. As for the future, and the new terminal at Sakhalin, the intention is to have a border guard in the Prigorodnoye reserve, although it is six miles from the facility, they will have their own border guard.

The NSR fee structure was discussed. In principle, the icebreaker fee covers for the operational costs and also for the extra fees, which have been agreed with the regulator in advance. Calculation is simple: costs + kopecks / cargo volume. Cargo value is taken into account. Cross subsidisation is conducted according to cargo type, so that for high value cargo with high value added takes the biggest payload. Most of the costs are carried by Norilsk Nickel. They pay even more than oil transporters, over \$50 per ton. Other high value cargo transporters pay high fees as well, even if the total sums are marginal. Hydrocarbon supply by the northern coastline is not part of the fee system. The opinion of the Ministry of Trade and Economical Development is that the oil producers can afford to pay 16 \$ per ton. The oil producers do not agree, and consider that the fees should be lower. Strategically it's more profitable to invest in ice going ships.

Tariff building has two main tendencies: indexation of inflation and changes in the foreign exchange rate. In principle there is also a need for tax for future icebreaker fleet, but it is currently not included in the tariffs.

According to the 1990 rules, five types of leading are required at the NSR, ranging from icebreaker assistance to radio leading from shore. Now the oil companies are developing their own vessels. How will this development be taken by the government remains to be seen, since it seems that Norilsk Nickel could sail with its ships along the NSR with only radio assistance.

The need for icebreaker assistance is a difficult question. A CNIIMF delegate explained that in principle in some situations it is not 100% necessary to use icebreakers. But there are also social and political factors involved. Safety and continuation of operation by the NSR matters the most. Therefore a certain number of icebreakers are still needed by the NSR. This means that also Norilsk Nickel will have to pay the icebreaker fees. Economics of scale will be possible if the traffic volumes grow.

The chairman commented, that it seems that the cargo value based fee is not entirely fair. The current high level of the oil price should not be looked at, for during the whole lifetime of a project the oil price might be lower.

CNIIMF commented that \$70 per tons surely not the level that is looked at. For a comparison: it is a widely known fact that LUKoil's production costs are \$10 per ton and at the end of the pipeline they are \$20 per ton.

Conclusions

The customs and immigration procedures have a considerable indirect impact on the economics of a transportation system. The delays caused by these procedures are several hours and the losses caused are counted in tens or hundreds of millions of dollars. The fee system, on the other hand is at best an efficient tool to control the development of the traffic, an even to improve safety and efficiency of the transport by encouraging investments to advanced transportation technologies.

The practice shows that the customs and immigration issues can be solved for both Varandey and Vityaz. Instead of individually tailored solutions for each project, in the future a general procedure should be introduced.

It is concluded that the fee system should transparent and based on actual needs and expected future cargo volumes.

13. FINNISH FEE POLICY DEVELOPMENT

Markku Mylly, Finnish Maritime Administration FMA

Abstract

The Finnish Maritime Administration is the authority responsible for maritime safety, winter traffic assistance, fairway maintenance, VTS and pilotage, hydrographical charting and the provision of ferry services to the archipelago communities. The Administration ensures that the basic operational conditions for merchant shipping and sea transport are maintained and continually improved, taking into account safety and economic aspects, as well as environmental consequences. The activities aim to ensure safe and efficient merchant shipping, meeting both society's and customers' needs.

The Finnish Maritime Administration purchases, either from the established state enterprises or other companies, the services needed to ensure unhindered shipping. These services include for example icebreaker services, fairway maintenance/buoy tender services, and community ferry services.

The Administration also maintains its production related to fairways and nautical charts.

The Finnish Maritime Administration finances its services for merchant shipping by charging its customers fairway dues. It also conducts official and public services, which are financed out of the government budget. The Finnish Maritime Administration's annual budget is roughly 105 million euros. The budget is financed via fairway dues, 75 million euros, state budget 25 million euros, and other revenues 5 million euros.

Fairway dues – Background

The objectives of the fairway due system in the 1970`s and in the 1980`s was to promote good ice classed vessels navigating to Finland and also to support regular liner traffic.

Up to year 1989 the costs of the icebreaking were partly covered by fairway and towing dues and partly by governmental budget money. The towing fee was abandoned in 1989 due to the fact that collected towing fee was very minimal, about 2 -8 million Finnish marks, equals to 0,2 – 1,2 million euros and the system to collect towing fees caused more delays and made assisting operations often very difficult.

Fairway dues policy have had and still have several goals, for example in respect to shipping policy, industrial policy and regional policy. The financing policy has also had goals on respect to state budget.

The Ministry of traffic and Communication has accepted certain demands and goals on fairway policy in 1990`s and those demands are still valid. Some of the demands were at the time being;

1. Special attention was to be paid on regular liner traffic to Finland and suitable ice classed vessels on that traffic;
2. When adjusting fee levels the foreign trade competitive position and ability had to be taken into consideration;

3. The goal was to lower the fairway dues level;
4. To continue to lower the costs of the administration causing pressure to fairway dues

Act of fairway dues was renewed in Finland in 2002. New fairway dues Act came into force 1st September 2002 and they are collected by the State to cover costs it incurs from the construction, maintenance and care of public fairways used for navigation, and safety devices required by waterborne traffic, and from assistance provided by icebreakers.

Today also the cost of national VTS activities is covered by fairway dues.

Fairway dues are collected by the customs authorities. The National Board of Customs may issue more detailed provisions on the procedure for collecting fairway dues.

Notwithstanding confidentiality provisions, the Finnish Maritime Administration shall provide the customs authorities with the reports, opinions and other material required to apply this Act. The Administration shall also provide the customs authorities with other executive assistance, as needed.

Any party engaged in merchant shipping on a registered Finnish or foreign ship in Finnish waters is liable to pay fairway dues.

No fairway dues need be paid when a ship travels from one foreign port to another through Finnish waters but does not call at a port in Finland.

The ship owner and the party who reports the ship for inward clearance on behalf of the ship owner or represents the ship owner on voyages between Finnish ports are responsible for payment.

Parties liable to pay who do not reside in Finland and all foreign parties liable to pay shall have a representative who does reside in Finland and has been approved by a customs district to assume responsibility for the duties that this Act allots to the party liable to pay and for the consequences of their neglect.

The fairway dues on international traffic are collected as a single payment when a ship arrives in Finland from abroad.

Charging principles

The amount of the single payment is determined on the basis of the ship's net tonnage and ice class.

More detailed provisions on the amount of the single payment and, as needed, their maximum limits are issued by Government decree.

The fairway dues on domestic traffic are collected in the form of an annual payment for each calendar year. The amount of the annual payment is determined on the basis of the



ship's net tonnage. More detailed provisions on the amount of the annual payment are issued by Government decree.

Domestic traffic means voyages between Finnish ports, except when during such voyage the ship calls at a foreign port to load or unload cargo or to pick up or leave passengers.

Waiver of payment based on number of payments and increase in dues

When fairway dues have been paid 32 times for a passenger ship registered for at least 120 passengers and 10 times for other ships, the ship's fairway dues for international traffic will be waived for the remainder of the same calendar year, provided that the specifications affecting the amount of the dues do not change in a way that would increase the dues.

Other waivers of payment

No fairway dues are collected on ships that are used solely in inland navigation, or arrive in and depart from Finland via the Saimaa Canal without calling in at a Finnish coastal port or are owned by the State and are not used for commercial purposes; or call at a Finnish port without unloading or loading cargo or passengers because of a compelling need, or solely to receive orders pertaining to the continuation of their voyage, or for repairs or so that the need for repairs to the ship can be assessed.

Half of the amount of fairway dues is collected on a ship referred to in subsections 1 and 2 above when the ship is heading for the Saimaa Canal, both when it is also bringing cargo from abroad to a Finnish coastal port and picking up cargo for port/s abroad from a Finnish coastal port.

Ships that call at a foreign port to pick up more cargo for technical loading or stevedoring reasons during one and the same voyage between loading cargo in Finnish ports are exempt from paying fairway dues twice.

Increase in dues

Fairway dues may be increased if the party liable to pay has:

- 1) provided insufficient or erroneous information for the purpose of fairway dues assessment, or has fully or partially neglected his duty to notify, by up to 30 per cent; or
 - 2) deliberately or from gross negligence provided an insufficient, misleading or false notification or other information or document, for the purpose of fairway dues assessment, neglected to submit information for the purpose of fairway dues assessment, or otherwise neglected his duty to notify, and this is likely to have caused insufficient fairway dues to be charged, by up to 50 per cent.
- (2) If, in the light of the potential benefit gained thereby and other material circumstances, the actions referred to in subsection 1, paragraph 2, must be considered aggravated, the fairway dues shall be increased by at least 50 per cent and no more than 100 per cent.

Reduction of dues

- (1) On written request, the Finnish Maritime Administration may grant a reduction on or an exemption from fairway dues, or order the full or partial refund of fairway dues if:

- 1) this is warranted by the promotion of tourism or coastal or through-traffic, or pressing causes pertaining to the promotion of Finnish foreign trade; or
 - 2) collecting the dues in full would be manifestly unreasonable.
- (2) The Ministry of Transport and Communications may assume responsibility for resolving a matter concerning the reduction of or exemption from dues when it involves a significant question of principle.

Main objectives of fairway dues in Finland

As said before the fairway due system has in Finland several objectives;

- 1) Shipping policy,
- 2) Maintenance support function or performance,
- 3) Industrial policy,
- 4) Traffic policy,
- 5) Regional policy,
- 6) State budget policy

Renewal of Fair Way Dues

On November 19th 2004 the Government submitted a proposal (HE 240/2004) to Parliament for the amendment of the Act on Fairway Dues, which would have vested the Finnish Maritime Administration with powers to interpret the ice class rules in a more flexible manner.

The proposal was based on a suggestion of a working group appointed by the Ministry of Transport and Communications to prepare a total revision of the Act on Fairway Dues.

In accordance with the Constitutional Law Committee, a Parliament Committee which controls the constitutionality of laws, the fairway due is, from a constitutional point of view, to be considered as a tax and the bill would have given the government authorities too much discretionary power with respect to the size of the tax. Thus the Constitutional Law Committee considered the proposal to be unconstitutional. The proposal was therefore withdrawn on December 14th 2004.

Pursuant to section 28 of the Act on Fairway Dues, the Finnish Maritime Administration may at its discretion, in individual cases, grant a reduction on or an exemption from fairway dues, or order the full or partial refund of fairway dues if this is warranted by the promotion of tourism or coastal or through-traffic, or pressing causes pertaining to the promotion of Finnish foreign trade or if collecting the dues in full would be manifestly unreasonable.

The working group appointed by the Ministry of Transport and Communications continued to work on a total revision of the fairway due legislation and the work was complete at the end of May 2005.

The working group was obliged to take into account the following opinion of the EU in their work;

The Commission is pressing ahead with the infringement proceedings against the discriminatory charges levied on vessels in Finland. The Finnish scheme breaches the European rules on the freedom to provide maritime transport services. In particular, it makes international operations in Finnish waters more difficult and more costly than purely

national services. If no satisfactory response is received from the Finnish authorities within two months, the Commission may decide to refer this matter to the Court of Justice.

Although the services provided to vessels are the same, Finnish legislation imposes higher fees for use of waterways on international traffic than on vessels performing cabotage operations between two ports in Finland. The fairway charge is calculated differently in each case. Vessels performing cabotage operations are liable to payment of an annual lump sum calculated on the basis of the net tonnage of the vessels and entitling them to an unlimited number of voyages. No account is taken of their "ice class" for this purpose. By contrast, vessels entering a Finnish port from another country must pay a charge based on both net tonnage and ice class for each of their first 10 or 32 voyages, depending on the type of vessel.

Although the Finnish legislation does not discriminate on grounds of the nationality of the provider of the services, it creates an obstacle to the freedom to provide services since it draws a distinction between international and domestic traffic, even though the services provided are the same. It therefore hampers operation of the internal market.

After having considered these opinions of the European Union the working group made two alternative proposals of which the other one was based on so called ice index and the other one was based on vessels ice class and net tonnage, similar to what is in force today. Both alternatives were sent to comments to the industry and the result of the comment was that the future fairway due legislation should be based on vessels ice class and net tonnage as it is today.

In this respect the proposed changes to the existing fairway due legislation are minimal. The proposed changes only fulfil the opinion of the EU and revised legislation does have minimal effect on the level of the dues in force today.

Goals of the proposition and essential proposals

- 1) All rules and regulations concerning ice classification of the vessels are to be withdrawn of the new fairway due legislation and these rules are to be transferred to new legislation which concerns ice classification of vessels and ice breaker assistance,
- 2) The fairway due is proposed to be simplified so that charges are based on four categories instead of existing six. This means that in the future the categories are; 1 A Super, 1 A, 1 B and 1 C are combined and ice classes II and III are combined. The unit fee to be charged is highest in ice classes II & III and lowest in ice class 1 A Super
- 3) The unit fee is different for cargo vessels and passenger vessels
- 4) The fee is charged 10 times/calendar year for cargo vessels and 30 times/calendar year for passenger vessels
- 5) There are no different fees for domestic and foreign traffic
- 6) Cruise vessels pay fairway due on each individual call 1,06 €/net tonnage and max. fee as 45 000 €/call
- 7) Fast ferries pay fairway due 30 times/calendar year 6,04 €/net tonnage
- 8) Export transit vessels are proposed to receive 50% deduction in fairway dues

The proposal is to be handed over to the Finnish Parliament still this autumn and we are expecting to get new legislation in force from the beginning of 2006.

(See: Appendix 7)

Discussion

There were certain reasons for problems at the Finnish Maritime Administration in preparation of the ice classes. Equivalency table had been established, which granted classifications for ships. Finally the FMA started questioning the equivalencies, and old mistakes were corrected. Now a new legislation has been prepared, which corrects the situation.

In the future there will be no domestic fee, but just one fee for everybody. The FMA had had problems with 270-280 vessels ice classes and thus fees. Legislations will be separated so that there will be two laws, one regarding the ice classes and one regarding the fees. The Committee for Constitutional Law finally declared, that the fairway payment is not a fee but a tax.

Two proposals for new ice class system were designed: the existing ice classing and an ice index with a certain formula. 99,9% of the ship-owners was on the favour of the ice classing. In the new system the classification societies take care of the classification, not the national officials. There are some threats: are classification societies reliable in classing vessels? Classification societies are responsible for their work and for the ship-owners in the classing. If the class requirements are not fulfilled, it is up to the ship-owner and class society to decide who will deal with the sanctions.

The total collected fee, 75 mln euros, would be similar in the future, not decreasing nor increasing, Changes will not be dramatical. In the proposal there are four groups of ice classes: 1AS, 1A, 1B&C, 2&3.

Conclusions

In Finland, the fairway fee system is aimed to improve the efficiency and safety of the navigation through deduction of the dues of ice classed vessels navigating to Finland. The intent has also been to support regular liner traffic. The fee system has been improved during the latest years to achieve as solid and effective system as possible.

In principle, the Finnish system was considered effective and feasible. The experts recommended the NSR fees should also be as transparent as the Finnish ones.

The classification societies need to maintain the Baltic classes with the power requirements.

14. ECONOMICAL IMPACT OF THE LEGAL AND ADMINISTRATIVE ISSUES

Kimmo Juurmaa, Aker Finnyards

Abstract

The evaluation of the economical impacts was made using the selected ARCOP scenario, where 15 million tons of oil per year is transported from Varandey to Rotterdam. The scenario is described more in detail in the ARCOP report D 3.1.3. Ice conditions of an average year were used for this study. The tanker alternatives that have been studied are described in the ARCOP report D 3.2.1 and the icebreaker alternatives in the report D 3.3.1. The computer simulations are described in ARCOP report D 3.5.1. The overall cargo traffic in the area has been taken from the ARCOP report D 2.5.1 and from the data presented at the ARCOP workshop 6, which has been reported in the ARCOP report D6.6.

The basic assumption for the overall traffic in the area is 100 million tons per year. The general water way maintenance costs are evenly distributed on this volume of transported cargo. The sensitivity of the fees on the cargo volume was also studied in the case where the overall cargo volume is only 20 million tons per year.

The second assumption was that 50 % of the cargo volume is transported during the winter season. The impact of the volume of winter traffic was also studied for the case where winter cargo volume was only 25 % of the total volume.

The costs for customs and immigration formalities were calculated as additional delays in the sailing time.

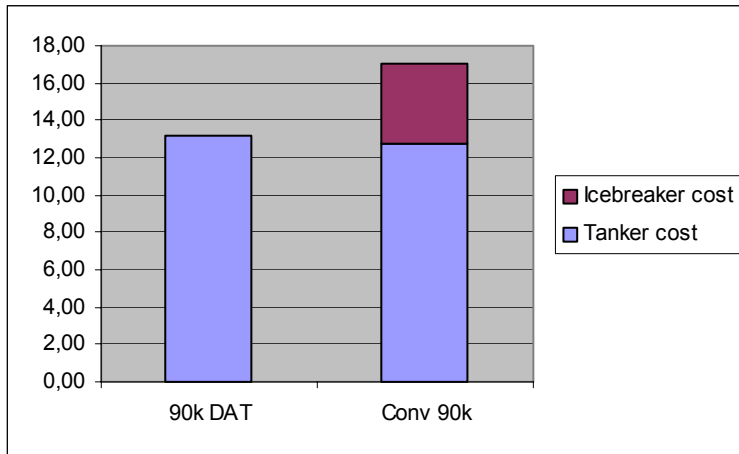
The costs for icebreaking were calculated with two methods. First the actual icebreaker costs covering both investment and operation of the icebreaker were taken from the report D 3.5.2 "Economic calculations". These were used as actual costs for each transportation alternative. The second method was based on the information on icebreaker costs received at the workshops from representatives of the Russian Ministry of Transport. Based on this information the yearly costs that the Russian government wants to cover with fees is 120 million USD. This is not the actual cost of the icebreaker fleet, but covers the operation and maintenance of the fleet. The actual investment costs are those that are covered by the government as a support to encourage the use of marine transportation in the Arctic. In addition to this icebreaker cost there are the costs of maintaining the waterway infrastructure. Since no data was available on these costs an assumption was made that this is of same value as the costs for icebreaking. This assumption was based on the experience from Finland. Finnish Maritime Administration presented at Workshop 7, ARCOP report D 6.7, that in Finland the fleet of 9 icebreakers create a yearly cost of approx. 30 million euros. At the same time the cost for maintenance of waterways to Finland cost the same amount. The 120 million waterway maintenance cost is evenly distributed over all the traffic in the area. The 120 million USD cost for icebreaking can either be carried by all the traffic in the area, as in Finland or by the traffic that takes place during the winter months. Both alternatives were calculated in this study.

(See: Appendix 8)

Discussion

The assumption of the equal costs of icebreaking and fairway maintenance is based on the fact that in Finland, the costs are about the same for these two services. On top of this costs there will be for instance the storage and loading costs.

Project coordinator reminded, that the costs from the delay are in reality caused by the need for a number of extra vessels that are needed in the summertime. Storages are also quite costly. The storage costs can be minimized by optimizing the fleet. Even though this calculation assumes that a double-acting tanker can operate independently and only occasionally needs icebreaker assistance, the question remains: who will cover for the costs for the rest of the year? If the icebreakers are needed, then the transportation task that only occasionally occupies them, needs to pay for them. Project coordinator reminded, that when making calculations one needs to make a number of different assumptions.



Basic transportation costs for two tanker types (All costs direct costs for tankers and icebreakers, open water tankers based on time charter costs, no ice management and no fees)

Coordinator also reminded that the fleet used in this calculation is 8 tankers and 6 icebreakers. These vessels are needed for this particular transportation task. An assumption has been made, that the overall flow of transport in the area would be 100 mln tons but no assumption has been made regarding the overall number of icebreakers. This cargo volume will take part in financing the overall fleet and the fairways. The assumption, that the icebreakers cost \$120 mln per year, is based on the information provided by CNIIMF regarding the budget of the

existing nuclear icebreaking fleet operating at the NSR today. Port and insurance costs are not included in the calculation. The cost of one cargo vessel is between \$70-95 mln.

Project coordinator commented, that Tecnomare's proposition for a loading system without ice management causes downtime up to 50%, which is very pessimistic and not acceptable. This will be discussed with Tecnomare. The problem could be solved for instance by adding one icebreaker. The type of the loading system will also affect the cost scenario, for a concrete tower as an option that would be costly to build, but require less ice management.

Conclusions

The economical analysis tool was used to form a uniform view of the economical framework and the sensitiveness of the transportation system to different factors. The results that were gained, were in the range of what was expected, but still it revealed some concrete problems.

The fee system for the NSR is perhaps the most deciding factor when the future of the NSR is considered. The fee system should be seen as a control system for the transportation activities: the fee system should support the technology developments.

Fees based on the value of the cargo are not considered justified. The fees should reflect the direct costs that are created by the cargo (volume) and the risks (environmental impacts).

Another issue to be considered is the minimization of the downtimes within the system. The economical analysis showed, that the lifetime cost of any unnecessary delay might be quite high.

The economical analysis tool is discussed further in the workshops 8 and 9.

15. END DISCUSSION

It was commented, that at Sakhalin the border guard services are aware of the schedule of the tanker traffic and so no delays are experienced.

It was noted that all transparent costs are acceptable, and it is the unknown ones are problematic. The transparent costs can be foreseen and taken to the market.

A fee could be discriminatory if it is not applied at domestic shipping, was commented to be interesting point. There are several regimes that demand non-discriminatory dealing with all parties.

CNIIMF commented the discrimination discussion by noting that certain aspects of state activities are beyond commercial activities. Japan enacts discrimination when it closes the rice market from foreigners. It is not a commercial issue but a strategic one. Prices in Russia are not comparable with other world. Therefore it is a question of tariff differentiation, not discrimination, to make icebreaking affordable to both national and international shippers. It was commented that there is no discrimination in the transport of hydrocarbons. In that part the Russians are dominating and foreigners only participating, not competing.

As Russia becomes more integrated to world markets it can expect competition laws to come up especially regarding the Russian gas prices. Generally competition hinders are being adjusted. Competition hinders are being looked at during the integration process.

There was a conclusion drawn from the 1st days panel discussion on rules, that regardless of the PC rules, there is a need to include the power requirements. Either in the way that the Baltic rules formulate it, or the way, that the classification societies include the power requirement in their requirements. The Baltic rules include power, Russia requires it and the new NSR rules have a requirement about power.

The Russian Maritime Register of Shipping continued to defend the power requirements in the new rules and called for forming unified requirements regarding power. It was noted that the power requirements have been supported by DNV and the approach has been taken by HELCOM as well.

All participants did not accept this proposition. DNV's propositions were mentioned to be good as guidance and a good compromise in dealing with power requirement. But still, no agreement on minimum power requirement exists.

RMRS noted that Arctic vessels at the NSR should comply with NSR requirements and in the future, with the new RMRS requirements.

It was again reminded that regardless of the strength of the hull, there is no guarantee that a ship can move in the ice. It's also a matter of safety.

The availability of reliable Soviet time statistics from the NSR was discussed. All participants were not convinced that the risk values that were presented would be relevant in the future.

Availability of ice damage data was also inquired. At Baltic the damage data is collected, but it is not certain if all the data is given. When the damages occur they are not necessarily noticed. During 2002-03 there were 100 damages, and a report has been published on them. It is assumed that this kind of data is missing.

The representative of Transport Canada noted that in Canada there is data but no statistics. But a database on damages exists. Baltic damage statistics have been collected in a EU project called Safe-Ice, which Canada participates and Finland coordinates. There

is an attempt at data collection globally. Also Russian data will be collected there. Safe-Ice could be mentioned as a reference. NSR statistics are almost nonexistent, but evolving.

AARI noted that ice conditions are a problem. There are not enough data for a technical analysis. It is difficult to see the damages, for they are often noticed only later, when docking.

Innovative thinking is needed to solve the issues and supporting the existing fleets and operations.

The gap between the acceptable and the actual fee level is huge: experts consider 1-5\$ acceptable fee level, when current fees are around 16-60\$.

Fairway dues in Finland are fully covering fairway maintenance, icebreakers etc. In Russia the fees are collected only for icebreaker maintenance and operation.

THE OUTLOOK FOR OIL TRANSPORTATION IN THE ARCTIC

by Arild Moe, Fridtjof Nansen Institute

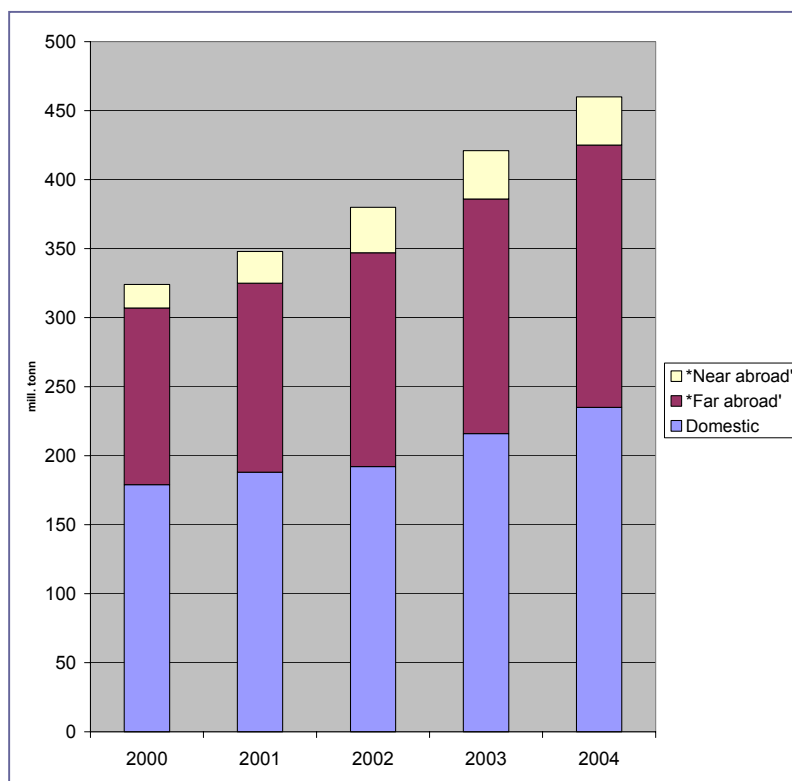
SCOPE OF PRESENTATION

- Trends
- Drivers
- Potentials

In North-West Russia



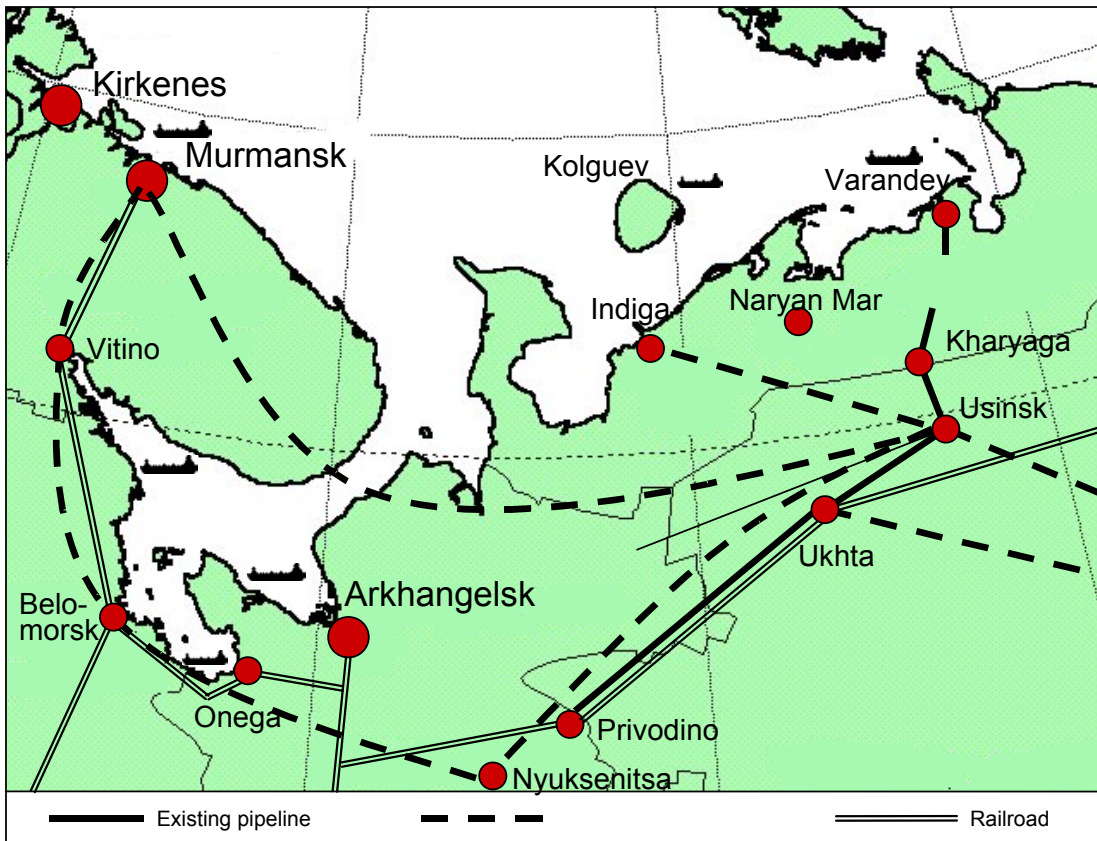
RUSSIAN OIL PRODUCTION AND EXPORTS



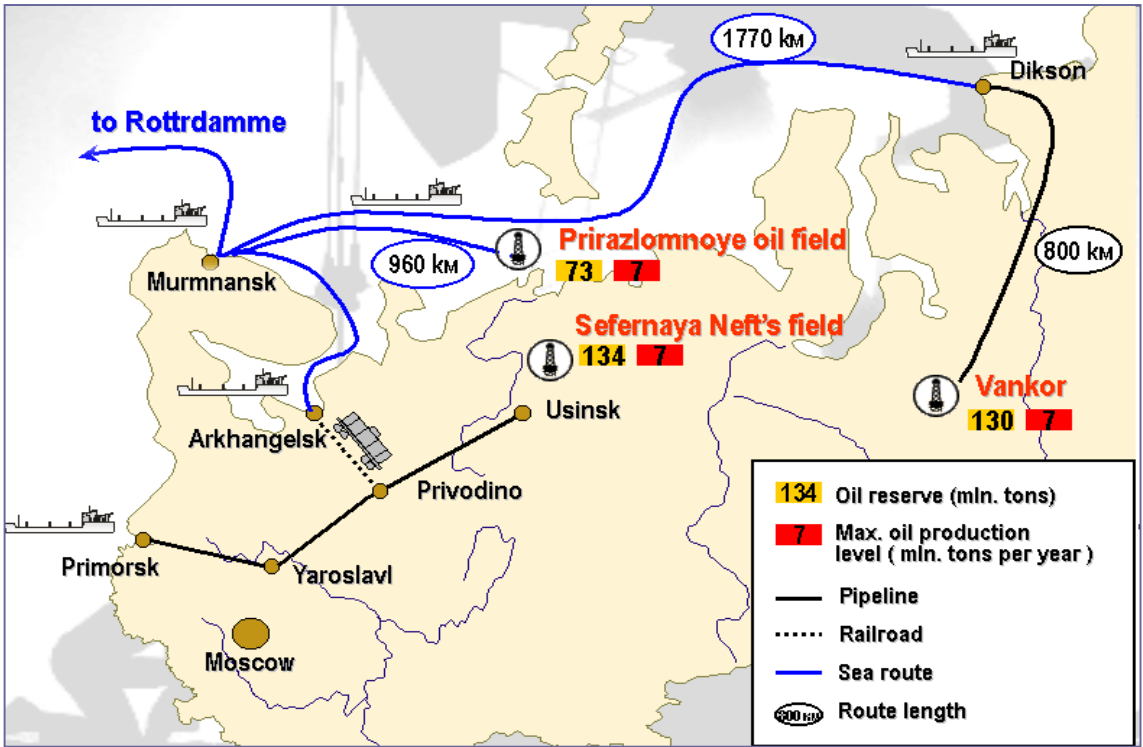
DRIVERS FOR OIL EXPORTS FROM NORTH AND NORTHWEST

- New fields – far from integrated pipeline system
- Increasing oil production
- Insufficient export pipeline capacity
 - no alternative outlet for oil – stagnant domestic consumption
- Reduced railway tariffs
 - but still costly schemes rail-shuttle tanker-tanker
- High oil price
- Independence from pipeline monopoly

TERMINALS IN NORTH-WEST RUSSIA

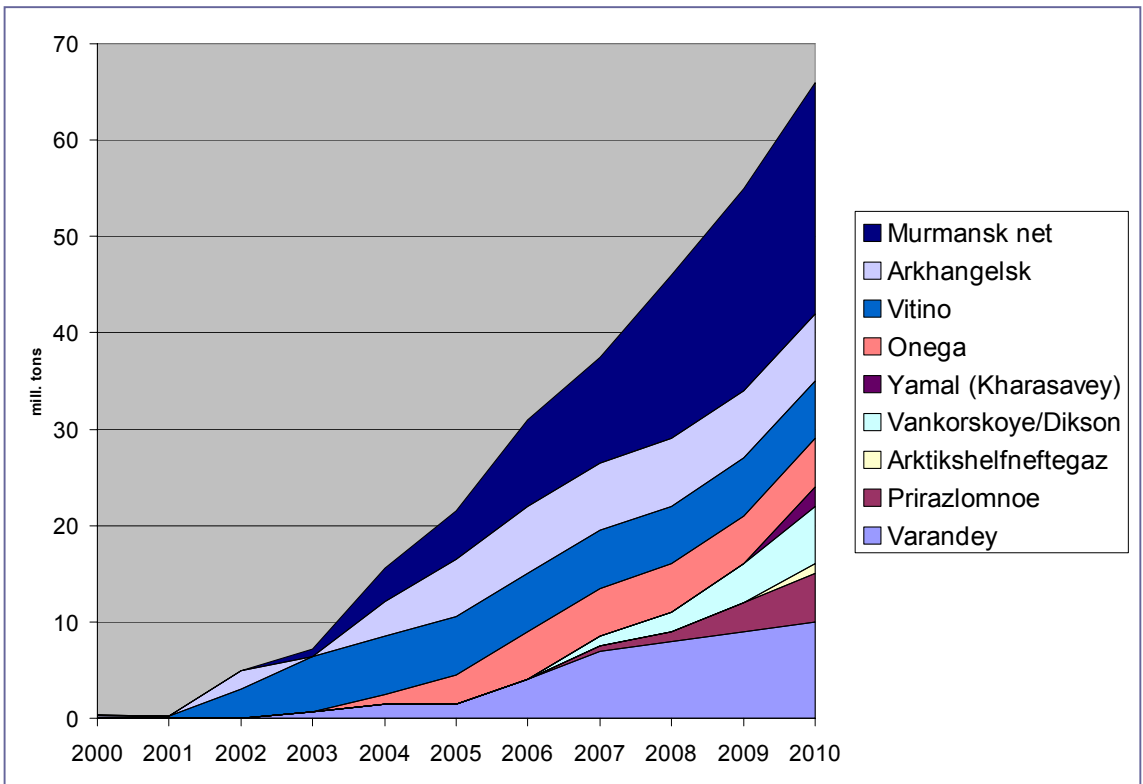


TRANSPORTATION SCHEME FROM WEST SIBERIA

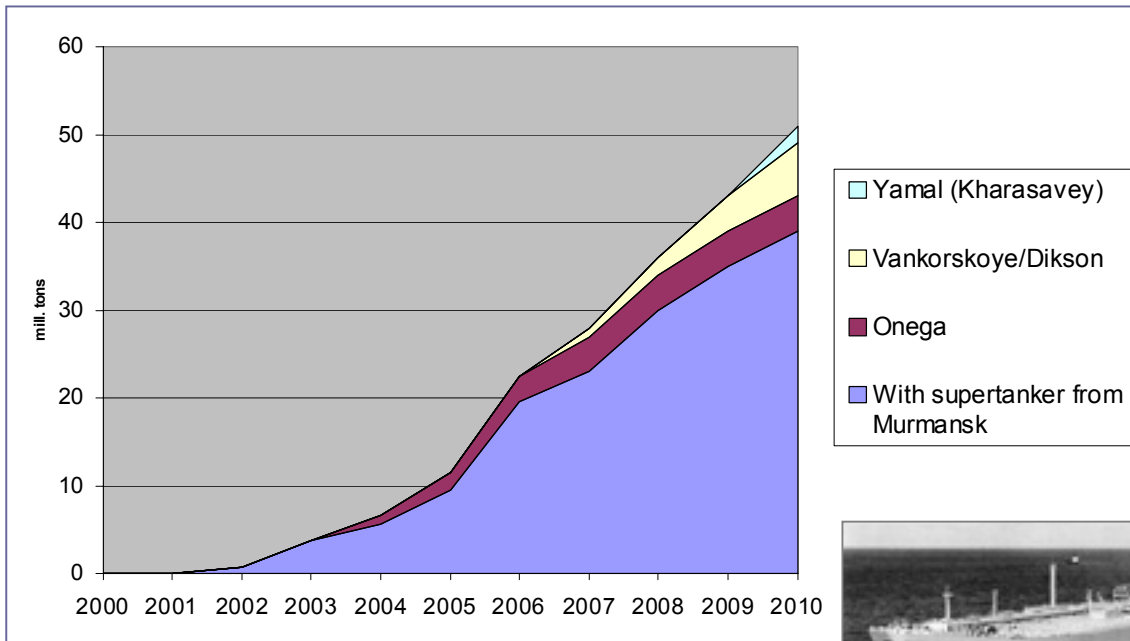


Source: Rosneft

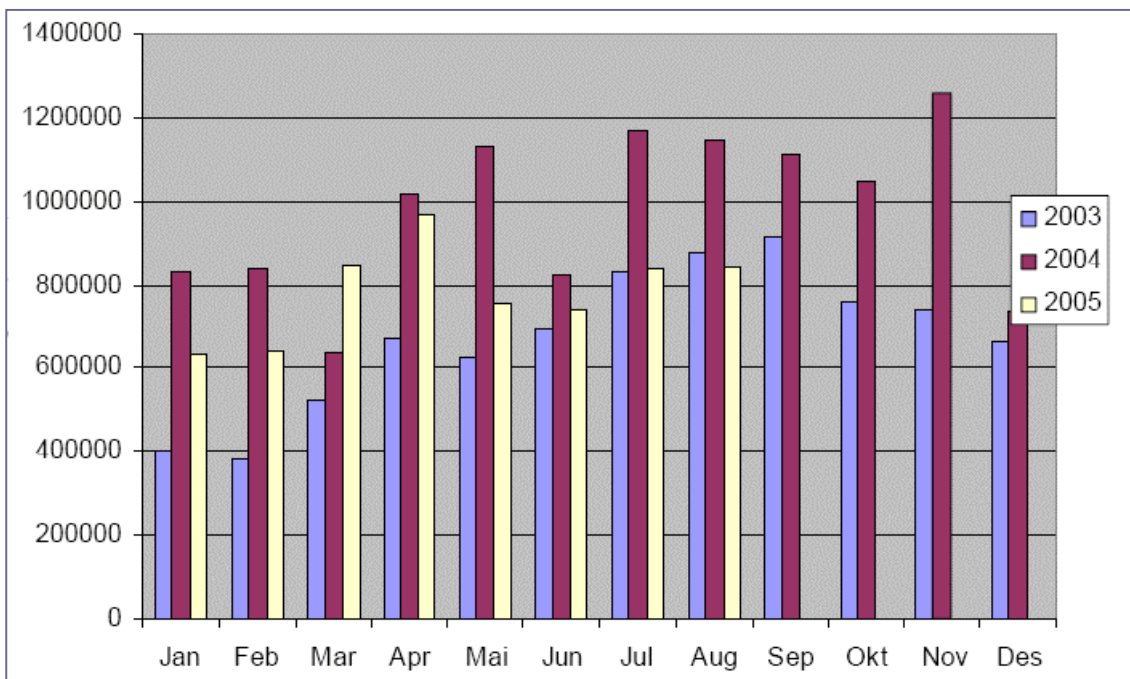
OIL AND OIL PRODUCT SHIPMENTS FROM NORTHWESTERN AND NORTHERN RUSSIA – TERMINAL CAPACITY



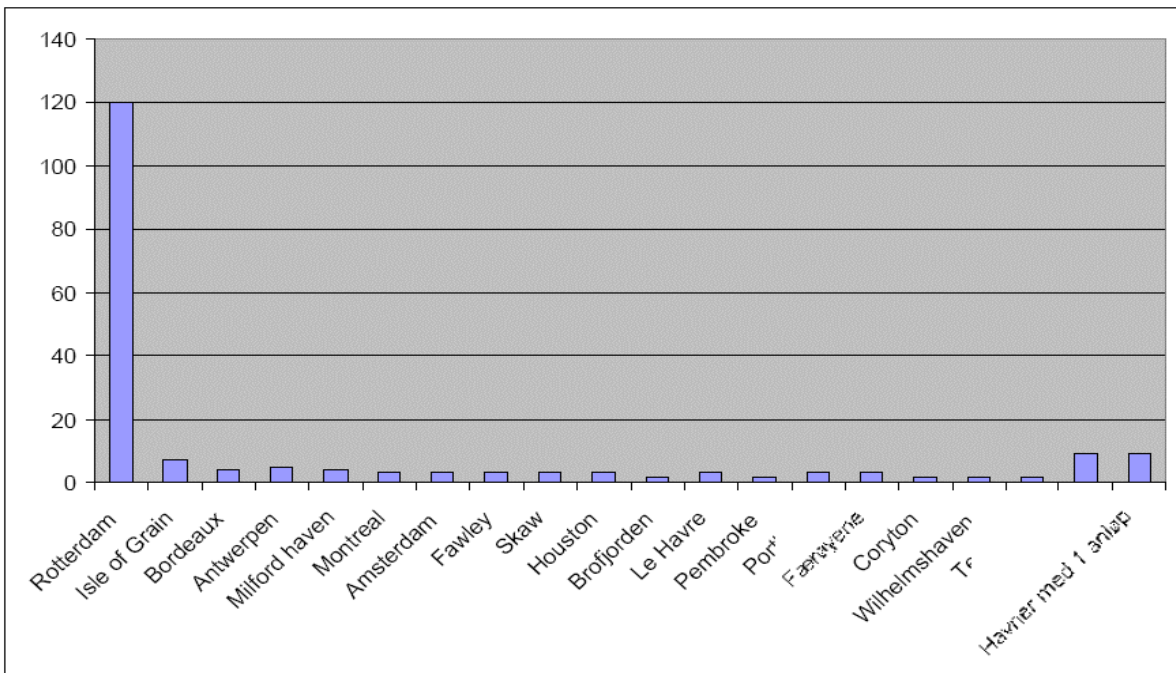
POTENTIAL FOR TANKERS OVER 100 000 TONS DW



MONTHLY OIL SHIPMENTS 2003-2005 (TONS)



PORTS OF DESTINATION



Source: LDKN

ORGANISATION OF SHIPPING ACTIVITIES IN THE NORTH

- Murmansk Shipping Company
 - Shuttle tankers, icebreaker support
- Lukoil Arctic Tanker
 - Change of strategy
- Rosnefteflot
 - Drilling plus shuttle tankers
- Sovcomflot
 - 2001-08: 20 new Aframax and Suezmax

ROOM FOR FOREIGNERS?

- Ambitious Russian shipping industry
 - attempts at monopolization
- But Russian oil companies commercially oriented
 - want competition between carriers
- Nuclear ice-breaker fleet – all over by 2015?
 - ice class more and more important
- Oil shipments will undoubtedly increase
 - but beware of the most optimistic projections
- The answer is yes

THE INTERNATIONAL SHIPPING COMMUNITY AND OIL TRANSPORTATION IN THE NORTH

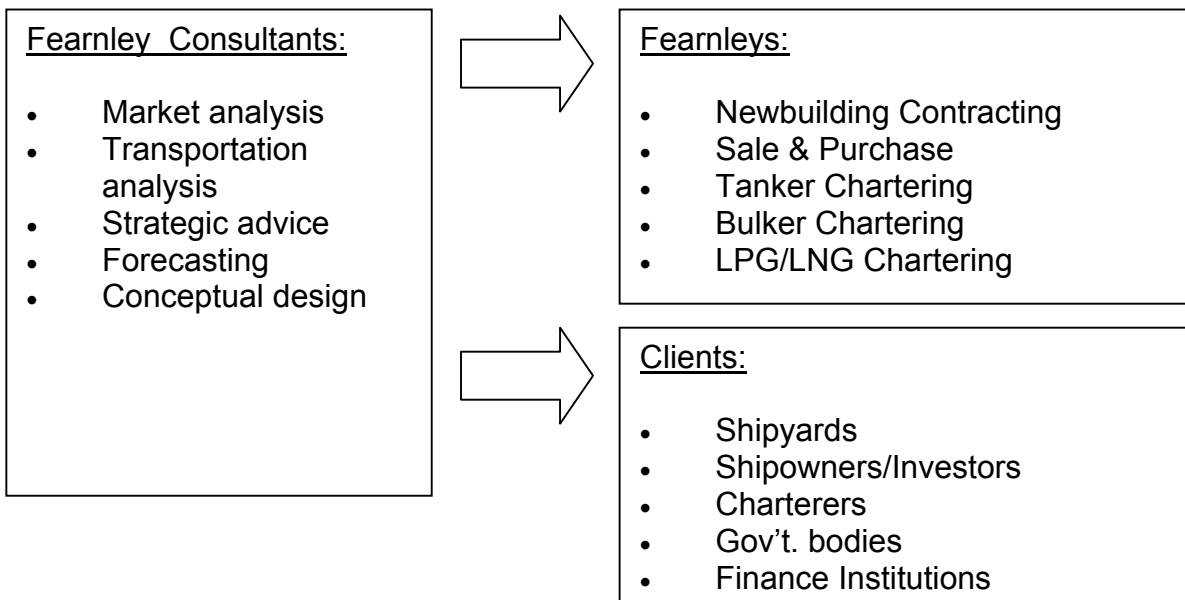
Expectations & Requirements

by Sverre Björn Svenning, Fearnley Consultants AS

THEMES

- Oil exports through NW Russian ports
- Future expectations
- Challenges & Solutions
- Vessel demand

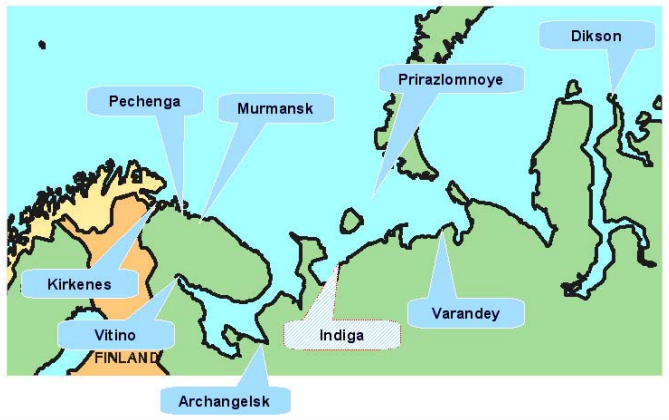
FEARNLEY CONSULTANTS A/S



FOCUS AREA

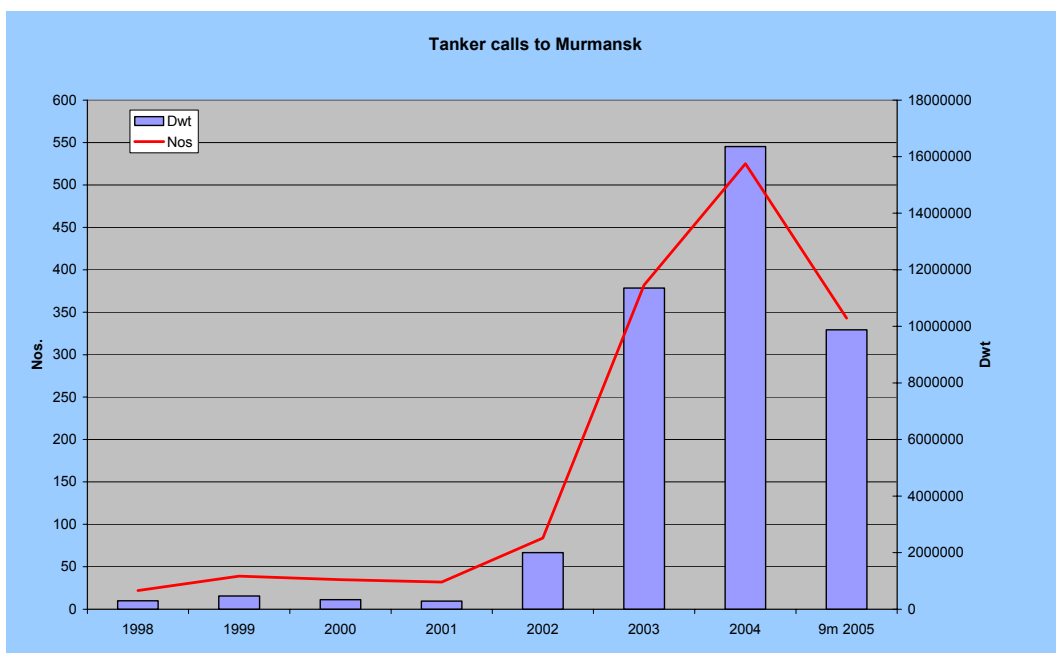


EXISTING AND POTENTIAL SITES FOR OIL FOR TANKER OPERATIONS



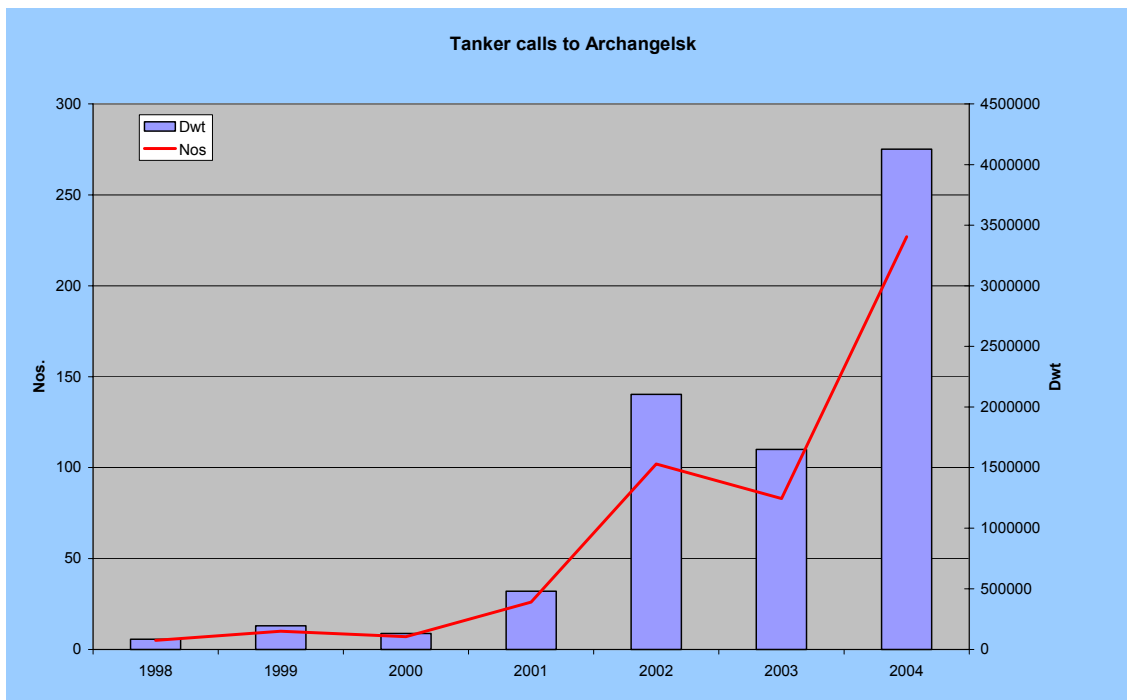
MURMANSK

- Belokamenka (120-200,000 b/d) (shuttling from Arch. + Varandey)
- STS – basis shuttling from Vitino and Varandey feasible, but limited activity due to most volumes going through the Belokamenka
- Tangra Oil has moored the “Trader” (126 kdw/1978) at Murmansk’s shipyard 35
- Crude oil and products are railed to the terminal
- Tangra has ended crude oil shipments and is currently focusing on fuel oil
- Tangra is building a deepwater terminal in Murmansk able to accommodate VLCCs
- It is rumoured that Rosneft plans another floating storage unit near Murmansk for future volumes from the Vankor field (see Dikson)



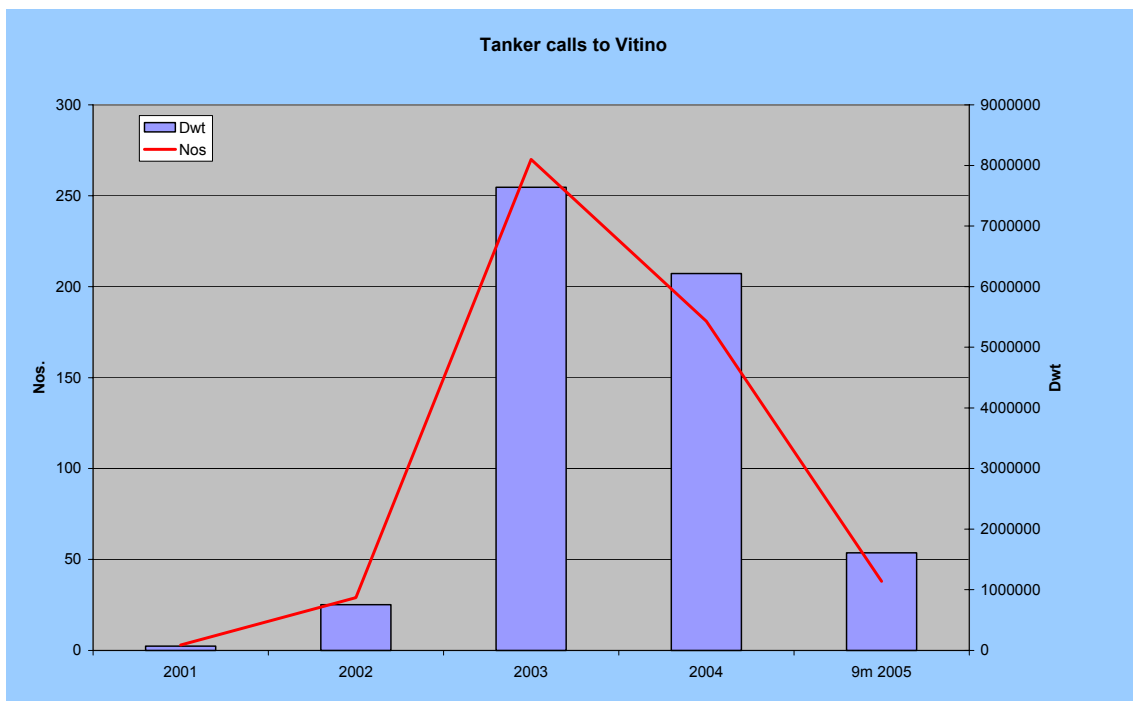
ARCHANGELSK

- Feeding Belokamenka
- Direct shipments to the Continent
- Rosneft building new condensate storage tanks, increasing capacity to 50 000 cbms
- Will commence condensate shipments to Belokamenka as soon as new storage is completed
- Estimated throughput 100,000 mt/month from end 2005
- Basis 37,000 dwt MR, this requires full-time employment for one vessel during summer and two vessels during winter (4-5 shipments/month)
- Will reduce crude shipments via Belokamenka
- Archangelsk terminal is draught limited. No plans for dredging



VITINO

- Can currently accommodate 70 kdwt, however only up to 50 kdwt so far handled
- Dredging for accommodating Aframax tankers underway
- Railing of crude oil in Russia has become to expensive due to increased railway tariffs
- Novatek exporting all condensate volumes through Vitino (1.6 Mmt/year)
- Trader Progetra considering directing all their gasoline exports through Vitino. Could reach 3 Mmt/year
- Future condensates volumes could increase by about 50% to 2.4/2.5 Mmt



VARANDEY

- Lukoil terminal
- Current installation max. 20 kdwt
- New, intermediate, loading installation similar to the existing is planned 7.5 km off shore in 14 m water depth
- Similar solution (APL SAL buoy – see www.apl.com)
- Permanent, concrete gravity based loading installation still planned about 22-24 km off shore. Aframax and even Suezmax capability
- Scheduled for operation in 2008, but sources expect at least one year delay to 2009
- For both alternatives, pipe laying is the stumbling point with only three months per year pipe laying season
- Initial capacity 0.17 mb/d till 2011. Thereafter, 0.21 mb/d
- Could eventually reach 0.4 mb/d



PRIRAZLOMNOYE

- 150 000 b/d output
- Sevmorneftegaz (Rosneft) has apparently ordered 2 x LU6 class tankers
- DAT 70,000 dwt – design provided by KMT
- Price: About USD 92 mill. each
- Scheduled delivery in 2007, but delays are expected
- Sevmor considered both DAT and conventional ice-breaking tankers
- Thus, choosing DAT must be considered to be a breakthrough for KMT
- Two Icebreaking supply vessels contracted at Havyard at USD 65 mill each

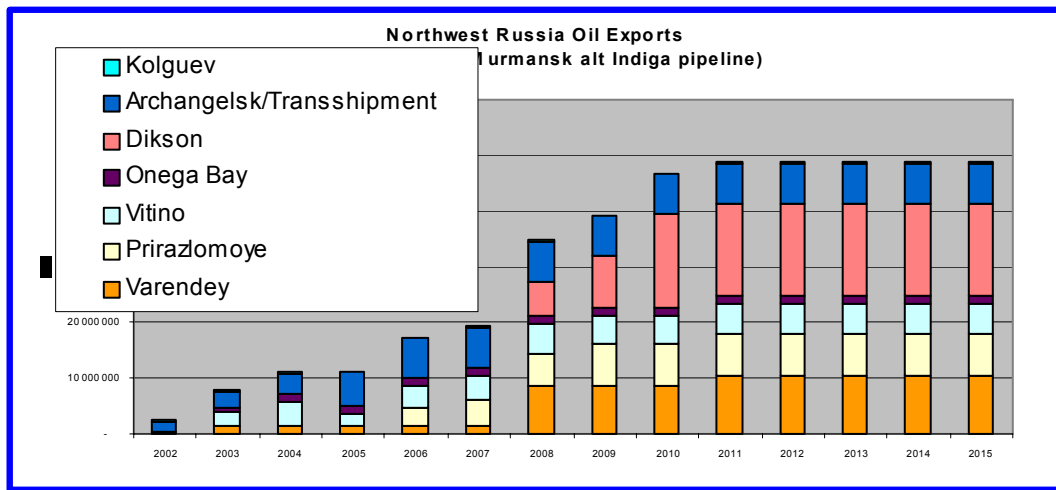


DIKSON

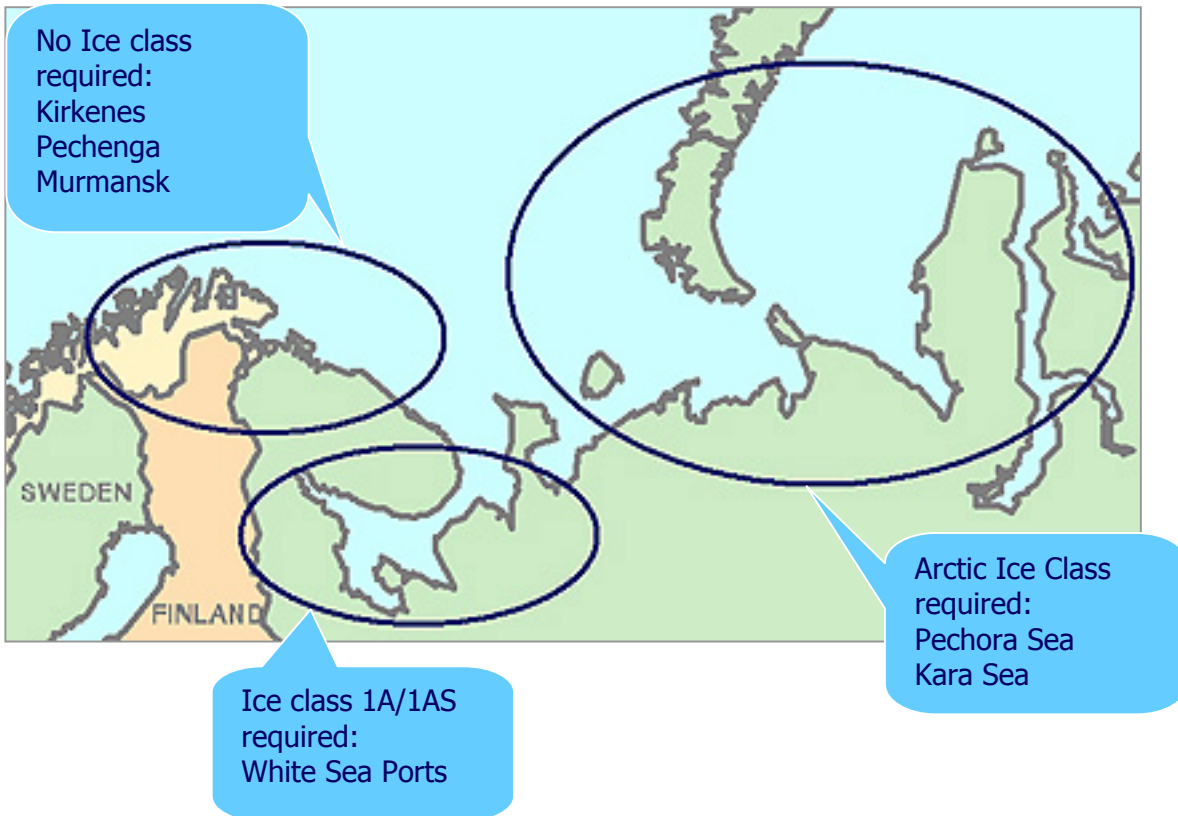
- Rosneft project
- Terminal for Vankor oilfields
- Start-up 2008?
- Could eventually reach 0.33 mb/d
- Extreme ice conditions
- Old minefields surrounding all inlets to Dikson
- Draught conditions sufficient for both Aframax and Suezmax
- Vankor oil could, alternatively, be piped southwards instead of northwards



NW RUSSIA FORECAST SEP. 05



ICE CLASS REQUIREMENTS



TRANSPORTATION SOLUTIONS FOR THE PECHORA AND KARA SEAS

EXTREME CONDITIONS:

- Ice thickness 1-2 m
- Multi-year ice
- Darkness
- Cold
- Icing
- Storms
- Noise
- Stress

EXTREME SOLUTIONS:

- Minimum modified 1AS
- Icebreakers
- Ice forecasts/navigation support
- Officers and crew with long experience in cold climates
- Focus on Safety
- Deck equipment design

BASICALLY THREE AVAILABLE SOLUTIONS:

A) Modified Ice 1AS tankers

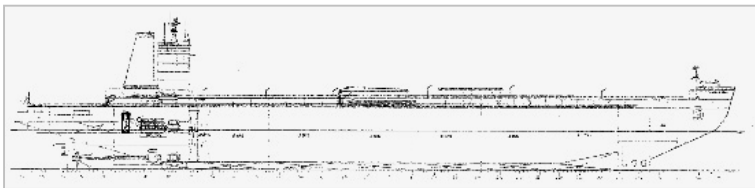
- Always in combination with ice-breakers



Ice 1 AS

B) Conventional ice-breaking tankers

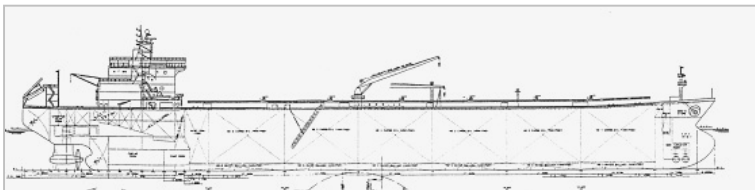
- Occasionally in combination with ice-breakers



Ice-breaking tanker
(LU6, or similar)

C) Double Acting Tankers

- In principle, independent of ice-breakers



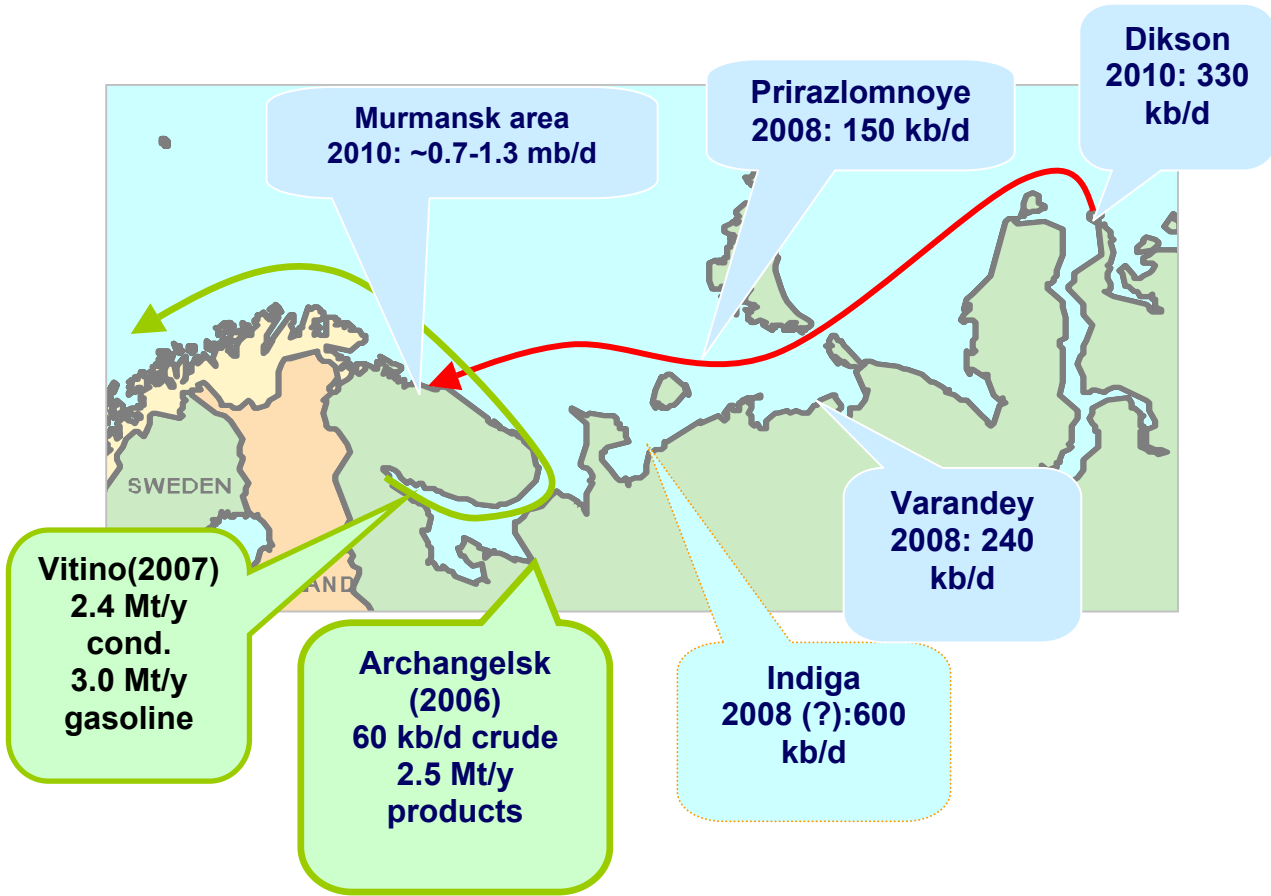
DAT

VESSEL DEMAND

Assumptions

- Shuttle-service to ice-free ports (Murmansk, Pechenga, or Kirkenes)
- Continuous oil production / supply
- Peak ice-coverage dimensioning for the transportation system
- Vessel speed in ice based on minimum speed as required in accordance with governing ice-class
- No waiting time included

FUTURE OIL VOLUMES



VESSEL DEMAND (2010)

	Open water performance	Winter Navigation
Prirazlomnoye	2	2
Varandey	3	5
Dikson	5	12
TOTAL	10	19
Indiga	6	7
TOTAL	16	26

Note !
DAT performance

Figures are indicative

Potential orders for Indiga trade must be considered “dead”
 If Dikson is chosen, and based on increased volumes, another vessel for winter trade is needed
 Thus, we consider future potential to be up to 14 vessels in addition to the Prirazlomnoye orders and pending Varandey orders

FUTURE TRAFFIC



We expect traffic of laden tankers from the White Sea to increase by 150 shipments per year From the Pechora Sea, by 220. From the Kara Sea, by 240. Taking ballast voyages into account, we expect an increase of 1,200 vessel movements

OTHER REQUIREMENTS

- Cabotage
- Russian Flag and Registry
- Seagoing personnel – ice experience
- Financing of assets
- Insurance

SUMMING UP

- Future tanker trade in NW Russia will increase substantially
- However, number of tankers will not become high
- Opportunities for both domestic and foreign ship-owners
- Extreme HES-requirements
- And then we have not included the enormous gas/condensate resources on the Yamal Peninsula.

THE ECONOMIC FRAMEWORK OF ARCTIC TRANSPORTATION

by R.A. "Herbie" Battye, Shell Shipping Technology

PROSPECTIVE DEVELOPMENTS IN RUSSIAN ARCTIC

- A Number of prospective Developments within the Northern Sea Route
- Export Transshipment will be from Murmansk area
- For export shipping freight economics will be from Murmansk



BUYER REQUIREMENTS

- *Transparent and reasonable Port costs*
 - Russia has clear dues for the commercial ports
- *No unplanned Delays*
 - Custom/Immigration
- *Competition*
 - North Sea
 - Mediterranean
 - Middle East
 - Others



NORTHERN SEA ROUTE FREIGHT COSTS

- *Costs will be borne by the producer*
- *Require a transparency on costs*
 - Port fees
 - Transshipment fees
 - Escort and ice management costs
 - Regulations
- *Competition*
 - Shipping v Pipeline



PORT FEES

- *Port Status*
 - Specialised Port
 - Commercial Port
- *Port Facilities*
 - Loading facilities
 - Support Vessels
 - Tugs
 - Ice Management
 - Ice Breakers
- *Fees*
 - Port Fees – Necessary?
 - Ice Management Fees

SUMMARY

- *Arctic Oil Production*
 - Known to be Expensive
- *Deciders in Arctic production include:*
 - Political
 - Strategic
 - Economic
- *Regulations must be 'right'*
 - Too light damage and delays
 - Too high – unnecessary expense
- *Customs/Immigration*
 - No delays to shipping



MARINE INSURANCE COVERAGE FOR THE SEA CARRIAGE OF OIL AND OTHER ENERGY MATERIALS ON THE NORTHERN SEA ROUTE

Moving from Theory to Reality

by Peter L. Wright, Fridtjof Nansen Institute

EXAMPLE 1

Voyage Date:	February 2006
Vessel:	Siberian Voyager'
Flag:	Finland
Voyage Information:	From Pechorskaye More (purpose-built loading facility in Siberia, Barents Sea Region of Northern Russia) to Rotterdam, Netherlands
Built:	2005, Aker Finnyards Inc, Helsinki, Finland
Tonnage:	60,000 DWT
Type:	Ice-breaking, double-hull, crude oil tanker
Insured Value:	USD 81.6 million (Building Cost)
Classification:	DNV. +1A1 Tanker for Oil
Owner:	Pechora Sea Oil International Inc., Helsinki/St. Petersburg
Type of Cargo:	50,000 tons Eastern Pechora Crude Oil
Value:	USD 14,400,000

EXAMPLE 2

Voyage Date:	June 2006
Vessel:	'Pechora Eagle'
Flag:	Cyprus
Voyage Information:	From Naryan Mar (purpose-built oil-loading facility on Pechora River, Barents Sea, Northern Russia) to Hamburg, Germany
Built:	2005, Aker Finnyards Inc, Helsinki, Finland
Tonnage:	90,000 DWT
Type:	Ice-breaking, Double-Acting, Double-Hulled Crude Oil Tanker, intended especially for Barents Sea operations but also for worldwide operation
Insured Value:	USD 81.6 million (Building Cost)
Class:	BV.+1A1 Tanker (Oil)
Owner:	Pechora Oil International Inc., Limassol, Cyprus;
Operator:	Pechora Oil Management Co., Murmansk, Russia
Type of Cargo:	75,000 tons Western Pechora Crude Oil
Value:	USD 97,300,000

EXAMPLE 3

Voyage Date: September 2006
Vessel: 'President Putin'
Flag: Russian
Voyage Information: From Naryan Mar (purpose-built oil-loading facility on Pechora River, Barents Sea, Northern Russia) to Genoa, Italy
Built: 2005, Aker Finnyards, Helsinki, Finland
Tonnage: DWT 120,000
Type: Ice-breaking, Double-Acting, Double-Hulled Crude Oil Tanker, intended especially for Barents Sea operations but also for worldwide operation
Insured Value: USD 105.5 million (Building Cost)
Classification: RR. +1A1 Tanker for Oil
Owner: Pechora Oil Joint Venture Capital Inc., Moscow
Type of Cargo: 100, 000 tons Western Pechora Crude Oil Value USD 28,000,000

RUSSIAN VIEW ON THE RISK ASSESSMENT FOR NSR SHIPPING

by Loly G. Tsoy, Central Marine Research & Design Institute



Icebreaker escorting of ship through fractures of the drifting ice, February 1978



Escorting of ship through the lead made in the fast ice of the Franz Josef Land archipelago, May 1975



Escorting of ship at a short tow, Yenisei Gulf, May 1991



Close towing of tanker Uikku by icebreaker Rossia in the Kara Sea, April 1998



Use of a ship borne helicopter for the search of a lead in drifting ice (tactical ice reconnaissance)

**ROUTE OF TANKER UIKKU AND ICEBREAKER KAPITAN
Dranitsyn during the exploratory voyage to the Ob Gulf**



- 0** port of Murmansk
1, 9 ice edge in the Barents Sea
6 site of loading the gas condensate (Sabeta)
2,3,5,6,7,8 scientific ice stations
4-6 channel in the fast ice of the Ob Gulf broken through by Vaigach

Sailing of *Uikku*: 0-1, 8-0 independently
 1-2, 4-6, 6-4 under support of *Kapitan Dranitsyn*
 2-4, 4-8 under the support of *Rossia*

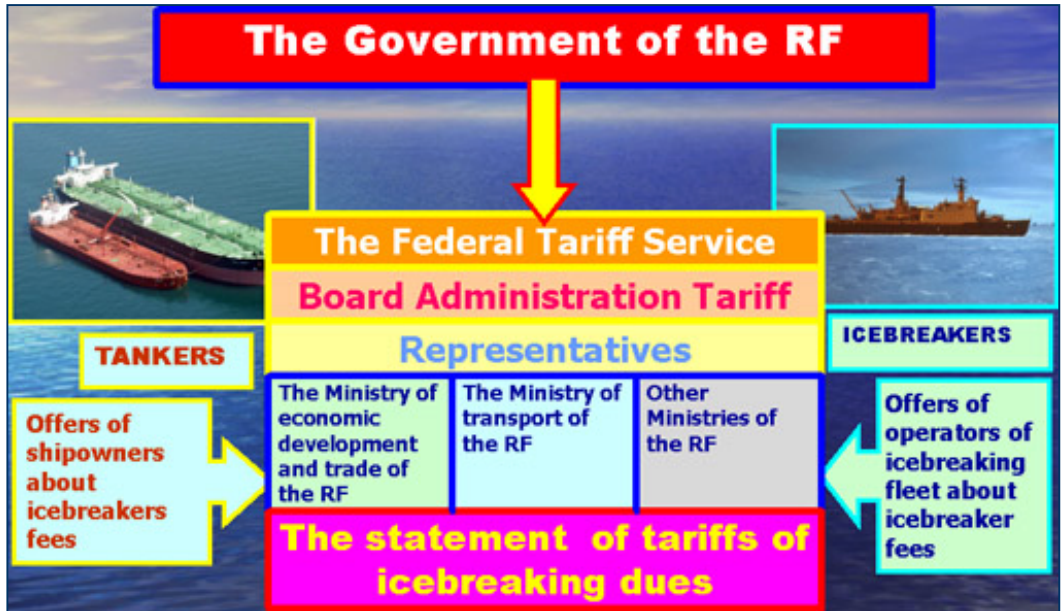
IMMIGRATION AND CUSTOM PROCEDURES AT RUSSIAN OIL TERMINALS - FEE POLICY

by Anton Nikulin, Central Marine Research and Design Institute

FEEES PAID FOR BORDER AND CUSTOMS CLEARANCE (REGISTRATION)

Type of custom registration	Rates of fees and duties
Border registration	Seven minimum monthly remunerations of labor for the examination of sea-going cargo vessels of 1000 GRT plus 0.1 minimum monthly remuneration of labor for each ton in excess
Customs registration	100 000 rubles for customs registration if customs value of goods compose 30 000 000 rubles and more

PROCEDURE OF APPROVAL OF ICEBREAKER FEES



LEGAL BASIS OF ICEBREAKER FEES

No	Legal act	Year of publication
1	Order of Ministry of economic development and trade "About changing in rates for icebreaking fleet services of the NSR" (in force)	2003
2	Order of Federal tariff service "About rates for icebreaking fleet services of the NSR"	Future
3	Regulations for navigation on the seaways of the NSR	1991
4	Regulations for icebreaker-assisted pilotage of vessels on the NSR	1995
5	Requirements for design, equipment and supply of vessels navigating the NSR	1995

FINNISH FEE POLICY DEVELOPMENT

by Markku Mylly, Finnish Maritime Administration

AUTHORITY RESPONSIBLE FOR;

- maritime safety,
- winter traffic assistance,
- fairway maintenance,
- VTS and pilotage,
- hydrographic charting and,
- the provision of ferry services to the archipelago communities.

REVENUES 2004: APPR. 105 MILLION €

Fairways dues 74,5 m €

Other revenues 5,9 m €

Governmental budget 25,0 m €

TOTAL COSTS 2004

Fairways and Navigational aid	29,0 M€
Icebreaking	34,1 M€
Maritime Traffic Information	7,1 M€
Nautical Chart production	12,1 M€
Inspection	6,1 M€
Ferry services	8,2 M€
Other	10,4 M€

COSTS TO BE COVERED BY FAIRWAY DUES

- As provided in the Act, fairway dues are collected by the State to cover costs it incurs from the;
- Construction, maintenance and care of public fairways used for navigation and
- Safety devices required by waterborne traffic, and
- Assistance provided by icebreakers and
- VTS services

AUTHORITIES

- *Customs authorities*
- Fairway dues are collected by the customs authorities. The National Board of Customs may issue more detailed provisions on the procedure for collecting fairway dues.



- *Finnish Maritime Administration*
- Notwithstanding confidentiality provisions, the Finnish Maritime Administration shall provide the customs authorities with the reports, opinions and other material required to apply this Act.
- The Administration shall also provide the customs authorities with other executive assistance, as needed.

LIABILITY TO PAY

Liability to pay

1. Any party engaged in merchant shipping on a registered Finnish or foreign ship in Finnish waters is liable to pay fairway dues.
2. No fairway dues need be paid when a ship travels from one foreign port to another through Finnish waters but does not call at a port in Finland.

RESPONSIBILITY FOR PAYMENT

1. The ship owner and the party who reports the ship for inward clearance on behalf of the ship owner or represents the ship owner on voyages between Finnish ports are responsible for payment.
2. Parties liable to pay who do not reside in Finland and all foreign parties liable to pay shall have a representative who does reside in Finland and has been approved by a customs district to assume responsibility for the duties that this Act allots to the party liable to pay and for the consequences of their neglect.

COLLECTION OF PAYMENT

Fairway dues on international traffic

1. The fairway dues on international traffic are collected as a single payment when a ship arrives in Finland from abroad.
2. The amount of the single payment is determined on the basis of the ship's net tonnage and ice class.

Fairway dues on domestic traffic

1. The fairway dues on domestic traffic are collected in the form of an annual payment for each calendar year. The amount of the annual payment is determined on the basis of the ship's net tonnage.
2. Domestic traffic means voyages between Finnish ports, except when during such voyage the ship calls at a foreign port to load or unload cargo or to pick up or leave passengers.

FINNISH FAIRWAY DUES CHARGING PRINCIPLES

- *Ice class*
- *Net tonnage*

Ships are assigned to ice classes as follows:

1. ice class IA Super,
2. ice class IA, AB or IC
3. ice class II,
4. ice class III,

THE SYSTEM YEAR 2005 FOR FAIRWAY DUES

Domestic traffic / International traffic

Number of calls with fee per calendar year

- passenger vessels	32 calls / year
- other vessels	10 calls / year

NT & Ice Class based fee

- cargo vessels
- passenger vessels
- cruise vessels
- fast ferries

Maximum fee

- cargo & passenger vessels	109 000 €
- cruise vessels	45 000 €

ANOMALIES IN THE SYSTEM

- Net tonnage – doesn't reflect the costs for the FMA
- Max number of calls – high costs for replacement vessels
- Max number of calls – encourages frequency and not position and thus leads to inefficient use of fleets
- Max number of calls – high costs for new shipping lines

NEW FAIRWAY DUES SYSTEM FROM 1 JAN 2006

Number of calls with fee per year

- passenger vessels & fast ships	30
- other vessels	10
- cruise vessels	per call

NT & Ice Class based fee

- cruise vessel	1,060 €/NT
- fast ferries	6,400 €/NT
- cargo vessels & passenger vessels	

Maximum fee per call

- cargo vessels	109 000	€
- passenger vessels	34 000	€
- cruise vessels	45 000	€

NEW FAIRWAY DUES SYSTEM FROM 1 JAN 2006

Cargo vessels & passenger vessels

Ice Class	Unit fee / cargo	Unit fee / passenger
1 A super	1,340	0,902
1 A	2,486	1,772
1B, 1C	4,876	2,959
II, III	6,730	5,051

EXEMPTED OR REDUCTION FROM FAIRWAY DUES

- Vessels with a net tonnage < 300
- are used solely in inland navigation;
- arrive in and depart from Finland via the Saimaa Canal without calling in at a Finnish coastal port;
- are owned by the State and are not used for commercial purposes; or
- call at a Finnish port without unloading or loading cargo or passengers because of a compelling need, or solely to receive orders pertaining to the continuation of their voyage, or for repairs or so that the need for repairs to the ship can be assessed.
- Half of the amount of fairway dues is collected on a ship when the ship is heading for the Saimaa Canal, both when it is also bringing cargo from abroad to a Finnish coastal port and picking up cargo for port/s abroad from a Finnish coastal port.
- Ships that call at a foreign port to pick up more cargo for technical loading or stevedoring reasons during one and the same voyage between loading cargo in Finnish ports are exempt from paying fairway dues twice.

WAIVER OF PAYMENT

When fairway dues have been paid;

- 30 times for a passenger ship registered for at least 120 passengers and
- 10 times for other ships,
- the ship's fairway dues will be waived for the remainder of the same calendar year, provided that the specifications affecting the amount of the dues do not change in a way that would increase the dues.

EFFECTS OF THE NEW FAIRWAY DUES SYSTEM

Cargo vessels;

- Ro-Ro vessels ► increase ca. 2,2% (0,2 m€)
- Bulk ► increase ca. 7,6% (0,4 m€)
- Tankers ► decrease ca. 3,5% (0,5 m€)
- Tugs, barges ► increase ca. 46% (0,4 m€)
- Dry cargo ► decrease ca. 2,4% (0,5 m€)

Passenger vessels;

- 1 A Super ► decrease ca. 3 %

Fast ferries;

- Increase ► ca. 20 %

Excluding domestic fairway due;

- Domestic due ► increase of level by 11%
- International due ► decrease of level by 10%

ECONOMIC IMPACTS OF ADMINISTRATIVE ISSUES

by Kimmo Juurmaa, Aker Finnyards Inc.

BASIC ASSUMPTIONS

- The purpose is to illustrate how some of the administrative issues influence the cost per transported cargo ton
- The base case is direct transportation from Varandey to Rotterdam
- The base vessels are 90.000 tdw conventional and DAT
- The base winter type is average year

ECONOMIC TOOL

- Developed within ARCOP work package 3.5
- Excel worksheet utilizing data from:
 - WP 3.1 Transportation scenario
 - WP 3.2 Tanker designs
 - WP 3.3 Icebreaker designs
 - WP 3.4 Loading terminal
- Information from following WP's was also used:
 - WP 2.3 Immigration and customs procedures
 - WP 2.4 Risk management and insurance coverage
 - WP 2.5 Fee Policy
 - WP 5 Demonstrations

TRANSPORTATION SCENARIO

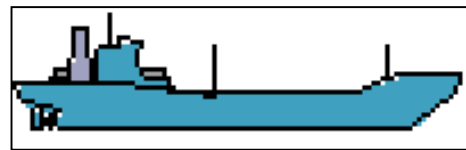


- Route Varandey-Rotterdam
- Ice conditions based on average year
- Volume 330.000 barrels per day (15 million tons per year)
- Loading with Tecnomare SBAM
- Onshore storage to balance the variations



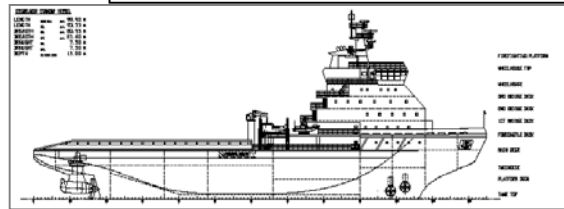
TANKERS

- Size 90.000 tdw
- Independently operated DAT
- Assisted conventional
- 100.000 tdw chartered open water tankers for summer



ICEBREAKERS

- Type LK-18
- 18 MW shaft power
- Two icebreakers to assist one tanker
- All together 6 icebreakers are needed

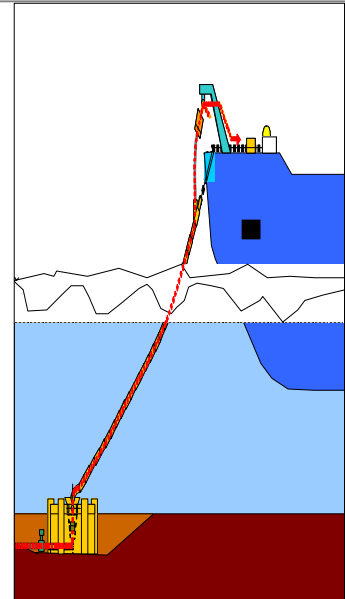


LOADING SYSTEM

- Tecnomare SBAM
- Costs include subsea pipeline
- Maintenance costs including mobilization costs
- Downtime estimates without ice management

OPERATIONAL ASSUMPTIONS

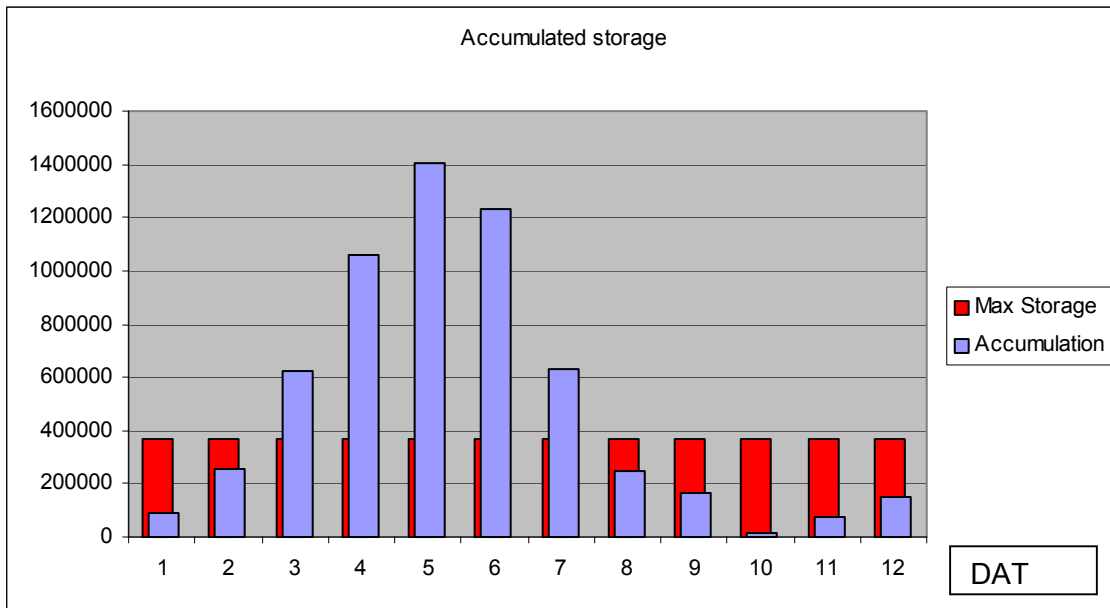
- The variation of transportation performance is balanced by storage and by chartering open water tankers during summer months
- Downtime for each tanker is 1 month in every second year
- Delays for terminal approach, mooring etc. considered as 15 hours per roundtrip



RESULTS FOR DAT

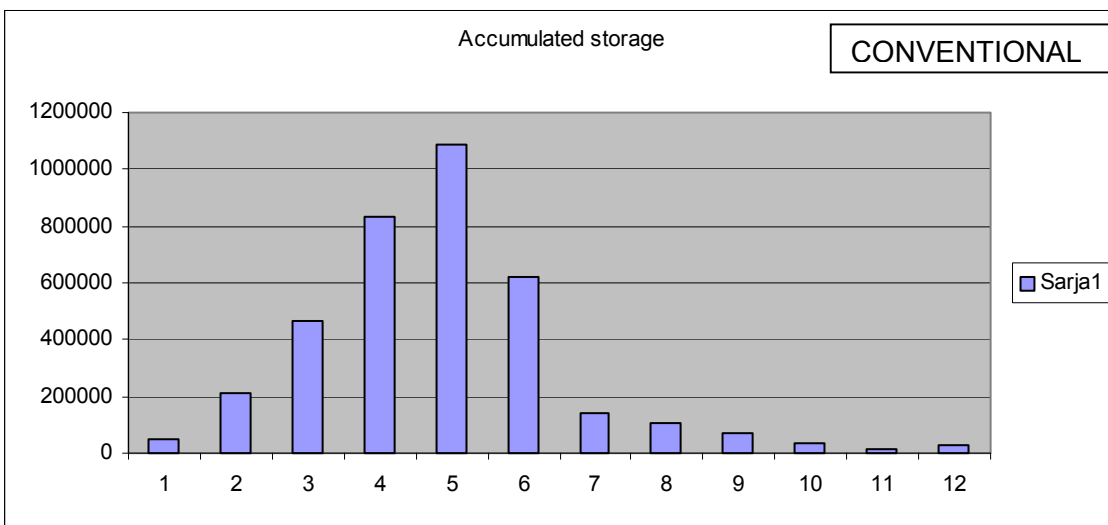
- Basic fleet is 8 vessels
- Aframax size open water vessels:
 - 5 in June
 - 4 in July
 - 3 in August
 - 2 in September

- 1 in October
- Max storage 1.4 million m³



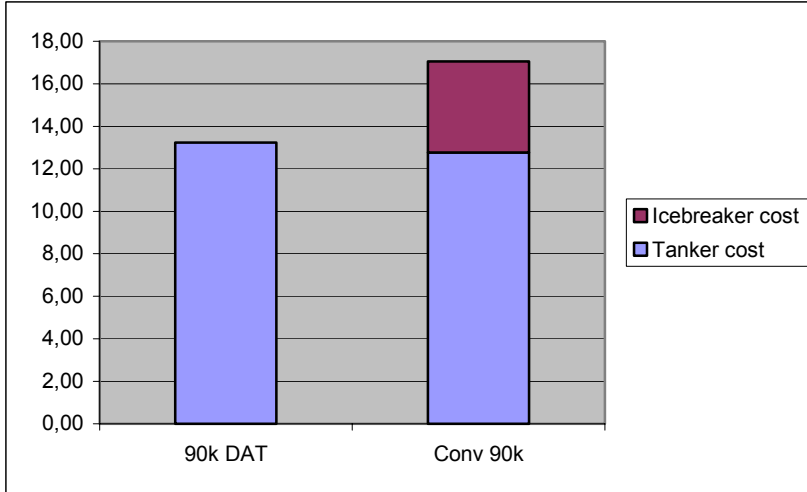
RESULTS FOR CONVENTIONAL TANKER

- Basic fleet is 8 vessels
- Aframax size open water vessels:
 - 4 in June
 - 3 in July
 - 1 in August to October
- 6 icebreakers of LK-18 class
- Max storage 1.1 million m³



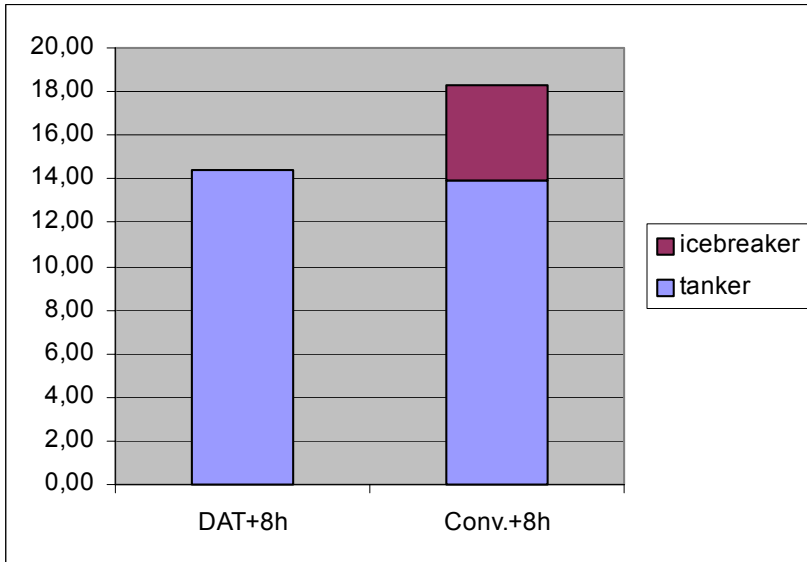
BASIC COSTS

- No fees
- All costs direct costs for tankers and icebreakers
- Open water tankers based on time charter costs
- No ice management



COST FOR CUSTOM PROCEDURES

- Additional delay of 8 hours per trip for customs and other boarder formalities
- Additional ow tankers needed to catch up the delay
- Additional cost 1.1 USD/ton



BASIS FOR THE FEES

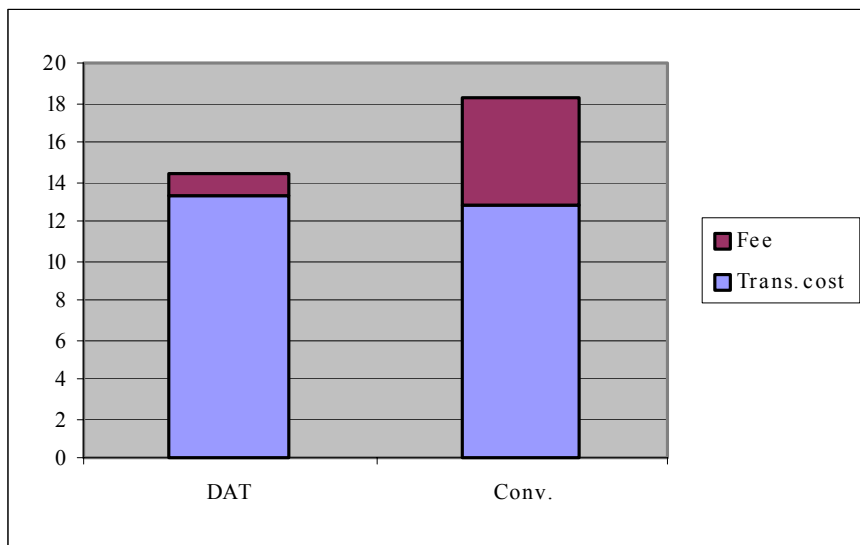
- To cover the costs for icebreaking and fairway infrastructure (120 million USD + ? annually)
- Alternatives:
 - Actual costs
 - Even fees to all winter traffic
 - Even fees to all traffic in the area
 - Limited yearly maximum
- The assumed overall cargo volume 100 million tons/year

ASSUMPTIONS FOR ACTUAL COSTS

- The fairway infrastructure cost is 120 million USD per year
- The infrastructure cost is evenly distributed over all the cargoes
- The icebreaker costs are based on actual usage of icebreakers

COSTS BASED ACTUAL COST FEES

- The infrastructure fee is 1,2 USD per ton cargo
- The icebreaker cost for the 6 icebreakers used is 4,3 USD per ton cargo

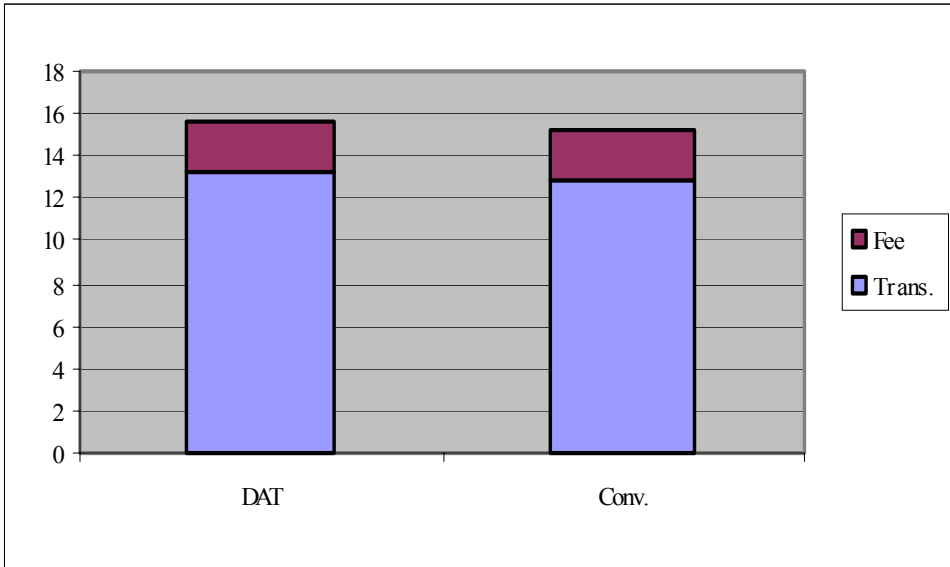


ASSUMPTIONS FOR EVEN FEES TO ALL WINTER TRAFFIC

- 50 % of the cargoes are transported during ice season
- The traffic during the winter time will have carry the cost for icebreakers and all traffic will share the infrastructure costs
- The summer fee is thus 1.2 USD/ton
- The additional winter fee is 2.4 USD/ton

COSTS FOR EVEN WINTER FEE CASE

- Conventional vessels will benefit compared to the actual costs
- The use of DAT's becomes more costly compared to the conventional vessels

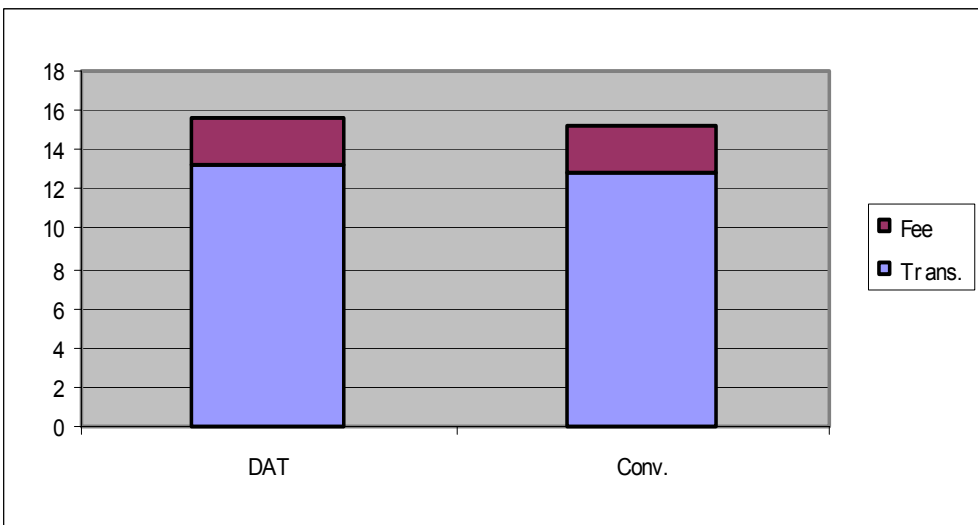


ASSUMPTIONS FOR EVEN FEES TO ALL TRAFFIC IN THE AREA

- All needed money, 240 million USD, is collected from the total cargo flow of 100 million tons
- All the traffic will have to pay a fee of 2.4 USD per ton cargo throughout the year

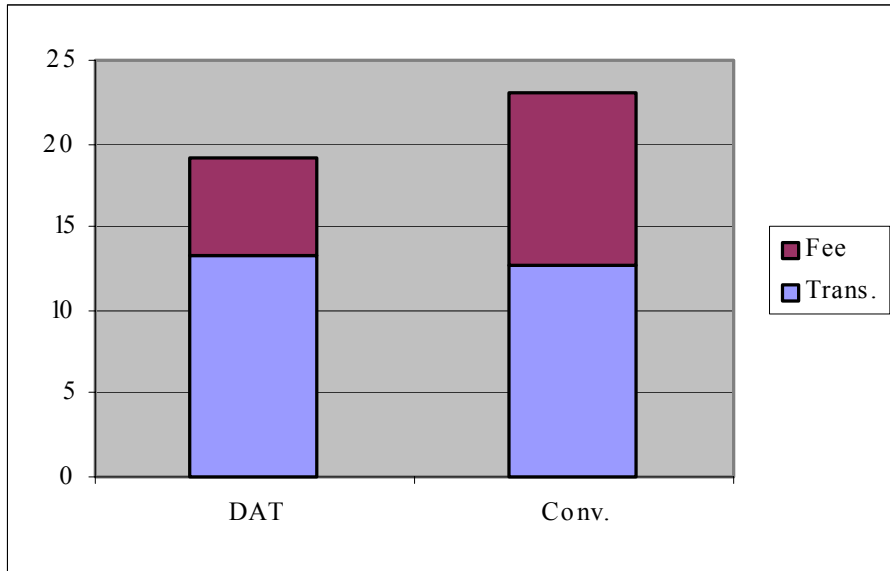
COSTS FOR EVEN FEES FOR ALL THE TRAFFIC

- Also here the conventional vessels will make benefit
- DAT's will suffer since there is no reward for not using icebreakers



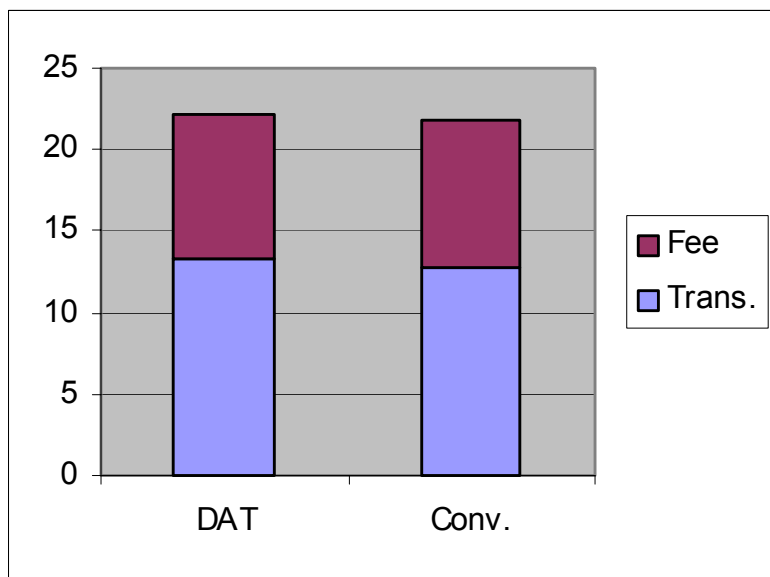
ACTUAL COSTS WHEN TRANSPORTATION VOLUME IS 20 MILLION TONS/YEAR

- The relative benefit of DAT decreases
- The cost level is close 20 USD/ton even in the best case



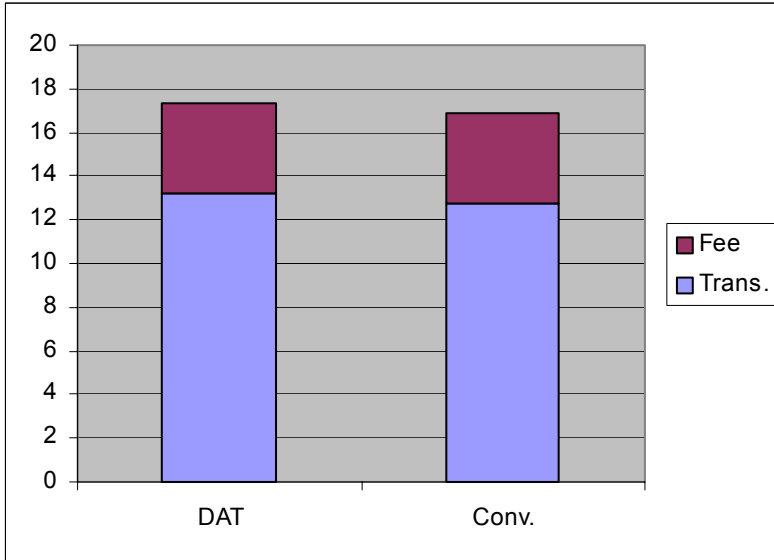
COSTS WITH EVEN WINTER FEES WHEN THE TRANSPORTATION VOLUME IS 20 MILLION TON/YEAR

- The fees are close to 50 % of the transportation cost
- There is not much difference with the alternatives



EVEN WINTER FEES WHEN ONLY 25 % OF THE TRANSPORTATION IS DURING WINTER

- The overall costs remain under 18 USD/ton
- The fees are more sensitive to the overall volume than the distribution between summer and winter



CONCLUSIONS

- The development of the fleet is a complicated problem of optimisation
- The delay of 8 hours per trip will cost 340 million USD over the lifetime of the transportation system
- Based on actual costs marine transportation is feasible
- The fee system may result in development of unefficient solutions

RECOMMENDATIONS

- All delays due to formalities should be minimized
- The fees should be based on some realistic scenario of the future traffic volumes
- The fee system should reward the technology development
- The fees for icebreaking should be collected also from the summer traffic