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Title	Tanker shipping markets in the Baltic Sea: with implications to Russian oil exports		
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**Abstract**

The Baltic Sea and especially the Gulf of Finland is becoming an important transport route for all the time increasing Russian crude oil exports. New harbours and oil terminals have been built and are being planned or are under construction in the eastern part of the Gulf of Finland. As the volume of oil to be exported grows, the trading of large oil tankers in areas close to Finland is likely to increase considerably. The ice-conditions prevailing in the Gulf of Finland during wintertime set special requirements to the tanker tonnage used in these trades. In order to cover the extra investment costs related to ice-strengthening, freight rates should be higher in comparison to other markets.

The study aimed at describing the factors behind the demand for crude oil shipping and also at presenting the main export routes of Russian oil in the Baltic Sea region. On the supply side the study concentrated on analysing the availability of sufficiently ice-strengthened oil tankers. The conducted tonnage analysis revealed that the availability of large crude oil carriers suitable for winter navigation in the northern Baltic Sea conditions is very limited. Simultaneously the effects of new environmental regulations on the availability of tanker tonnage were found to represent only minor importance in the tanker trade of Gulf of Finland

The analysis of the voyage-charter market shows a clear seasonal variation in freight rates. This variation is caused by winter-ice. In the Gulf of Finland freights were two times higher than in areas where ice-conditions do not render navigation. With the freight rates prevailing during the period under examination, wintertime tanker shipping has been very lucrative and the extra investment cost of ice-strengthening could have been covered within a single winter season.

The developed system dynamic simulation model represents crude oil transport in the Gulf of Finland during a severe winter. Simulation results show that the time-delay in the construction of tanker ships and the rather low probability of severe winters slow down the build-up of suitable ice-strengthened tanker tonnage. This is likely to increase the risk of using inappropriate tonnage in the fast increasing wintertime crude oil shipments from the eastern Gulf of Finland. In order to secure safe and reliable transport of crude oil, the market parties should increase use of long-term charters in this particular trade. This would also balance the risks associated with the investment in expensive ice-going tankers.

Key words	maritime transport, tanker shipping, freight market, crude oil, export, system dynamics, simulation
Further information	

