

# MODERN TENDENCIES OF SHIPPING DEVELOPMENT AT BALTIC REGION AND THEIR INFLUENCE ON THE PROJECTS AND EDUCATIONAL PROGRAMS OF REGIONAL MARITIME EDUCATION IN RUSSIA

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1. Baltic Sea Region has historically played an important part in the internal as well as in foreign trade of Russia, especially in the ties of Russia with European states. Current regional situation in the Baltic Sea Shipping is characterized by considerable changes in the intensity of shipping, type and volume of the transported cargo, vessel types and in the list of the major cargo carriers.

The following basic characteristics of the Region can be highlighted:

- The volume of Russian cargo shipped across the Baltic Sea is rapidly growing and according expert's estimates will, by the year 2010 reach 185 ml tons. By the year 2010 25 ml tons of containers, 15 ml tons of coal, 11 ml tons of fertilizers will be shipped via the Baltic Sea. Current and forecasted by the experts commodity turnover puts on a serious pressure on the transportation corridors and port facilities of the Region.

- As a consequence, there is an active construction of new multi-purpose ports in the region, such as Port of Ust-Luga (design capacity of up to 35 ml tons of cargo) and oil ports: Port of Primorsk and Port of Vitino), port complex in Batareinoe.

For example, since the beginning of construction aggregate investments into construction of Port of Ust-Luga have amounted to RUR 10 bln. When the port reaches design capacity it will ensure more than 25% of all port facilities needs on the Baltic Sea.

Terminals for export shipping of oil are actively put into operation in the Port of Vysotsk. As of today the throughput capacity of this port amounts to more than 15 ml tons with future increase to 25 ml tons.

Alongside with that there is active development underway of the existing transfer complexes with the simultaneous renewal of the technical equipment of the existing ports, first of all – the Greater Port of Saint-Petersburg. At that the priority is set on the development of complexes for handling expensive and environmentally safe goods. The new distribution-transfer complexes have been built in the Port of Vysotsk.

In the last 4 years the volume of shipping via the ports of the North-Western Region of Russia increased by 2,3 times

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- one can see sharp and manifold increase in the volume of oil and oil products shipping across the Baltic Sea. Since 2005 there is active export of oil products from this part of Russia by the Russian and European companies, mostly via the ports of Primorsk and Vysotsk. The forecast for shipping of oil and oil products for 2010 amounts to 65 and 45 ml tons respectively, it is 3,8 times more than in 2003.

- Due to harsh climate conditions of the Region the major part of the coastline of the Baltic Sea and the Gulf of Finland as well as part of the Kaspian Sea is covered with ice. Ice situation lasts from November till May, that is more than half a year. Due to the activation of the shipping situation there emerged a lot of new cargo carriers – large international transport companies, but the management and the crews of the vessels are not familiar with operation under ice conditions. Currently the largest tanker fleet operators of the Region are such companies as: Stena, Sweden (operates 69 vessels with the total deadweight of 6 ml tons), the principal area of activity – shipment of crude oil and oil products – is the leader of the world market on building high technology vessels), Sovcomflot (Cypres), Tsakos Shipping (Greece), Thenamaris Shipping, Capital Shipping, Global Shipping.

- There is constantly growing interest of the Russian companies to the exploration of the shelf deposits. Gazflot, a subsidiary company of Gazprom became a pioneer in this field – it carries out operations on the shelf of the Russian Arctic seas and abroad, using its own fleet of vessels as well as attracting fleets of other companies. Lukoil is also active in the construction of drilling platforms, including ice ones – one platform has already been built in Kaliningrad area. The construction of several ice platforms in The Pecherskoe Sea and at Sakhalin is planned by the year 2010, drilling platforms will be built in the Azov and Black Sea.

- Further containerization of world transportation, that is increase in the share of goods being transported in containers can be seen in the Baltic Sea Region. For instance, in the Port of Saint-Petersburg in the few last years the volume of container handling has been on the rise – both in absolute values as well as in per cent. In the last 6 years the Port of Saint-Petersburg has increased his share in container turnover among the ports eastern coast of the Baltic Sea from 28% to 40%, having transferred in 2006 nearly 1559 thousand TEU. In its turn this surge in volume results in multiple load increase on container terminals of Saint-Petersburg, Kaliningrad, Archangelsk, Murmansk, which in many respects operate inefficiently, not coping with the new work loads.

- We can also see a sharp increase in passenger shipping in the Region. There is regular sea service between the capitals and the largest ports of Scandinavian countries and the North-Western part of the Russian Federation by the passenger ferries of the largest operator and manager of the Baltic passenger ferries and passenger vessels - “Silja Line”. In connection with the changing social situation in the Region there appeared rather large number of small water crafts, large motor boats, private ocean going yachts. As a result, there is a dramatic shortage of qualified personnel navigating these vessels.

2. Against the background of the changing shipping situation there emerged the whole range of problems of the sea navigation and related issues of maritime education and training, which require their prompt scrutinizing and solution. They are as follows:

- the necessity of operative development and enhancement of the currently existing Vessels Traffic System at the Baltic, which can efficiently and safely cope with constantly growing traffic on seaways.

- due to the active construction of oil terminals and the sharp increase in the shipping of oil and oil products for the countries with sea borders at the Baltic the issues of utmost importance became the issues of the safety of transportation, transshipment, storage of dangerous cargoes such as oil and oil products, gas as well as a formation of the system of response to potential emergencies and preparedness to spill liquidation. At that, efficient solution of this problem in many respects depends on developing cooperation among bordering countries, expanding contacts between specialists and exchanging experience in training of personnel, involved in environmental protection programs.

- Starting with 2005 there is a noticeable interest of ship-owners exporting Russian oil from the ports of Primorsk, Vysotsk and Vitino to the simulator training courses for the navigators operating under ice conditions. It became necessary to organize a full scale specialized training of the crews of the largest tanker fleet operators at the Baltic.

- The necessity of scrutinizing the issues of environmental protection, including target training of port and terminal representatives, who are responsible oil transshipment. In particular, this is referred to in the Order of the Government № 490 as of 13.08.2006, which introduces the licensing of the activities related to transshipment of dangerous cargoes in ports and terminals.

- high demand for the organization of training of drilling platform specialists – operating and maintenance of the drilling platforms and ensuring safety measures – in particular training of the dynamic positioning operators (DP). The urgency of this kind of training in the North-West of Russia is determined by the intensive exploration of the oil and natural gas deposits on the shelf, which is connected with the operation of drilling platforms, supply vessels and pipe-lay vessels, that is vessels requiring high precision positioning. The Russian Federation does not have relevant experience, that is why we are faced with considerable problems. The high cost of the equipment, specific character of DP systems operation, high degree of risk of the environmental pollution require special training using the equipment, allowing to simulate different vessel types, navigation regions, operational conditions.

- There appeared a need for the training of port and container terminal specialists to provide personnel for newly commissioned port facilities, as well as for the effective reorganization of operations of already existing structures with the aim of optimization

of the efficiency of ports operation as elements of a logistics chains and acceleration of container handling in ports.

- There appeared a need for the proper training of persons navigating small size ships and inspectors of the bodies, which control the operations of small size ships and additional training of the personnel of passenger vessels of the European lines, which call ports of the Region.

3. Keeping in mind regional, market and industry requirements starting from 2005 – 2006 Admiral Makarov State Maritime Academy initiated the whole range of new projects, training programs, developments aimed at the solution or at least smoothing out the problems that have emerged.

- The regional system ensuring safety of navigation in the Eastern part of the Gulf of Finland was developed and commissioned. The system includes efficient monitoring of vessels (upgraded VTS RASKAT), increasing navigation efficiency within the sea coast area, environmental protection.

The training center for the VTS operators and sea pilots has been established at the Academy. Work stations for the training of operators have been connected to all three leading manufacturers of VTS equipment – Tranzas, MKIS, MKIS+.

Serious attention is being paid to the psycho-physiological aspect training of the above specialists. Together with the specialists from Saint-Petersburg Military Medicine Academy a laboratory of psycho-physiological testing and counseling was commissioned. The entire process of training and testing of pilots complies with the normative base and peculiarities of piloting practically in all ports of the Russian Federation, which have pilot services and are equipped with VTS (more than 15 ports), in the first place in the ports of the North-Western Region of the Russian Federation.

- From November 2006 the Academy carries out an educational course on transshipment of dangerous cargoes for the management and operational personnel of the ports who are involved in transshipment of the dangerous cargo. Upon a completion of the course one can receive a certificate required for granting the Company a license for transshipment operations.

- A simulator for the prevention of oil spills and fighting the consequences of oil pollution was set up at Admiral Makarov State Maritime Academy with the financial support of the Ministry of Transport. The simulator can model various navigational and meteorological conditions similar to actual conditions in the region an accident. The simulator use allows for conducting full scale exercises with the participation of the specialists from different services and departments with the aim of improving their interaction while responding to oil spills.

In the period of 2005-2006 the Russian-Finnish project SUMMERI, aimed at the ensuring safety of shipping and environmental protection in the Gulf of Finland was fulfilled. The objective of the project – development of the harmonized system for training oil pollution response specialists in Russia, Estonia and Finland.

(The risk of an accident is always present – emergency situation in the Baltic Sea in February 2007 with the Greek tanker with 110 thousand tons of oil onboard). This project consolidated the drive of the parties to join efforts in the preparation of oil pollution response specialists keeping in mind formation of unified approach to the solution of the problem of the efficient personnel interaction while reacting to oil spills.

The project was financed by the European Union with the funds allocated for the development of transborder cooperation in the Baltic Sea Region and Gulf of Finland.

Within the framework of the project a regional Crisis Management Center was established with regional branches in Saint-Petersburg (on the basis of AMSMA), Tallinn and Kotka. The project is unique all branches are connected into one network for perfecting of interaction of forces of Russia, Estonia and Finland in response operations. The Russian party foresees active participation of the Administration of Saint-Petersburg acting through the Committee for Natural Recourses and Environmental protection.

The Crisis Management Center has been set up with the following objectives in mind:

- analytical forecasting of the emergency situations development
- expert study of the oil spill response scenarios
- conducting training and exercises for perfecting interaction
- specialized training of personnel – there are 6 different programs

An effective instrument for efficient management and elimination of emergency situations has been created. Moreover, the unique system of information, analytical and expert support for the decision making in the course of response operations has been formed.

In parallel with the creation of the Crisis Management Center the work on preparation of the set of documents on crisis management – methodology, procedures, certification, specifications of the equipment is underway. Preparation is carried out by the State Rescue on the Sea Service of the Russian Federation and AMSMA.

The study of the reaction to possible emergency situations by the coast forces and authorities – joint educational programs for the prevention and response to oil spills for the specialists of sea ports administrations, EMERCOM, special sea inspections, oil terminals, nature management committees have been prepared and implemented jointly with the Swedish Maritime Administration. The project was in part financed by the Ministry of Foreign Affairs of Sweden. In 2006 -2007 16 seminars on oil pollution response were held.

From March 2006 AMSMA is conducting training of rescuers from accident and rescue teams, working on prevention and response to oil spills. Preparation has been approved by the Central attesting commission of the transport complex of the Russian Federation.

- a program for training of the onboard personnel working under ice conditions has been developed. Training of not only Russian, but Greek, Romanian, Bulgarian,

Spanish, Canadian, British officers on the specialized simulator are being conducted. At that, teaching is conducted not only in Russian but in English as well – this is a new experience for our region. For the period of 2005 – 2007 more than 200 specialists of the largest tanker fleet operators at the Baltic.

The training program includes theoretical part, which is conducted by the teachers from the Arctic department, including familiarization with different types of ice, compactness of ice, individual navigation and navigation with an ice breaker, maneuvering and mooring under ice-conditions. Practical part is being conducted on an ice simulator featuring models of the Primorsk and Vysotsk ports for perfecting elements of tanker navigating and maneuvering under various ice conditions. Training is conducting with the participation of ice pilots, who have experience of working in the Arctic. Simulator visualization is as close to the reality as possible – it allows to simulate vessel movement in crushed ice, ice field, movement in ice canal and canal compression, navigating in a convoy behind an ice breaker, entry into the ice. It is possible to track down the stress on the hull of the vessel.

Within the framework of this project AMSMA works jointly with Finnish educational organizations in order to organize practical training onboard a line Finnish tanker in real life conditions of winter navigation in the Gulf of Finland. In order to attain this goal the groups of trainees go to Kotka, Finland for 3 days of training practice.

In order to enhance and upgrade hard and software base of the simulator in the end of 2006 AMSMA signed an agreement with “Aker Arctic Technology” for the joint development of the mathematical models of vessels for simulators used for training in navigating under ice conditions. For instance, upon the order of “Stena Bulk” mathematical models of Aframax and P-max tankers were designed and installed on the simulator.

The “Aker” company has been involved in research and developed, design activities in the area of shipbuilding for Arctic conditions since 1960 and currently is one of the world’s leading companies in this field. It is also planned to carry out joint educational courses in the model ice basin belonging to “Aker”..

The TACIS MSGOF (Maritime Safety in the Gulf of Finland) project has been approved and is now underway. The project is focused on summarizing of the European experience of simulator training for navigation under ice conditions, development of training methodology, preparing recommendations for the necessary level of competence. AMSMA partners in this project are Helsinki University of Technologies, Kotka Research Institute, Saint-Petersburg State Maritime University. Improvement of the training methodology for navigation under ice conditions will allow to decrease the degree of risk of possible accidents with vessels in the Gulf of Finland in the winter period.

From the beginning of 2007 the Academy gained new experience in this area – preparation of trainers in this field for other training and simulator centers (Norwegian Simulator Center and “Marstal” Navigation school, Denmark).



Another proof of the high level of training for navigation under ice conditions in AMSMA was our winning of the tender, announced by the Finnish Marine Administration for making a study DVD film for the training of the crews for navigation under ice conditions. The executor of works under this tender jointly with AMSMA are the Finnish company “Deltamarin” (sea engineering), Finnish state operator of ice breaker fleet Finstaship and Meriturva training center.

- The project “Dynamic Positioning Simulator” has been implemented at AMSMA in 2006-beginning of 2007. The aim of the project is creation of the training complex in this field of training for the crews of the vessels (mostly – supply vessels), which are servicing drilling platforms. Until now training of the drilling platforms operators was carried out only at foreign centers – in Norway, Holland, Great Britain, Singapore.

The simulator for 4 bridges and 2 models of vessels has been equipped. In order to ensure high level of training of simulator instructors they have been sent for training to Aberdeen Training Center in Great Britain, which is recognized as one of the world’s best in the field of training of drilling platforms operators.

Currently, training of the crews for the Russian company “Gazflot”, which is servicing drilling platforms and Azeri company Svire Pasific (Baku) is underway. In the course of 1,5 years about 50 navigators have completed this program. In June voluntary certification of the course was successfully carried out in the Nautical Institute (Great Britain). That was necessary to extend the scope of potential and real customers for this kind of training.

- In the middle of 2006 AMSMA was certified to carry out training programs for the crews of small size vessels by the EMERCOM of the Russian Federation and became the first certified center in the Russian Federation for training of the small size vessels crews. Training is conducted with the help of simulators using mathematical models of small size vessels and tugboats, the simulator is equipped with the captains seat for navigating modern ocean going motor yacht.

Also, AMSMA has won a tender announced by the Inspection for small size vessels for the training of the inspectors and has been conducted this type of training since 2006; for the period of 2006 -2007 240 inspectors were trained.

Upon a request from the management of “Silja Line” 6 groups of ferry navigators of this company have undergone targeted simulator training aimed at the passage of ferries into the Port of Saint-Petersburg. The basic parts of the training were passing of the ferries through Saint-Petersburg sea channel, maneuvering in the port harborage in strong wind, interaction of the crew and pilot and shore services, peculiarities of mooring in the Port of Saint-Petersburg. To make training as close to real conditions as possible, before the preparation of the simulator training programs specialists from AMSMA went on a voyage aboard the ferry.

- in 2007 the “Containership” project was developed and approved by the European Union. The project is aimed at the training of personnel of the ports, servicing container

terminals. The training program and requirements specification for the installation of the cargo handling simulator for the personnel are being developed within the framework of the project.

The joint program with the Russian Maritime Register of Shipping has been developed and implemented on the regular basis. The aim of the program is to provide training to the management of the companies regarding the issues of organization of shipping goods (cargo) in containers.

Thus, in conclusion one can say that regional maritime education of the North-West of Russia promptly reacts to the current requests of the modern shipping industry in particular as well as developing economy of the region in general. The market of maritime educational and research and development services offers study programs, scientific-research and methodology developments, technical solutions thus creating modern comprehensive educational infrastructure facilitating further favorable and safe development of shipping and economy of the North-Western Region of the Russian Federation.