



MARINA MOBILISATION AND MUTUAL LEARNING WORKSHOP

SHIPS AND PORTS OF THE FUTURE ARE GREEN

17th May 2018

Estonian Maritime Academy | Tallinn | Estonia



AGENDA

17th May 2018	Estonian Maritime Academy, Tallinn
09:45 – 10:00	Welcome coffee
10:00 – 10:10	Introduction to the MARINA project, RRI and the goals of the workshop
10:10 – 10:20	Triggering Question
10:20 – 11:20	Generation and clarification of ideas and actions
11:20 – 11:35	Coffee break
11:35 – 13:00	Clustering of actions
13:00 – 13:10	Voting
13:10 – 14:00	Lunch
14:00 – 15:30	Mapping of actions
15:30 – 15:50	Discussion of the map of influence
15:50 – 16:00	Coffee break
16:00 – 16.40	SMART actions
16:40 – 17:00	Wrap-up

Ships and Ports of the Future are Green

Digitalization and automatization are not the only changes rattling the shipping industry. New technologic developments promise to make ships, ports and their construction and operation energy efficient, minimize pollution and thus lower the harm to the natural environment. This is what Green Port and Green Ship is all about.

According to Valdo Kalm, chairman of the management board of Port of Tallinn, sustainability and smart solutions have become key elements in global marine transport. “Being green” is no longer only an ecological imperative, but the higher efficiency involved with innovative methods makes green operation also an economic standard.

In any case not all shipping companies and harbours can accept these developments with the same ease, either because of the inertia of the existing methods, the economic risks involved or inadequate tax- and incentive policy. And thus, for example, none of the big Estonian cargo ships currently sail under the Estonian flag.

Estonian Maritime Administration is under pressure to devise a sea economy packet that adequately addresses these issues and encourages maritime companies to take the necessary risk. But as the sea is shared by many stakeholders and countries, there is a lot of discussion to be had on how we envision the future of green ports and ships, both locally and internationally.

What actions are needed in order to make ports and ships environmentally friendly, efficient and sustainable in Europe?

Why is it a hot topic?

The commitment to reduce greenhouse gas emissions in the shipping sector by 50% by the year 2050, achieved in London in April, 2018, started a race to find new technologies to achieve this goal. The commitment has been applauded and at the same time criticized by environmental groups, as an unachievable goal. Other reports claim that already known technologies would be sufficient to reach this goal and go beyond. Some examples to reduce the fuel intake and energy consumption would be lighter construction materials, more slender ships, low friction hull coating, two propellers rotating in opposite directions to recover slipstream energy etc.

Tax legislation in order to lure (Estonian and also foreign) ships to come under the Estonian flag is on the way and even if it does not directly influence the sea environment, it has to go hand-in-hand with any policy development that does. Countries that have put effort into revising their ship taxing policy, have been successful in raising the number of ships paying taxes to those countries. For years, no big cargo ships have been sailing under the Estonian flag, while this number used to be close to 100 twenty years ago. About 60 Estonian vessels are registered under another country. Tax incentives could be a method to promote eco-friendlier practices in the shipping and port industry, but they could also controversially result in yet another complacency flag, with low taxes, low requirements and a missed opportunity to develop the transport sector sustainably.

Estonian Marine Sector Economic Influence Research Report (2016) supports the necessity of gathering cargo ships under the Estonian flag and recognizes the importance of considering the Estonian sea transportation sector not only as a part of Estonian transport in general, but rather as a part of the international sea transport whole.

Port of Tallinn won the Green Port of the Year Award by the DPC Innovation Awards in 2017, by developing a sustainable cruise terminal in the Tallinn Old City Harbour. The port has reported they have taken initiative to protect the Baltic Sea by building a micro-tunnel for better cruise ship waste management.

Sea transportation on the Gulf of Finland (part of the Baltic Sea) is expected to rise by 30% by the year 2030. This concurrently raises the risk of accidents, leakage and pollution in the region.

It has been identified by collective measurements that medicinal waste in the smaller parts of the Gulf of Finland has become a serious problem. This example, even though not directly linked to sea transportation, still points to possible unpleasant surprises still waiting to be discovered. This recurrent problem couldn't have been verified by single researchers, but needed the input of many independent surveys, made possible by the spirit of open data access.

What are the key issues about this hot topic?

Baltic Sea is a very diverse ecosystem, offering suitable living conditions for both sea water and fresh water species. At the same time, Baltic sea has a very limited connection and water-exchange with the world oceans so pollutants and excess nutrients build up in the ecosystem easily. There is a high concentration of human settlements on the shores of the Baltic Sea, which includes extensive agricultural production. This leads to eutrophication, which has historically been the biggest environmental concern in the local sea, however the role of sea transport as a source of different pollutants and waste cannot be underestimated, when the local ecosystem is so delicate.

Between the years 2011-2016, fourteen new alien species were registered in the Baltic Sea, bringing the total number up to 140. One of these species, the round goby, a small fish native to the Black and Caspian seas, has adapted to the local ecosystem so well that it is being fished out by metric tonnes and used in the sea-food industry. As alien species can be introduced via ship ballast waters, new measures must be implemented to avoid potential and irreversible damage to the local ecosystem. However, ballast water policy beyond the European Economic Area remains a concern.

Sea transportation is an important economic activity for all of the European countries that host ports and shipping companies, ship building, maritime industry, tourism industry and by extension ground transport services. A challenge is to preserve our natural environment in light of these economic pressures.



Courtesy of the Port of Tallinn

The Green Port and Green Ship future involves a lot of technological advancements, some of which are already developed and others that are not. In any case, switching out existing solutions creates an economic risk for companies, as the new and possibly expensive solutions have a varying level of verification that they actually work. This might create opposition to change and a drive to loosen environmental regulations. It is imperative that technologic development, the realities of marine transport and regulatory policies are discussed, planned and conducted with the participation of all relevant stakeholders, laying the grounds for most optimal cooperation in the field.

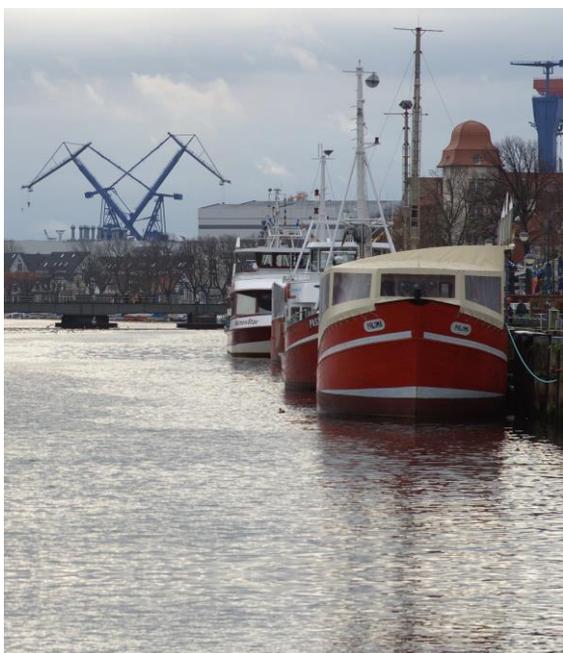


Photo: pxhere

Facts and Figures

- International Maritime Organization has calculated (2014) that 2,5 % of the world's greenhouse gases come from international marine shipping. If current trends continue, the amount of greenhouse emissions will rise by 50% - 250%. As a provision to measure and combat these trends, all ships will have to present their fuel consumption data starting from 2019. The EU has identified that 90% of the greenhouse gases in the sector are emitted by ships with a gross tonnage higher than 5000.
- These ships make up 55% of all of the ships visiting EU ports. Starting from 2018, these large ships will have to measure, report and validate their greenhouse gas emissions yearly. In April 2018, 173 member states of International Maritime Organization agreed to reduce the carbon emissions of global shipping by at least 50% in 2050 compared with 2008.
- The Baltic Sea has a surface area of 415,000 km². It is the biggest brackish (slightly salty) water body in the world, because the connection with the world oceans is narrow. Water exchange in the Baltic Sea takes 30 years, which makes the sea very vulnerable to external factors.
- In 2013, Baltic Sea was visited by 10,200 ships, which doesn't include shipping vessels. There are about 2000 ships on the Baltic Sea at any given moment and the shipments amount to 15% of the world's cargo transportation.
- There are about 200 large ports on the shores of the Baltic Sea. The biggest ports by total freight turnover in 2015 were Russian ports (Ust-Luga, Primorsk, St. Petersburg), the rest of the top 10 freight ports are situated in Riga, Klaipeda, Gothenburg, Gdansk, Ventspils, Tallinn and Sköldvik.
- Most visited cruise ports in the Baltic Sea are in Copenhagen, Stockholm, St. Petersburg, Tallinn and Helsinki. The number of cruise passengers has quadrupled in 15 years: from about one million in 2000 to about four million in 2015.
- Within the 10 past years the sum of shipments going through Estonian ports has fallen 58%, because of falling transit volumes and Russian impact on our economy (further developing harbours near Saint Petersburg, gas and oil pipelines, economic sanctions from both sides, economic downturn in Russia).
- However, import and export volumes through Estonian ports have risen 33% during the past 10 years while passenger volumes have stayed about the same.

How does this hot topic relate to Responsible Research and Innovation?

The topic of green ports and green ships relates to the following RRI dimensions:

- **Public engagement** – developing green marine transport solutions must be conducted with the participation of very different stakeholders, such as universities and science institutions, private companies, policy makers (of which there are many in the marine sector) and the citizens who inhabit coastal areas. This allows adopted policies and solutions to be as relevant as possible, resulting in more support to implement the changes by all sides.
- **Science education** – Effective and eco-friendly port and ship requires an evolution in the corresponding fields of science also.
- **Open access** – A potential effort to share sea environment measuring data can lead to further acceptance and implementation of citizen-conducted measurements. This can help to find new problematic areas in the sea environment that would otherwise go unnoticed.
- **Environment** – Reducing human pressures on the marine and on-shore environment is at the heart of the green port concept. An efficient port doesn't only save money by reducing the energy spent, it also reduces the environmental footprint by minimizing fuel use, greenhouse gases, material waste etc.

Why is this hot topic interesting for MARINA?

Ports are a crucial connection point in the whole transport sector – the connection between land based and sea based transportation. This gives ports a lot of importance, providing a first-hand connection point for many people to come in contact with the sea, allowing for the hinterland and surrounding regions to benefit from the sea

economically and unfortunately also allowing human pollution and human pressures to reach the sea. Ports, which are quite hard to separate from the rest of the shipping sector, and the development of ports is a good example of a field that could really benefit from the RRI framework. Exciting developments are taking place right now and these technological changes address many stakeholders.



Photo by F. Berkelaar

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