ENVIRONMENTAL REPORT 2020
PORT OF TURKU

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MANAGEMENT SYSTEM CERTIFICATION
DNV·GL
ISO 9001 ISO 14001
ISO 45001

Clear goals for the environmental programme

The Port of Turku's goal is to minimise the environmental impacts of port operations. We want to decrease the carbon footprint of our operations, reduce the impacts on the water system and maritime environment, as well as limiting the noise caused by port operations. Some of those we can affect by ourselves, but significant results can only be reached through co-operation involving different stakeholders.

Long-term work for the environment has yielded results. Emissions into air caused by port operations decreased by 16 per cent in proportion to the tonnage transported from 2011–2018. Energy-efficiency has also improved, as electricity consumption decreased by as much as 24 per cent over the same period. Our currently valid environmental programme aims at improving those figures further and securing the well-being of the maritime environment. The latter involves our decision to stop disposal of dredging masses in the sea.

ENVIROMENTAL PROGRAMME 2019–2025

HEALTHY MARITIME ENVIRONMENT

GOAL:
Decrease the loading of port operations caused to the water system.

ENHANCE ENERGY CONSUMPTION AND SAVE ENERGY

GOAL:
Improve the Port's energy-efficiency from the level of 2018.

RESTRAIN CLIMATE CHANGE AS PART OF THE CARBON-NEUTRAL TURKU URBAN AREA

GOAL:
Decrease the greenhouse gas emissions of port operations by 40% from 2008–2025.

Environmental sustainability is our common cause

The Port of Turku also promotes the goals of its environmental work by participating in many co-operation projects that take the environmental aspects into account.

Started at the beginning of 2017 and lasting to the end of 2021, the NextGen Link project is topical at present. The most important environmental goals of the project are to make maritime traffic more sustainable and environmentally sound as well as promoting the demand for alternative fuels in the Baltic Sea region. The project partners are the Port of Turku, City of Turku, Viking Line and the Port of Mariehamn from Finland, and the Ports of Stockholm from Sweden. The project has received CEF funding from the EU.

The Port of Turku is also involved in the Baltic Sea Challenge initiated by the cities of Helsinki and Turku. Started eleven years ago, the Baltic Sea Challenge continues with a new five-year period and an updated operational programme for 2019–2023. The Port of Turku's measures during the new period include e.g. further development of waste management of passenger vessels and promotion of the climate plan for carbon-neutral port operations.

Port of Turku is actively involved in the Baltic Sea Challenge.

Smaller impacts on waterways from dredging

The factor of port operations that affects most the loading on waterways in Turku is the dredging of the seabed. Implemented by the Port of Turku, the dredging secures the operability of the ship fairways leading to the port and the water areas in the port. Most of it is maintenance dredging to ensure that the official fairway depths notified to seafarers are accurate.

The Port of Turku has made a decision together with the City of Turku on stopping the disposal of dredging masses in the sea by 2024 at the latest. In practice, it means switching to disposal on land, which will considerably reduce the impacts of dredging operations on nearby waters and the Airisto sea area. An inquiry run by the City of Turku for finding suitable disposal sites was initiated in preparation for switching to disposal on land. At the same time, the potential for further use of new disposal sites and dredging masses will be mapped.

The first possible disposal site mentioned for the dredged clay soil was the Lauttaranta district in Turku. By placing the sediment accumulated from dredging in embankment pools to be built on reliction it becomes possible to plan and build a new district with blocks of flats by the sea in the Latokari area. The area has received an environmental permit from the end of 2020 and the City of Turku has started construction implementation planning.

A decision was made to stop disposal of dredging masses in the sea.

Vessel traffic contributes to environmental protection

The shipping companies operating in the Port of Turku have contributed a great deal to the decrease of the carbon footprint.

The emissions into air by vessel traffic have decreased considerably thanks to the EU's Sulphur Directive that entered into force in 2015. The reduction of air emissions is also due to Viking Line's introduction to the Turku – Stockholm route of Viking Grace, which is fuelled by liquefied natural gas (LNG). By the end of 2021, both of the company's ships operating the route will be fuelled by LNG, as the new Viking Glory will start operations alongside Viking Grace. In addition, Viking Grace is equipped with a rotor sail that decreases the fuel consumption and emissions. The low-sulphur fuel, catalysers and new engine types used by Tallink Silja also had a positive effect.

The protection of the maritime environment is also taken into account in the design of the newest vessels. The hull shapes of the vessels are hydro-dynamically optimised to minimise wave formation. In the archipelago between Turku and Stockholm, it prevents erosion and decreases the impacts of vessel traffic on the sensitive archipelago environment.

To reduce the impacts of vessel traffic on waterways, the Port of Turku offers passenger vessels as well as cruise liners and cargo ships an opportunity to empty their waste water in the port.

Discounted vessel charges serve as incentives

The Port of Turku has encouraged shipping companies to take the environment into account by granting environmental discounts on vessel charges. The current discounts have been tied to the nitrogen oxide emissions of the vessel, by which the Port aimed at guiding the shipping companies to introduce technology for reducing the emissions.

With regard to the future, the Port of Turku considered for a long time expanding the environmental discounts directed at vessel traffic. For that purpose the Port of Turku commissioned a background study on the environmental discount systems used in the ports of the Baltic Sea and Europe and their applicability to the Port of Turku. The key issues looked into included e.g. how the discount system encourages the vessels to take environmental action important to the port, and how the system is verified. The study was carried out by Wega Group Oy by commission of Port of Turku Ltd.

One major change for 2021 is the criteria for environmental rebates for ships. In the future, environmental discounts will also be based on the Clean Shipping Index ratings commonly used in Sweden. The CSI rating is broader than the environmental discount we used previously based solely on the ship's nitrogen emissions. Thus, the CSI classification makes it possible to look at the environmental performance of ships as a whole.

The new stock of vessels causes less greenhouse gas emissions.

New solutions for noise prevention

Most of the noise of the port operations is caused by vessel calls, loading and unloading, and the vehicle traffic to and from the Port. In the Port of Turku, noise is occasional, focusing on the hours around the daily departures of passenger vessels in the morning and evening.

The noise from port operations is largely regulated through the provisions in the Port's environmental permits. The noise level of the port is controlled through noise reports which examine the noise emissions from port operations in different situations and compare the noise values to those determined in the Port's environmental permits. The latest noise measurement in the inner harbour was performed at the turn of the year 2020-2021, and the next one is taking place in 2025. The environmental noise situation in the Pansio Harbour will be followed in the future according to the same schedule as the inner harbour. The ro-ro traffic in Pansio has been transferred to the inner harbour until further notice due to longer vessels.

The decreasing of noise impacts will be increasingly emphasised in the future, as the residential areas and services of the city-centre are expanding towards the Port. To find new solutions for noise abatement the Port of Turku participated in the international Neptunes project. The joint project of ten different ports focused e.g. on developing a consistent method for measuring the noise from vessels and categorising vessels in terms of noise, and mapped the best practices for reducing noise from vessels.


Baltic Princess
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BALTIC LINE

Digitalisation helps reach reductions in emissions

Increasing the digital aspects of port operations will reduce the carbon dioxide emissions of the entire transport chain and cut down the energy consumption of port operations. Smaller emissions are aimed at through utilisation of location technology as well as increasing use of automation and robotisation in load handling.

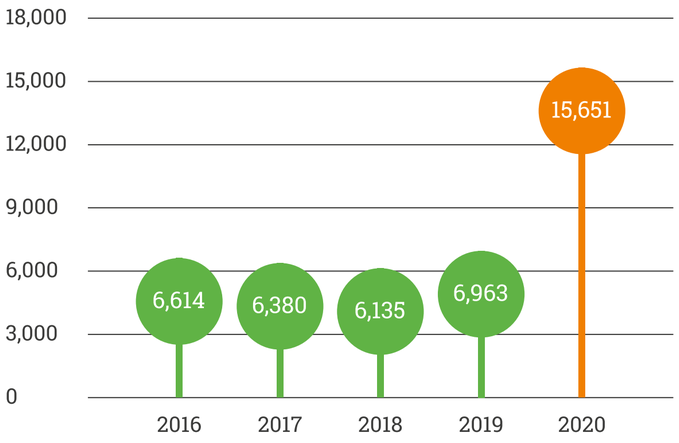
The Port of Turku will utilise automation e.g. in conjunction with the port calls of passenger vessels. For that purpose the Port has ordered an automooring system that will speed up the mooring and unmooring of ships as well as cut down their fuel consumption and reduce the emissions during port calls. The automooring equipment will be commissioned at Viking Line's berth during 2021.

Digital services are also used in traffic guidance in the Port. The new gate systems and new traffic arrangements in the passenger harbour will decrease the idling and emissions of vehicles in the port area.

Digitalisation also affects the energy consumption of the port operations. The Port of Turku has considerably decreased its electricity consumption by switching to LED lighting in the biggest warehouses and the inner harbour area and by introducing digital controlling of lights.

Fast turnaround times decrease the idling of trucks in the Port.

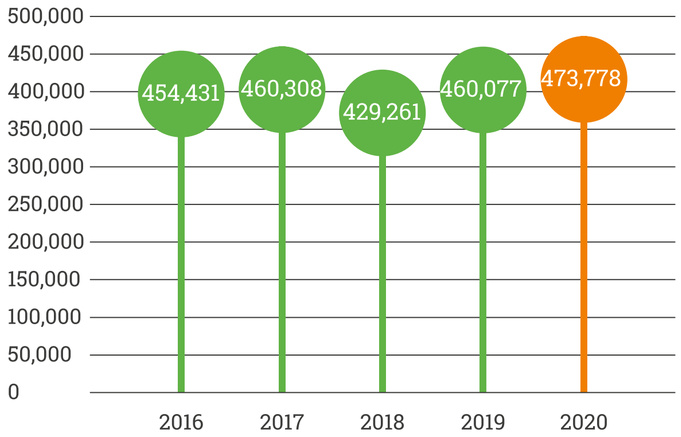
Emissions into air from port operations, CO_2 [tons/year]



Due to the coronavirus pandemic, Viking Line's ship Gabriella and Tallink Silja's Silja Serenade suspended their service on the Helsinki-Stockholm route and were transferred to berths in the port of Turku. The carbon dioxide emissions of those ships can be seen as a peak in the total emissions of the port area.

In addition to passenger ships, cruisers and cargo ships can leave wastewater in the port (3 fixed wastewater discharge points, also separately by tanker).

Taking the environment into account in port charges (euro)



The Port of Turku was among the first ports to introduce environmental vessel charges. From the beginning of 2021 the bases for discounts were revised to comply with the Clean Shipping Index. The index takes into account the nitrogen, sulphur and carbon dioxide emissions of vessels as well as chemicals, water waste and particle emissions.

Environmental balance sheet

	2019			2020		
	REVENUE, EUR	COST, EUR	INVESTMENTS, EUR	REVENUE, EUR	COST, EUR	INVESTMENTS, EUR
1. Air and climate protection	0	118, 506	0	0	119, 095	0
2. Water protection and waste water processing	0	153, 002	0	0	52, 711	0
3. Waste management and littering	50, 069	63, 133	0	48, 791	73, 846	0
4. Soil and ground water protection	0	0	0	0	0	0
5. Noise and vibration abatement	0	0	0	0	7,100	0
6. Nature and landscape protection	0	0	0	0	0	0
7. Official duties of environmental protection	0	0	0	0	0	0
8. Promotion of environmental protection	0	65, 250	172, 178	0	243, 391	135, 792
TOTAL	50, 069	**399, 892**	**172, 178**	**48, 791**	**496, 144**	**135, 792**
9. Environment-based taxes and fiscal charges	0	0	0	0	0	0
Waste tax	0	0	0	0	0	0
Fuel tax	0	19, 418	0	0	15, 531	0
Electricity tax	0	76, 867	0	0	85, 497	0
ENVIRONMENTAL OPERATING COSTS TOTAL	**0**	**96, 285**	**0**	**0**	**101, 028**	**0**
Environmental protection devices (investments) depreciation	0	0	0	0	0	0
Protection of fairway ramps against erosion	0	3, 435	0	0	3, 435	0
Filling embankments	0	46, 515	0	0	46, 515	0
Renovation of the premises	0	10, 518	0	0	10, 518	0
Environmental construction, Pansio	0	2, 811	0	0	2, 811	0
Embankment basin, stabilisation, Pansio	0	138, 873	0	0	138, 873	0
Environmental construction, West Harbour	0	7, 959	0	0	7, 959	0
Depreciation other investments	0	147, 281	0	0	172, 436	0
Depreciation total	0	357, 392	0	0	382, 547	0
Total	**50, 069**	**804, 882**	**172, 178**	**48, 791**	**979, 719**	**135, 792**

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