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Underwater noise emissions from Baltic Sea shipping in 2023

Baltic Marine Environment
Protection Commission

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Key Messages

1. **Underwater noise emissions from ships, calculated as noise energy, have increased by +6% in the 63 Hz 1/3 octave band in 2023 compared to 2022.**

2. **Liquid tankers, bulk cargo, and containerships combined are responsible for two thirds of vessel noise** (39%, 18% and 16%, in 63 Hz 1/3 octave band).

3. Applying similar performance metric as for energy efficiency (in mass per ton nm cargo carried), unit noise energy emissions, over the 63 Hz 1/3 octave band considered, the **LNG tankers emit most noise energy per tonne nm** (1123 millijoules ton^{-1} nm^{-1}) and **general cargo ships are the most silent ones** (187 millijoules ton^{-1} nm^{-1}).

4. The **noise efficiency of ships was slightly improved in gas tanker** (2022→2023: 718→599 milliJ tonnne^{-1} nm^{-1}; -17%), **RoRo cargo** (2022→2023: 607→480 milliJ tonne^{-1} nm^{-1}; -21%), **and bulk cargo** (2022→2023: 259 →221 milliJ tonne^{-1} nm^{-1}; -15%) **ship segments**.

5. **Noise efficiency of containerships** (2022→2023: 320 →388 milliJ tonne^{-1} nm^{-1}; +21%) and **Reefer cargo ships slightly deteriorated** (2022→2023: 192→208 milliJ tonne^{-1} nm^{-1};+8%).

6. Noise energy emitted by Cruise passenger ships decreased by -19% when compared to 2022. However, at the same time, cruise ship travel distance in 2023 were -32% less than that in 2022.

1. Underwater noise emissions from ships

The values listed in this document represent noise energy emitted, and it cannot be taken as representative of shipping noise experienced by marine animals. Emission report of underwater noise should be taken in a similar manner as the emissions of atmospheric pollutants. They indicate the quantity emitted at the pollution source and consecutive impact assessments should be based on pollutant dispersion, or in case of noise, noise propagation modeling.

This work considers the impact of ambient conditions on modeled quantities.

1.1. Modeling of noise sources

The STEAM (Jalkanen et al., 2009, 2012, 2018; Johansson et al., 2013, 2017) emission modeling system was used for this work, which incorporates the Wittekind noise source module for ships (Wittekind, 2014). The noise model is based on vessel technical properties, and it describes separately contributions from vessel cavitation and machinery (Figure 1). Cavitation occurs when a fast-rotating propeller generates a large pressure difference between different sides of propeller blades and vacuum forms on the backside of the blade. Gas bubbles are formed which collapse generating loud noise. The noise quantities reported in this document include noise emissions at three specific frequency bands, 63, 125 and 2000 Hz, which are found to be relevant for animals. The two lowest frequencies are in the hearing range of several fish species and 2 kHz band is seen relevant for marine mammals, but it is outside the hearing range of most fish.
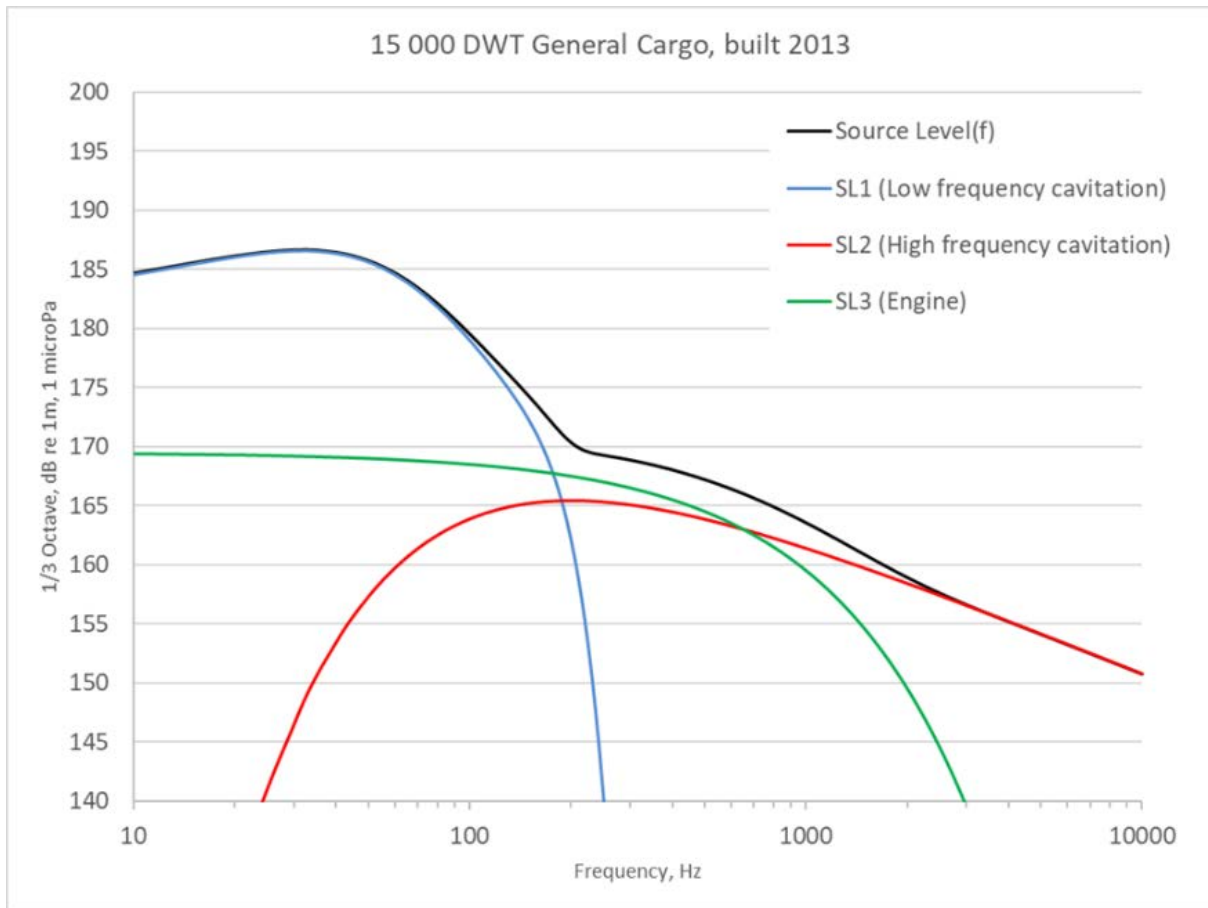
Figure 1 Noise contributions of a cargo ship according to Wittekind (2014). Low and high frequency cavitation contributions (Blue, Red lines) describe the contributions from vessel propeller whereas engine noise is depicted with Green color. Total source level is indicated with the Black line.

The time integration of noise emissions yields noise energy, which is reported in Joules. In Table 1, noise emitted is given as sum of energy emitted to water as noise in three different frequency bands (63, 125 and 2000 Hz). This allows cumulative description of noise in contrast to the logarithmic decibel scale which is used to describe instantaneous values.

The source levels (dB) obtained from the Wittekind formulation are related to the power emitted:

$$SL[dB\ re\ 1m, 1\ \mu Pa] = 10 log_{10} \frac{P}{P_{ref}}\text{where}$$

$$P_{ref} = \frac{4\pi p_{ref}^2}{\rho c}$$

with p_{ref} is 1 µPa, ρ and c are water density and speed of sound in water. With this, the total emitted power is accumulated over time from all M ships in area A:

$$P_k^{tot}(t) = \sum_{m=1}^{M} P_{k,m}(t)$$

The sound power $P_{k,m}(t)$ in Joules per second describes the emitted energy of a single ship. This is summed up over time and over all ships, which yields noise energy emitted over an area. The calculation of noise source maps is described in (Jalkanen et al., 2018). It should be noted that the accumulated energies of Table 1 are totals for all the Baltic Sea area and cannot be converted back to source levels of individual ships. Thus, the noise source maps reported in this document are a visual aid than input data for noise propagation modeling. The annual summaries for the earlier years can be found in Appendix.

Table 1. Emissions of noise energy from Baltic Sea shipping in 2023. Noise energy is given in gigajoules. Unit emissions (noise index) are calculated by dividing the energy contributions from the 63 Hz 1/3 octave band and by the transport work.

	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	196.9 (+6.0%)	56.9 (+11.0%)	0.9 (+10.1%)	629047.9 (+7.7%)	
Baltic Proper	118.2 (+6.2%)	33.7 (+11.4%)	0.5 (+10.4%)	370186.1 (+6.8%)	
Kattegat	49.1 (+11.4%)	13.7 (+14.5%)	0.2 (+13.5%)	144125.7 (+12.7%)	
Gulf of Finland	20.9 (+3.6%)	6.9 (+9.7%)	0.1 (+9.2%)	88912.0 (+10.1%)	
Gulf of Bothnia	7.7 (-14.2%)	2.2 (-7.0%)	0.0 (-6.5%)	21250.7 (-10.4%)	
Gulf of Riga	0.9 (-13.8%)	0.4 (+3.6%)	0.0 (+1.6%)	4573.5 (-7.3%)	
RoRo-Passenger vessels	10.2 (-7.2%)	3.9 (-7.3%)	0.1 (-6.9%)	16732.6 (-4.9%)	612.1 (-2.3%)
Vehicle carriers	0.5 (-20.5%)	0.2 (-.8%)	0.0 (-.4%)	1705.0 (-17.8%)	308.7 (-3.2%)
RoRo-cargo vessels	12.7 (-29.7%)	3.5 (-17.6%)	0.1 (-12.2%)	26477.9 (-11.0%)	479.8 (-21.0%)
Bulk carriers	33.8 (-7.8%)	9.0 (+.2%)	0.2 (+1.7%)	153120.1 (+8.1%)	221.0 (-14.7%)
General cargo	12.1 (-1.6%)	3.0 (+.1%)	0.1 (-.5%)	64541.0 (-2.3%)	187.3 (+.6%)
Container ships	31.1 (+35.3%)	12.4 (+37.3%)	0.2 (+35.4%)	80135.9 (+11.6%)	388.3 (+21.2%)
Reefers	0.7 (+32.5%)	0.6 (+32.2%)	0.0 (+32.0%)	3438.4 (+22.2%)	207.9 (+8.4%)
Tankers	74.4 (+16.9%)	18.7 (+17.9%)	0.3 (+15.0%)	271193.1 (+11.8%)	274.4 (+4.6%)
LNG tankers	10.4 (+43.2%)	1.9 (+42.9%)	0.0 (+41.7%)	9221.8 (+35.4%)	1122.6 (+5.8%)
Gas tankers	1.5 (-26.5%)	0.3 (-19.6%)	0.0 (-16.2%)	2482.2 (-11.8%)	598.7 (-16.6%)
Passenger ships	0.2 (+54.3%)	0.1 (+67.6%)	0.0 (+66.0%)		
Cruisers	4.1 (-18.9%)	0.8 (-22.2%)	0.0 (-25.4%)		
Fishing vessels	0.1 (+20.5%)	0.1 (+13.4%)	0.0 (+13.3%)		
Service ships	0.1 (-16.3%)	0.1 (-.6%)	0.0 (-1.6%)		
Unknown	3.3 (+.6%)	1.6 (+6.7%)	0.0 (+7.5%)		
Misc	1.1 (-21.0%)	0.5 (-14.3%)	0.0 (-13.9%)		

In general, the three largest emitters of noise energy (63 Hz 1/3 octave band) are the liquid tankers (74 GJ; 39%), bulk carriers (34 GJ; 18%), and containerships (31 GJ; 16%), which together contribute over 70% to vessel noise emissions at 63 Hz band (Figure 2). However, they are also responsible for 80% of the transport work in the Baltic Sea area. If noise efficiency is considered (analogous to energy efficiency reported in grams of CO_2 emitted per tonne^{-1} nm^{-1} cargo carried), LNG tankers have largest unit emissions of noise (1123 millijoules per tonne^{-1} nm^{-1}), whereas lowest unit noise comes from general cargo ships (187 milliJ tonne^{-1} nm^{-1}). Figure 2 indicates the noise energy emission shares of various types of ships at 63 Hz frequency band and Figure **3** shows the share of transport work of different ship types.
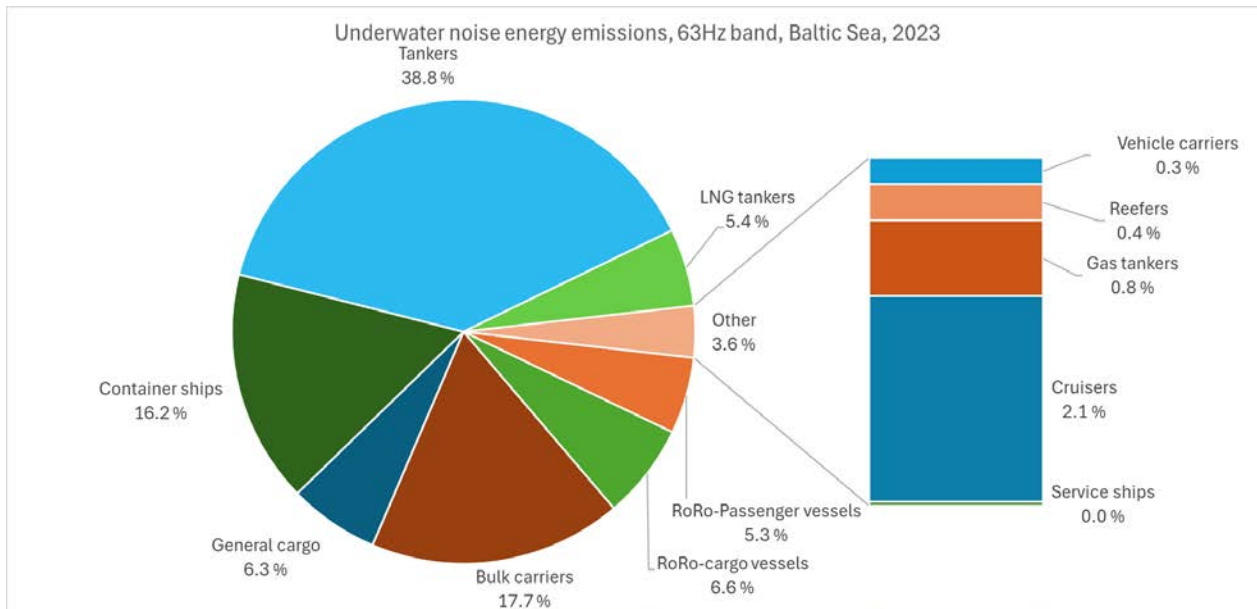
Figure 2 Share of emitted noise energy from various vessel types at 63 Hz band during year 2022. Note, that the tankers include all types of liquid (Crude, Product, Chemical) tankers.
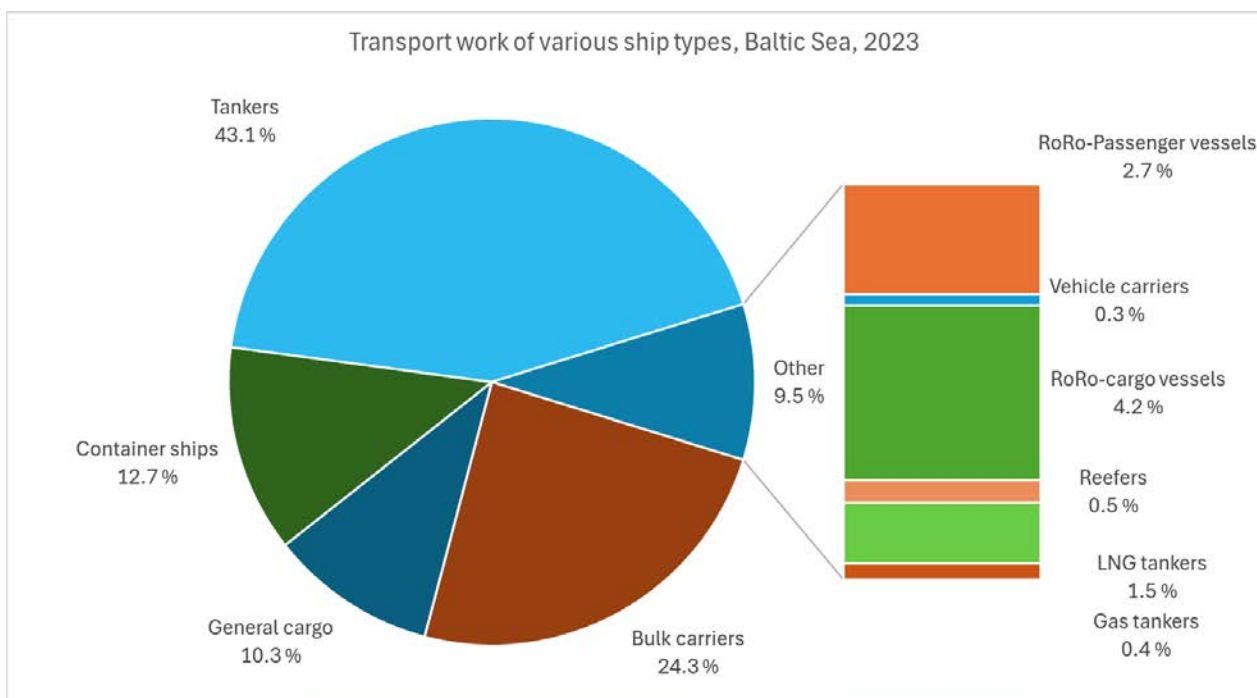

Figure 3 Share of total transport work of various ship types in the Baltic Sea during 2023.

2. Temporal evolution of noise emissions of the Baltic Sea fleet

The development of underwater noise emissions in the Baltic Sea shipping fleet during the time of 2006-2023 is illustrated in Figure 4. Noise energy emissions have not yet reached the pre-pandemic levels despite the increase (+4%) in 2022 when compared to the previous year.

Noise emissions are impacted by vessel operating speed, which have decreased during the same period (Figure 5). This figure plots the relation of average cruising speed to vessel design speed. A value of 1.0 indicates that a vessel would operate at its design speed, but a value lower than that indicates slower operation speed. For most of the ship types, the speed trend over the study period is negative (Figure 6), indicating slower operating speeds. For example, the average cruising speed of a containership in 2006 was 16.6 knots, but in 2023 this was decreased to 13 knots. There are some ship types, most notably icebreakers and LNG tankers, for which the opposite is true (Figure 7), and ships of these types operate at higher speeds than in 2006. In the case of LNG tankers, the relative speed has increased from below 0.5 to 0.7, which corresponds to average speed changes from 8 to 12.5 knots over the period of 18 years in the Baltic Sea area.
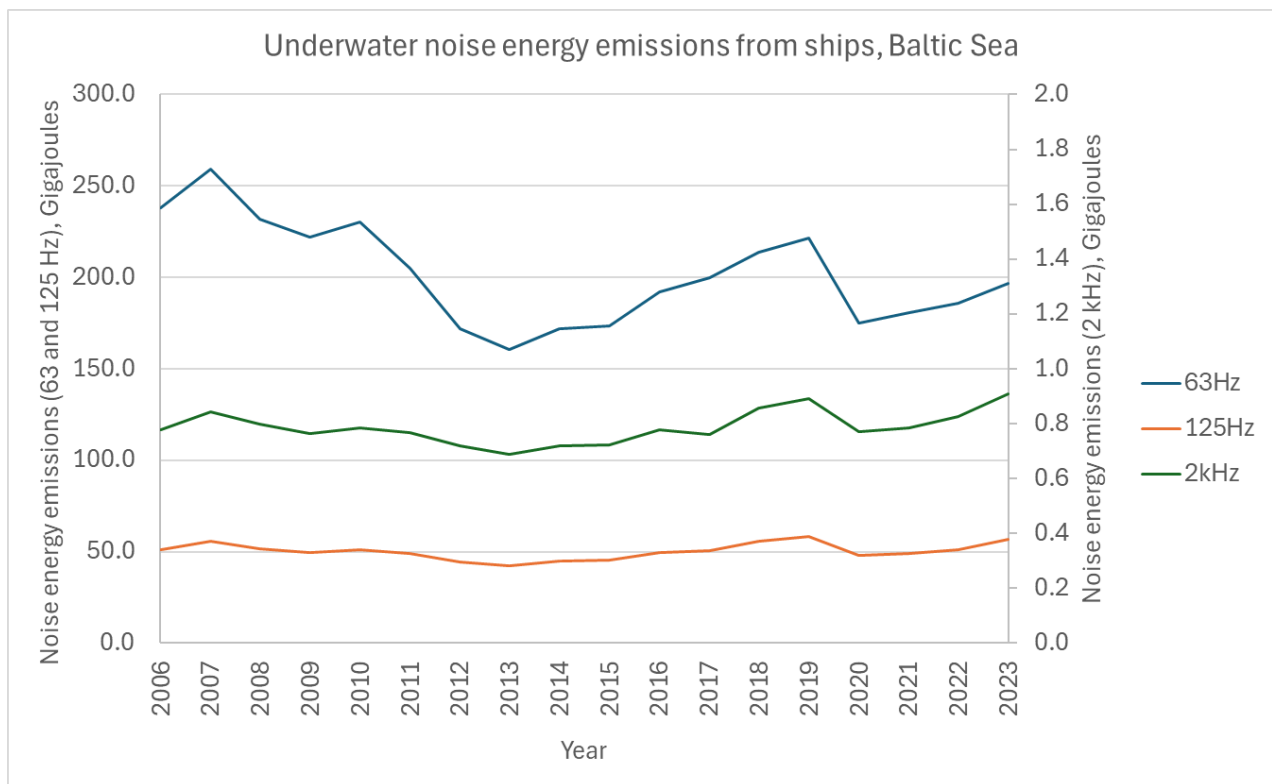
Figure 4 Underwater noise energy emissions from Baltic Sea shipping during 2006-2023. Energy is reported in gigajoules (GJ). Energy emissions for 2 kHz band are drawn using the right side vertical axis.
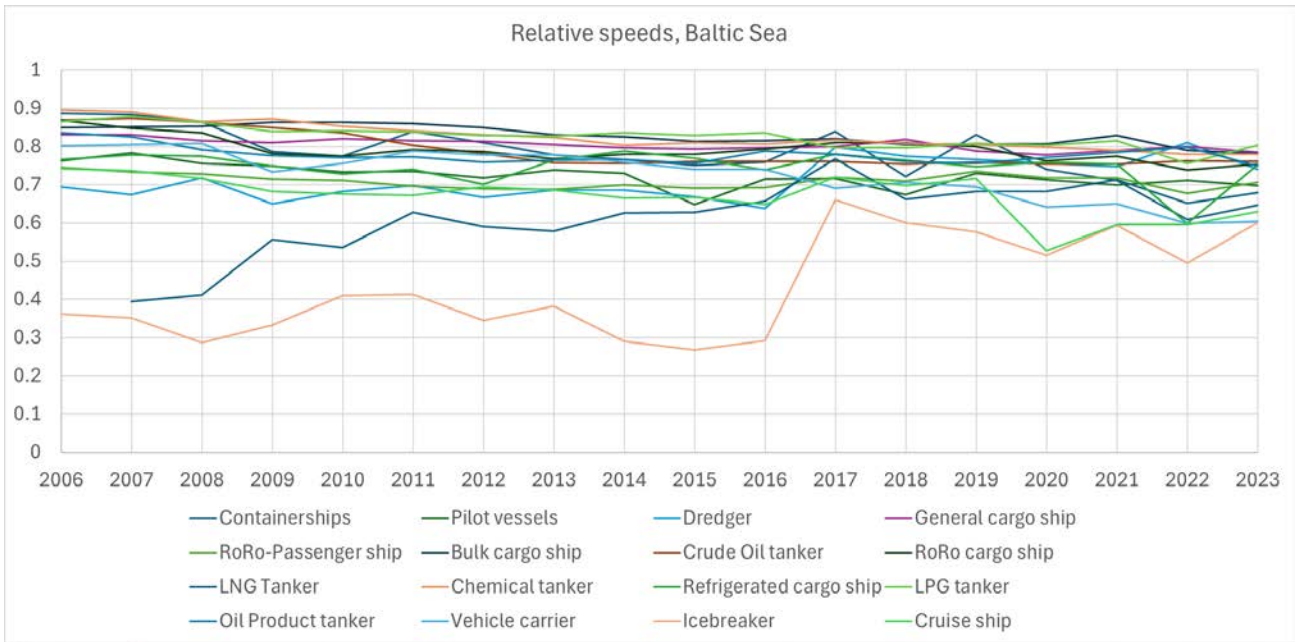
Figure 5 Operating speeds of various types of ships in the Baltic Sea fleet. The numbers presented report the relation between average cruising speed to the design speed of each class. This figure illustrates a widespread use of slow steaming across all ship types in the Baltic Sea fleet.
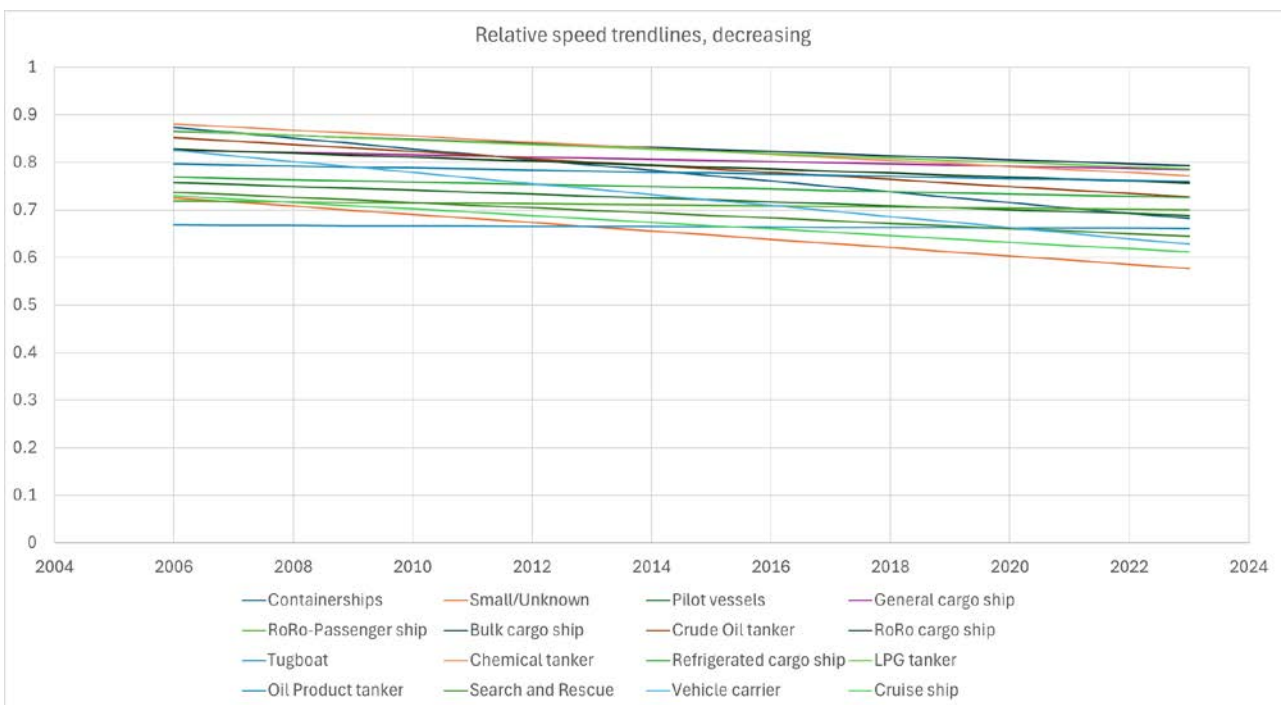
Figure 6 Smoothed trendlines of relative speeds for those ship types for which relative speed decreases over the study period.
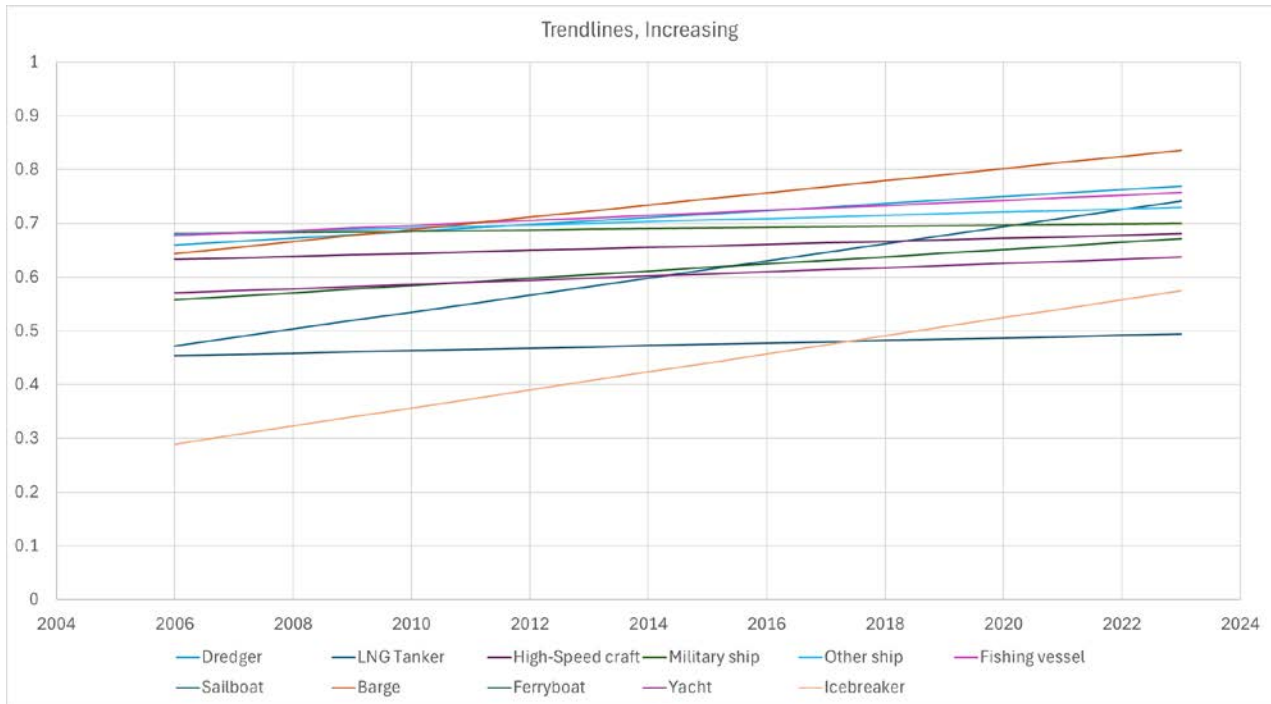
Figure 7 Smoothed trendlines of relative speeds for those ship types for which relative speed increases over the study period.

However, most ships have slowed down during the 18-year period.

Figure 8 illustrates the contributions to underwater noise emissions from different types of ships and their evolution during 2006-2023.
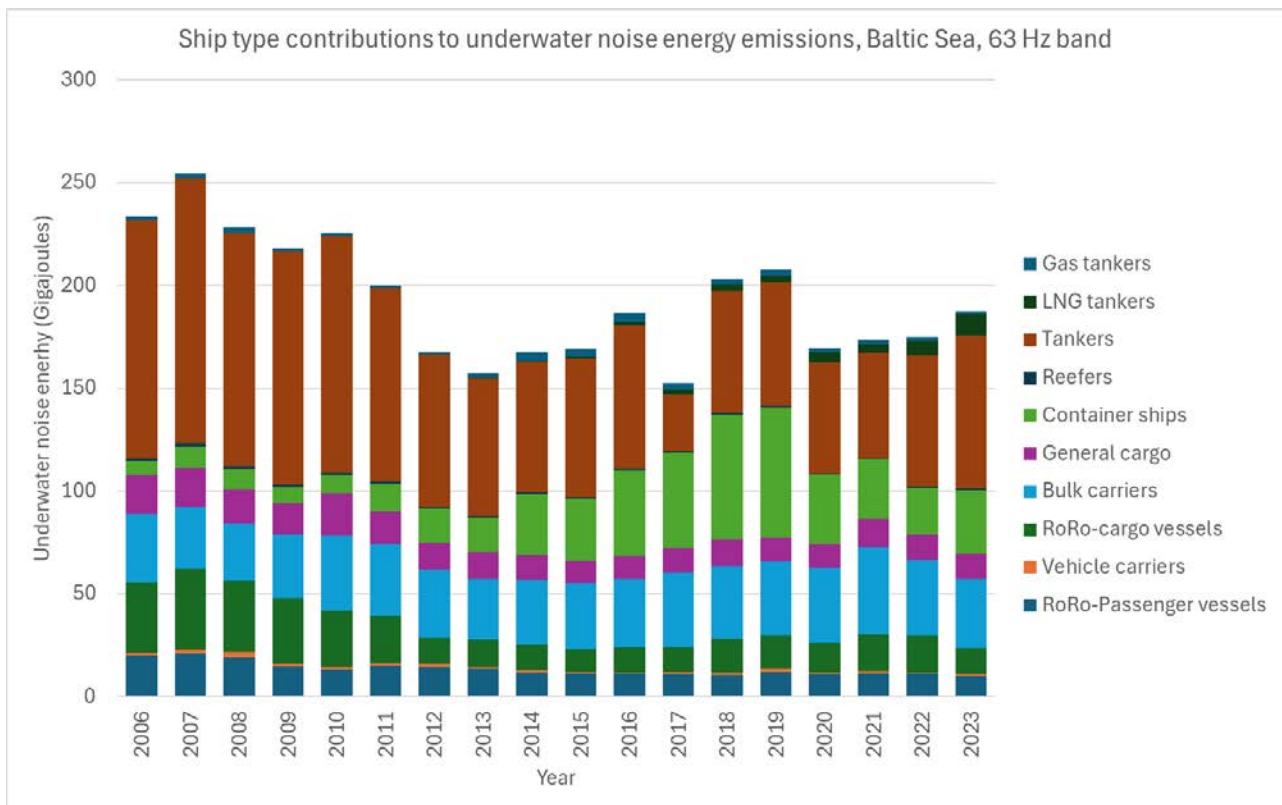
Figure 8. Emissions of shipping noise energy during 2006-2023 in the Baltic Sea area. Noise energy is given in Gigajoules. The columns indicate total noise energy at 63Hz band, whereas the colours indicate contributions from different types of ships.

The monthly totals of underwater noise over the whole study period are given in Figure 9. The emissions of noise during summer months usually have a maximum, which is like the observed maximum of atmospheric emissions during the holiday period each year. However, the disruption of passenger travel because of Covid19 seems to have temporarily broken this trend, and daily corrected noise energy emissions (gigajoules/day) peak during the months of September and October. High peaks in June-July 2010 correspond to a period of unavailable AIS data, and the monthly noise energy emissions have been scaled to 100% coverage based on the incomplete coverage. The totals for November 2017 and early months of 2018 reflect the decreased amount of AIS position reports in the Gulf of Bothnia and the Bothnian Bay area. Emission totals for these months have been scaled to 100% coverage based on the existing data which increases the uncertainty of modeled quantities.
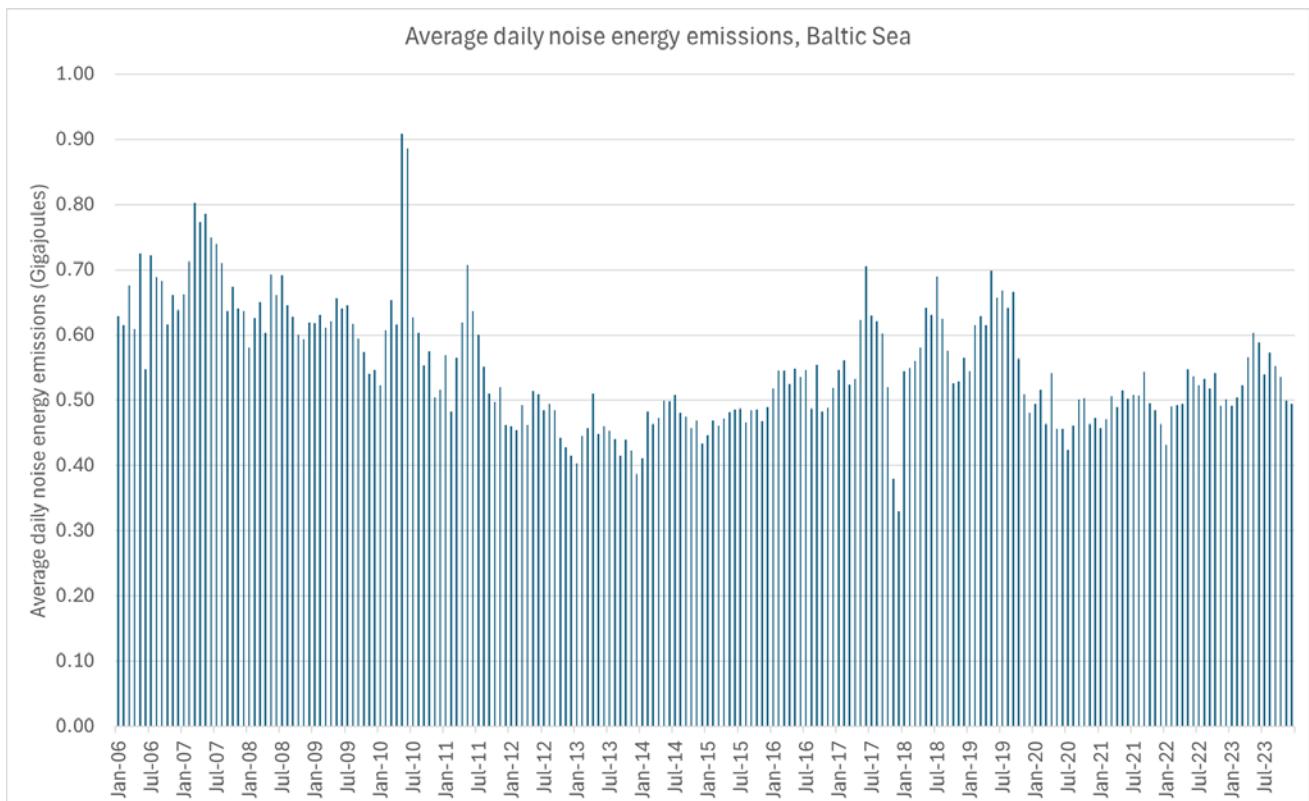
Figure 9 Daily average noise energy emissions (63 Hz 1/3 octave band) from ships in 2020-2022. The unit is gigajoules of average of energy released as noise from ships in one day.

For energy efficiency there exists various efficiency indices, like the Energy Efficiency Operational Index of the IMO, but also noise efficiency index can be calculated for each vessel. In that case, the reported quantity would be the noise energy (in millijoules) towards each cargo mass (tonne) and distance unit (nm). This leads to a performance index with unit of mJ tonne^{-1} nm^{-1}, which facilitates comparison of performance indices across various ship types. This way, the transport work done by each ship type is included in the evaluation. The development of noise efficiency of various ship types is depicted in Figure 8. According to the Wittekind noise module, vessel noise increases as a function of speed. The changes in emitted noise are more likely to be a result of operating speed changes because no reduction targets currently exist for shipping noise. For the most ship types, the noise index has decreased over time, but an increase was predicted for vehicle carriers, containerships and LNG tankers. These three ship types illustrate increased unit emissions of noise over time in the Baltic Sea area.
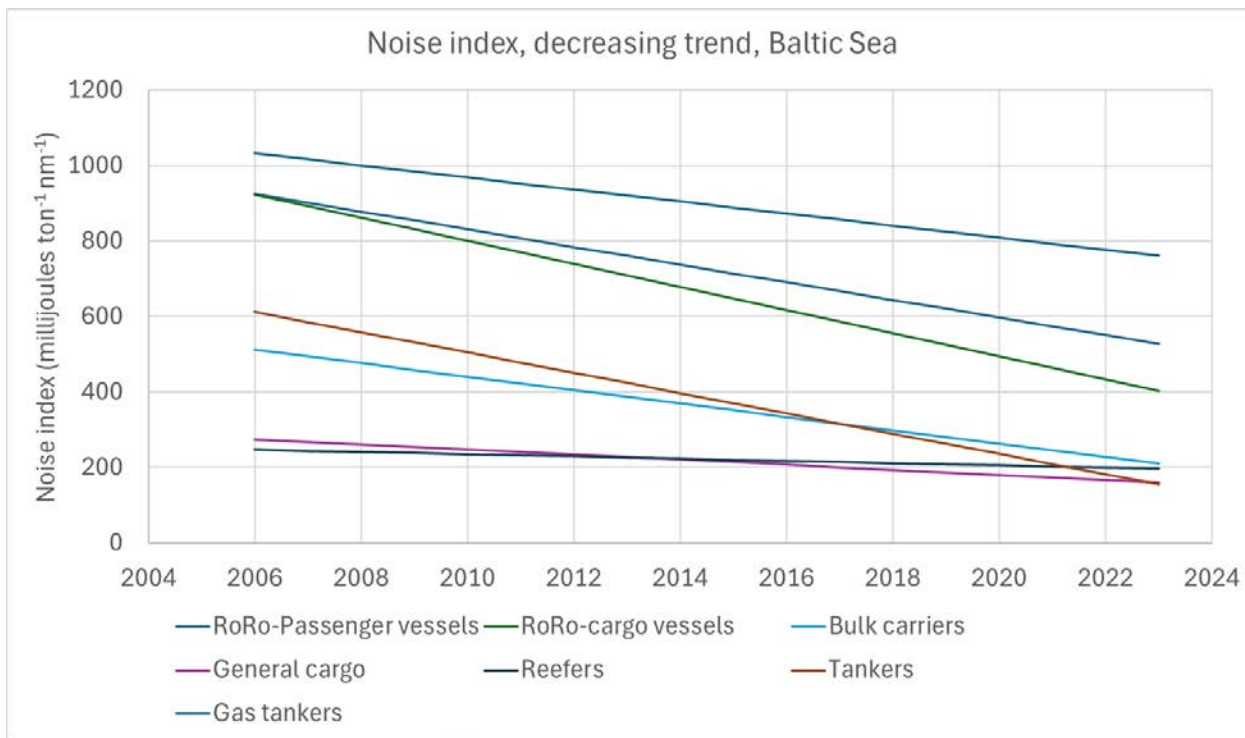
Figure 10 Noise efficiency index for various ship types sailing the Baltic Sea area. The period of 2020-2022 was studied, and an annual performance index was calculated for each ship type.
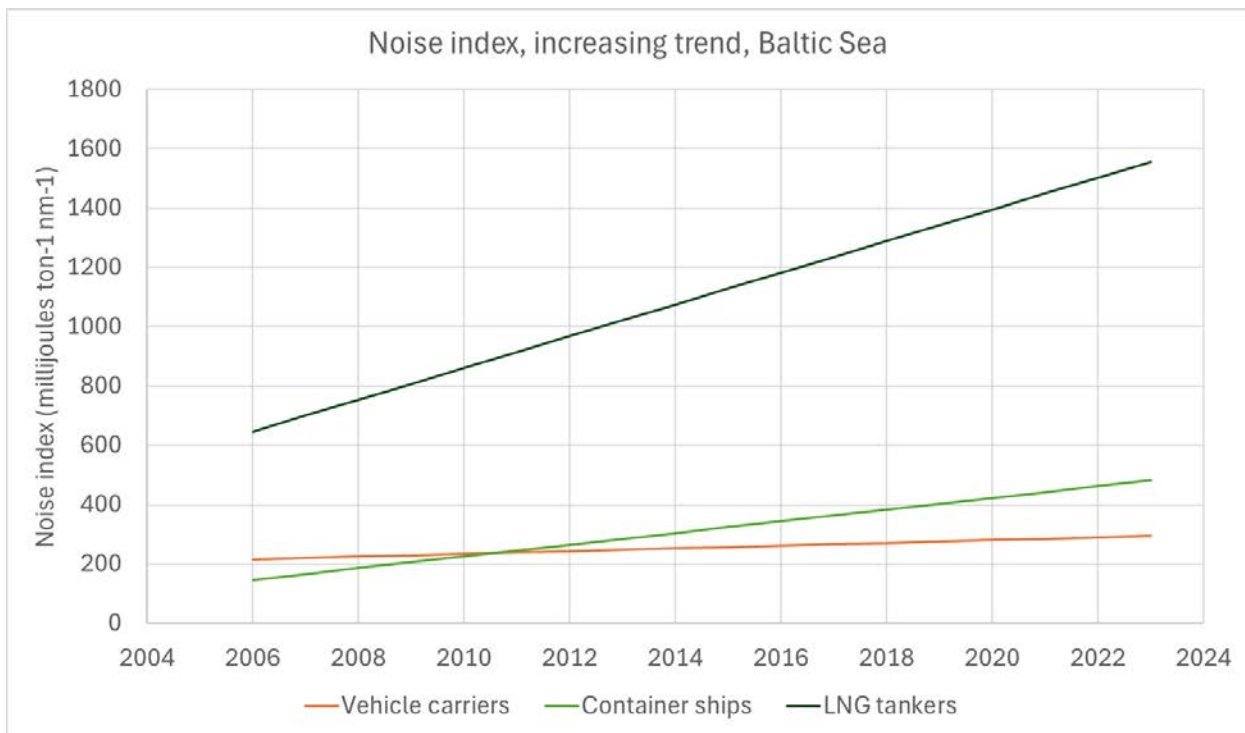
Figure 11 Noise efficiency index for various ship types sailing the Baltic Sea area. The period of 2020-2022 was studied, and an annual performance index was calculated for each ship type.

A significant increase in noise occurs with vessels which travel above the cavitation inception speed. This speed is the threshold value after which cavitation starts to occur and low- and high frequency contributions to cavitation noise increase sharply.

3. Geographical distribution of vessel noise emissions

The geographical distribution of annual noise energies in 63Hz band is given in Figure 12. The main shipping lanes are clearly visible in the noise maps, but it should be noted that this does not illustrate underwater noise propagation.
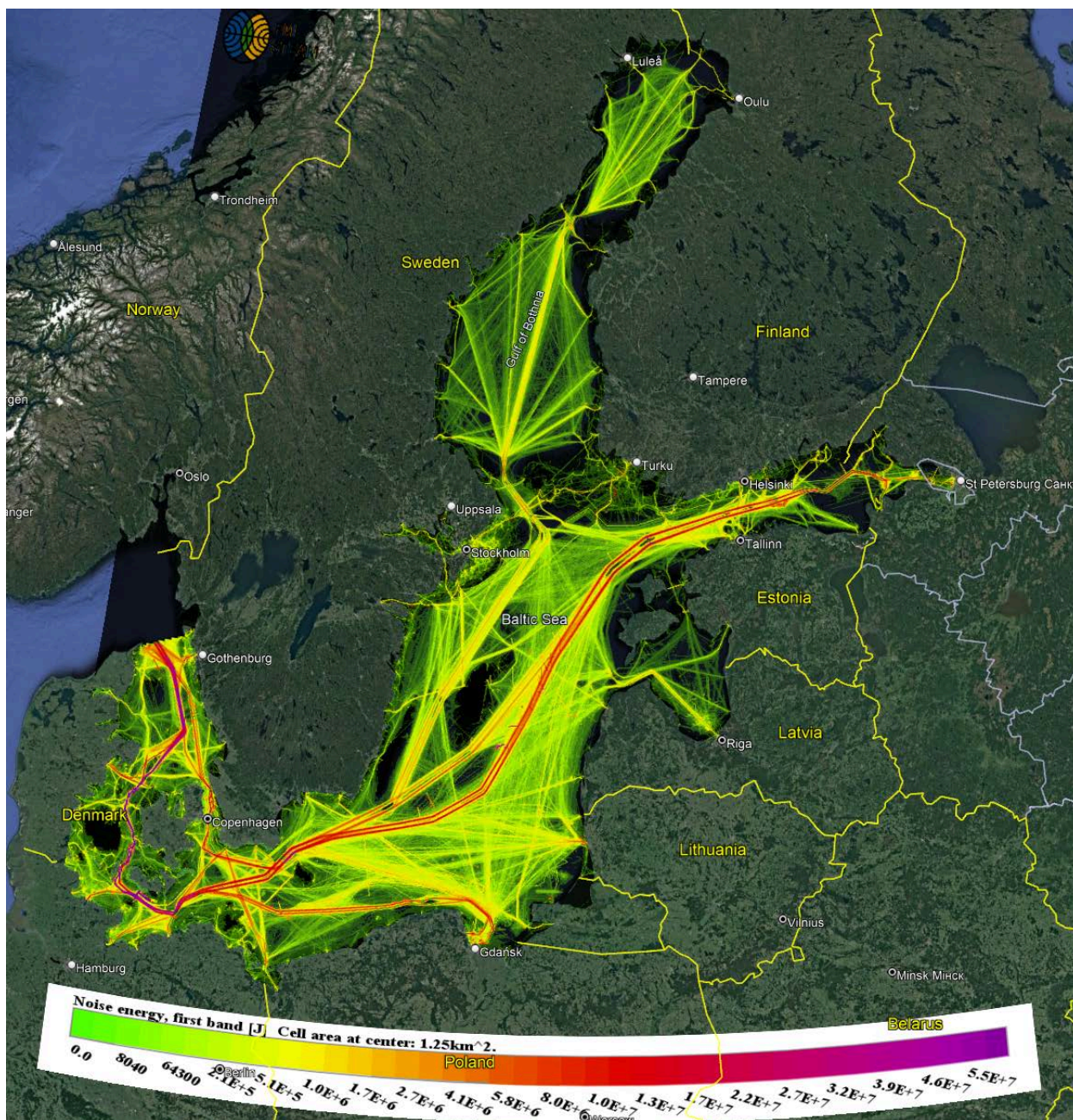
Figure 12 Noise energy emitted in the 63 Hz 1/3 octave band by the Baltic Sea fleet in 2022. Unit is joules per grid cell area (1.237 km2)

Values exceeding 100 dB are well within the hearing range of cod (Nedwell et al., 2004), but propagation modelling of noise is required to determine the noise levels experienced by marine life and assess the impacts of noise in the Baltic Sea area. A noise source emitting one megajoule of energy for one year corresponds to 156 dB source level. Noise maps of this report are visual aids to illustrate the geographical distribution of noise emissions, but further propagation modelling should be done to indicate how noise travels underwater. Only then the impacts of noise can be assessed.

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Data

The emission estimates for the year 2023 are based on over 789 million AIS-messages sent by 39,238 different ships, of which 9,587 had an IMO registry number indicating commercial marine traffic. The AIS position reports were received by terrestrial base stations in the Baltic Sea countries and collected to regional HELCOM AIS data server. Emissions are generated using the Ship Traffic Emission Assessment Model, version 4.3.1 (STEAM; (Jalkanen et al., 2009, 2012, 2018, 2021; Johansson et al., 2013, 2017).

The AIS data for year 2023 had no temporal gaps, AIS data was available throughout the year and the temporal coverage was 100%. This is the second time for HELCOM AIS service with a perfect service record. Most of the messages originate from South-Western region of the Baltic Sea near the Danish and southern Swedish sea areas (Figure 13). On average, data flow was around 90,000 messages per hour.

The uncertainty evaluation and comparison to EU MRV fuel reporting was made using global AIS data for 2023 from Orbcomm Ltd. This global dataset includes both terrestrial and satellite AIS position reports and includes over 8.9 billion (10^9) position reports. STEAM also uses the technical details of the global fleet based on S&P Global database.
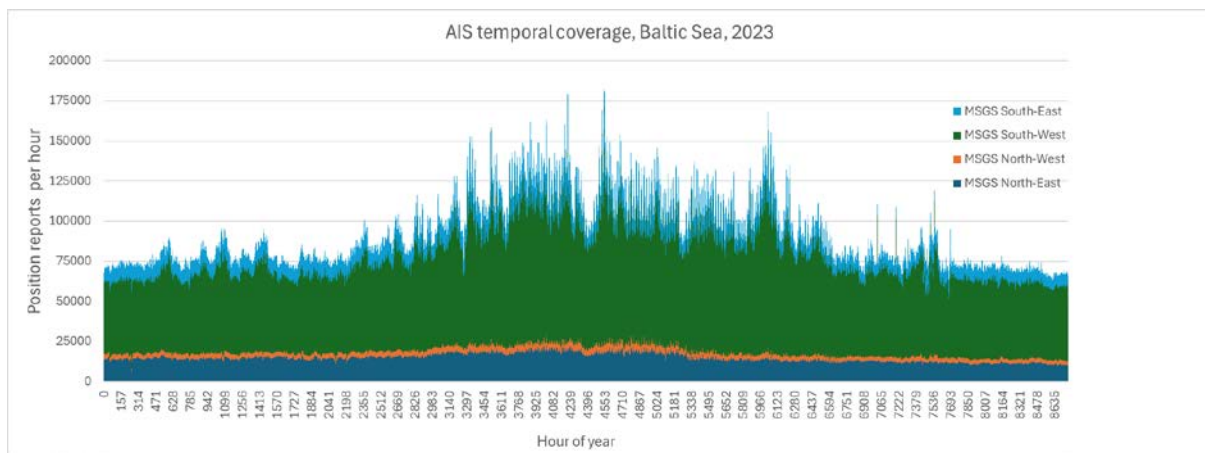
Figure 13 AIS-data hourly coverage in different parts of the Baltic Sea region for 2023.

Metadata

It should be noted that current estimates do not include contributions from vessels without active AIS equipment.

All calculations were made including the effects of sea currents, winds, waves and ice cover thickness. Impact of biofouling to vessel resistance was modeled with a simplified scaling approach, and impact of squat was neglected entirely.

APPENDIX – Annual noise emission summaries

2006	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	237.8 (+.0%)	51.1 (+.0%)	0.8 (+.0%)	412963.8 (+.0%)	
Baltic Proper	153.4 (+.0%)	31.8 (+.0%)	0.5 (+.0%)	248135.7 (+.0%)	
Kattegat	48.6 (+.0%)	11.0 (+.0%)	0.2 (+.0%)	91070.3 (+.0%)	
Gulf of Finland	24.1 (+.0%)	5.6 (+.0%)	0.1 (+.0%)	47362.9 (+.0%)	
Gulf of Bothnia	10.5 (+.0%)	2.4 (+.0%)	0.0 (+.0%)	22655.4 (+.0%)	
Gulf of Riga	1.3 (+.0%)	0.4 (+.0%)	0.0 (+.0%)	3739.3 (+.0%)	
RoRo-Passenger vessels	20.0 (+.0%)	5.5 (+.0%)	0.1 (+.0%)	18279.9 (+.0%)	1095.3 (+.0%)
Vehicle carriers	1.1 (+.0%)	0.4 (+.0%)	0.0 (+.0%)	33734.2 (+.0%)	32.9 (+.0%)
RoRo-cargo vessels	34.3 (+.0%)	6.5 (+.0%)	0.1 (+.0%)	33734.2 (+.0%)	1017.2 (+.0%)
Bulk carriers	33.6 (+.0%)	7.5 (+.0%)	0.1 (+.0%)	67657.3 (+.0%)	496.5 (+.0%)
General cargo	18.7 (+.0%)	4.3 (+.0%)	0.1 (+.0%)	67486.6 (+.0%)	277.6 (+.0%)
Container ships	6.8 (+.0%)	3.0 (+.0%)	0.0 (+.0%)	41604.6 (+.0%)	163.2 (+.0%)
Reefers	1.4 (+.0%)	0.9 (+.0%)	0.0 (+.0%)	5481.6 (+.0%)	249.7 (+.0%)
Tankers	115.6 (+.0%)	21.4 (+.0%)	0.3 (+.0%)	172603.7 (+.0%)	670.0 (+.0%)
LNG tankers	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)
Gas tankers	2.1 (+.0%)	0.4 (+.0%)	0.0 (+.0%)	1978.3 (+.0%)	1039.1 (+.0%)
Passenger ships	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)		
Cruisers	2.1 (+.0%)	0.4 (+.0%)	0.0 (+.0%)		
Fishing vessels	0.1 (+.0%)	0.0 (+.0%)	0.0 (+.0%)		
Service ships	2.9 (+.0%)	0.7 (+.0%)	0.0 (+.0%)		
Unknown	0.4 (+.0%)	0.2 (+.0%)	0.0 (+.0%)		
Misc	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)		

E(noise, 63Hz)   E(noise, 125 Hz)   E(noise, 2000 Hz)   Transport Work   Unit emissions

2007	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	259.4 (+9.1%)	55.6 (+8.6%)	0.8 (+8.2%)	452381.6 (+9.5%)	
Baltic Proper	163.7 (+6.7%)	34.1 (+7.2%)	0.5 (+7.2%)	272010.1 (+9.6%)	
Kattegat	52.4 (+7.9%)	11.7 (+6.5%)	0.2 (+5.7%)	97479.3 (+7.0%)	
Gulf of Finland	27.5 (+14.3%)	6.4 (+14.1%)	0.1 (+14.4%)	55299.5 (+16.8%)	
Gulf of Bothnia	14.4 (+37.7%)	3.0 (+24.7%)	0.0 (+16.6%)	23709.9 (+4.7%)	
Gulf of Riga	1.4 (+3.5%)	0.4 (+6.3%)	0.0 (+7.6%)	3882.8 (+3.8%)	
RoRo-Passenger vessels	21.0 (+4.7%)	5.9 (+8.5%)	0.1 (+8.6%)	20445.5 (+11.8%)	1024.8 (-6.4%)
Vehicle carriers	1.8 (+59.6%)	0.6 (+42.9%)	0.0 (+41.2%)	5689.7 (-83.1%)	311.5 (+846.4%)
RoRo-cargo vessels	39.5 (+15.2%)	7.2 (+11.2%)	0.1 (+7.4%)	36061.3 (+6.9%)	1096.2 (+7.8%)
Bulk carriers	30.2 (-10.1%)	6.7 (-10.8%)	0.1 (-9.6%)	62423.2 (-7.7%)	483.8 (-2.6%)
General cargo	19.0 (+1.3%)	4.4 (+1.5%)	0.1 (+2.3%)	70417.6 (+4.3%)	269.6 (-2.9%)
Container ships	10.1 (+48.4%)	4.2 (+39.8%)	0.1 (+38.1%)	54576.3 (+31.2%)	184.6 (+13.2%)
Reefers	1.7 (+24.8%)	1.1 (+15.2%)	0.0 (+16.1%)	6670.5 (+21.7%)	256.0 (+2.5%)
Tankers	129.2 (+11.7%)	23.7 (+10.8%)	0.4 (+10.9%)	187638.4 (+8.7%)	688.4 (+2.8%)
LNG tankers	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)	14.8 (+.0%)	131.1 (+.0%)
Gas tankers	2.1 (+2.6%)	0.4 (+3.8%)	0.0 (+4.1%)	2070.0 (+4.6%)	1018.9 (-1.9%)
Passenger ships	0.1 (+.0%)	0.0 (+.0%)	0.0 (+.0%)		
Cruisers	3.5 (+70.2%)	0.7 (+76.7%)	0.0 (+62.5%)		
Fishing vessels	0.5 (+341.1%)	0.2 (+482.1%)	0.0 (+445.6%)		
Service ships	0.0 (-98.9%)	0.0 (-96.5%)	0.0 (-96.2%)		
Unknown	0.0 (-88.7%)	0.0 (-80.0%)	0.0 (-80.5%)		
Misc	0.6 (+1999.4%)	0.3 (+1149.4%)	0.0 (+1236.1%)		

2008	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	231.7 (-10.7%)	51.7 (-6.9%)	0.8 (-5.4%)	447971.9 (-1.0%)	
Baltic Proper	144.3 (-11.8%)	31.4 (-7.8%)	0.5 (-6.1%)	267853.2 (-1.5%)	
Kattegat	47.2 (-10.1%)	10.9 (-6.6%)	0.2 (-5.7%)	95832.6 (-1.7%)	
Gulf of Finland	25.6 (-6.9%)	6.2 (-3.7%)	0.1 (-2.5%)	56065.5 (+1.4%)	
Gulf of Bothnia	13.0 (-10.1%)	2.8 (-7.7%)	0.0 (-6.3%)	23574.7 (-.6%)	
Gulf of Riga	1.6 (+17.1%)	0.4 (+13.3%)	0.0 (+13.5%)	4645.9 (+19.7%)	
RoRo-Passenger vessels	19.1 (-8.9%)	5.6 (-5.3%)	0.1 (-4.7%)	20420.6 (-.1%)	935.2 (-8.7%)
Vehicle carriers	2.4 (+33.4%)	0.9 (+37.0%)	0.0 (+36.5%)	7618.2 (+33.9%)	310.3 (-.4%)
RoRo-cargo vessels	35.0 (-11.4%)	6.6 (-8.9%)	0.1 (-6.4%)	36774.8 (+2.0%)	951.9 (-13.2%)
Bulk carriers	27.9 (-7.5%)	6.2 (-7.0%)	0.1 (-6.6%)	59515.2 (-4.7%)	469.4 (-3.0%)
General cargo	16.3 (-14.3%)	3.8 (-12.2%)	0.1 (-11.2%)	65115.2 (-7.5%)	249.8 (-7.3%)
Container ships	9.8 (-2.4%)	4.6 (+9.4%)	0.1 (+10.1%)	61871.6 (+13.4%)	159.0 (-13.9%)
Reefers	1.5 (-11.1%)	1.0 (-4.6%)	0.0 (-5.1%)	6257.3 (-6.2%)	242.6 (-5.2%)
Tankers	113.4 (-12.2%)	21.2 (-10.5%)	0.3 (-8.6%)	187638.4 (+.0%)	604.3 (-12.2%)
LNG tankers	0.0 (-56.9%)	0.0 (-45.3%)	0.0 (-51.8%)	5.8 (-60.9%)	144.5 (+10.2%)
Gas tankers	2.7 (+26.9%)	0.5 (+24.3%)	0.0 (+25.0%)	2754.7 (+33.1%)	971.4 (-4.7%)
Passenger ships	0.1 (-12.1%)	0.0 (-10.0%)	0.0 (-9.0%)		
Cruisers	2.1 (-39.4%)	0.6 (-16.6%)	0.0 (-7.9%)		
Fishing vessels	0.4 (-19.6%)	0.2 (-3.7%)	0.0 (-3.5%)		
Service ships	0.0 (-9.4%)	0.0 (-5.8%)	0.0 (-6.4%)		
Unknown	0.1 (+48.4%)	0.1 (+51.8%)	0.0 (+50.4%)		
Misc	0.5 (-14.2%)	0.2 (-14.8%)	0.0 (-12.5%)		

2009	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	221.9 (-4.2%)	49.3 (-4.6%)	0.8 (-4.2%)	431377.9 (-3.7%)	
Baltic Proper	135.9 (-5.9%)	29.5 (-6.2%)	0.5 (-5.9%)	252845.9 (-5.6%)	
Kattegat	47.0 (-.3%)	10.9 (-.4%)	0.2 (+.5%)	98042.6 (+2.3%)	
Gulf of Finland	25.3 (-1.1%)	6.0 (-2.9%)	0.1 (-2.8%)	54224.6 (-3.3%)	
Gulf of Bothnia	11.9 (-8.5%)	2.5 (-7.9%)	0.0 (-8.1%)	21167.6 (-10.2%)	
Gulf of Riga	1.8 (+12.2%)	0.4 (+4.3%)	0.0 (+3.7%)	5097.3 (+9.7%)	
RoRo-Passenger vessels	14.8 (-22.6%)	4.8 (-14.4%)	0.1 (-13.3%)	19013.4 (-6.9%)	777.1 (-16.9%)
Vehicle carriers	0.9 (-61.7%)	0.4 (-57.4%)	0.0 (-57.8%)	3001.1 (-60.6%)	301.6 (-2.8%)
RoRo-cargo vessels	32.2 (-8.1%)	6.0 (-8.7%)	0.1 (-9.4%)	32250.1 (-12.3%)	997.0 (+4.7%)
Bulk carriers	31.1 (+11.3%)	6.6 (+6.3%)	0.1 (+5.3%)	61903.5 (+4.0%)	502.4 (+7.0%)
General cargo	15.4 (-5.5%)	3.5 (-7.8%)	0.1 (-8.8%)	57408.2 (-11.8%)	267.8 (+7.2%)
Container ships	7.5 (-23.3%)	4.1 (-11.8%)	0.1 (-11.7%)	51360.6 (-17.0%)	146.9 (-7.6%)
Reefers	1.3 (-11.9%)	0.9 (-15.0%)	0.0 (-14.7%)	5598.8 (-10.5%)	239.0 (-1.5%)
Tankers	113.6 (+.2%)	21.5 (+1.5%)	0.3 (+2.7%)	199150.7 (+6.1%)	570.5 (-5.6%)
LNG tankers	0.0 (+2034.4%)	0.0 (+941.2%)	0.0 (+964.8%)	29.4 (+407.8%)	607.3 (+320.3%)
Gas tankers	1.4 (-46.4%)	0.3 (-42.0%)	0.0 (-40.4%)	1662.2 (-39.7%)	863.6 (-11.1%)
Passenger ships	0.1 (+7.6%)	0.0 (+12.7%)	0.0 (+11.5%)		
Cruisers	2.3 (+8.9%)	0.7 (+7.9%)	0.0 (+6.7%)		
Fishing vessels	0.2 (-34.8%)	0.1 (-30.1%)	0.0 (-29.4%)		
Service ships	0.0 (+12.1%)	0.0 (+6.2%)	0.0 (+6.7%)		
Unknown	0.1 (+33.1%)	0.1 (+22.8%)	0.0 (+21.1%)		
Misc	0.6 (+13.2%)	0.3 (+12.4%)	0.0 (+10.6%)		

2010	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	230.4 (+3.8%)	51.3 (+4.0%)	0.8 (+2.8%)	447517.0 (+3.7%)	
Baltic Proper	144.7 (+6.5%)	31.2 (+5.7%)	0.5 (+4.0%)	263347.4 (+4.2%)	
Kattegat	46.7 (-.7%)	10.8 (-.1%)	0.2 (-.8%)	98442.7 (+.4%)	
Gulf of Finland	23.2 (-8.5%)	5.9 (-2.2%)	0.1 (-1.4%)	56371.2 (+4.0%)	
Gulf of Bothnia	14.2 (+20.0%)	3.0 (+17.9%)	0.0 (+15.2%)	24050.6 (+13.6%)	
Gulf of Riga	1.6 (-9.6%)	0.4 (-4.7%)	0.0 (-3.9%)	5305.1 (+4.1%)	
RoRo-Passenger vessels	13.2 (-10.8%)	4.4 (-9.1%)	0.1 (-9.2%)	17230.9 (-9.4%)	765.1 (-1.5%)
Vehicle carriers	1.0 (+8.0%)	0.4 (+5.1%)	0.0 (+8.7%)	3766.6 (+25.5%)	259.6 (-13.9%)
RoRo-cargo vessels	27.5 (-14.4%)	5.2 (-12.8%)	0.1 (-12.7%)	29337.6 (-9.0%)	938.6 (-5.9%)
Bulk carriers	36.9 (+18.5%)	7.4 (+11.9%)	0.1 (+7.7%)	65412.0 (+5.7%)	563.5 (+12.2%)
General cargo	20.2 (+31.6%)	4.4 (+25.7%)	0.1 (+20.8%)	64757.3 (+12.8%)	312.4 (+16.7%)
Container ships	9.1 (+20.2%)	5.2 (+27.4%)	0.1 (+27.0%)	61143.1 (+19.0%)	148.3 (+1.0%)
Reefers	1.1 (-17.1%)	0.7 (-18.6%)	0.0 (-18.5%)	4569.7 (-18.4%)	242.6 (+1.5%)
Tankers	114.9 (+1.1%)	21.7 (+1.0%)	0.3 (-.8%)	199682.1 (+.3%)	575.4 (+.9%)
LNG tankers	0.0 (+65.5%)	0.0 (+47.6%)	0.0 (+52.3%)	38.5 (+31.2%)	765.9 (+26.1%)
Gas tankers	1.5 (+7.3%)	0.3 (+4.8%)	0.0 (+1.9%)	1579.0 (-5.0%)	975.8 (+13.0%)
Passenger ships	0.1 (-6.3%)	0.0 (-1.7%)	0.0 (-2.5%)		
Cruisers	3.4 (+47.1%)	0.8 (+18.2%)	0.0 (+10.9%)		
Fishing vessels	0.1 (-51.9%)	0.1 (-38.1%)	0.0 (-39.3%)		
Service ships	0.1 (+157.6%)	0.1 (+117.7%)	0.0 (+127.3%)		
Unknown	0.1 (-10.1%)	0.1 (+1.7%)	0.0 (+1.3%)		
Misc	0.9 (+55.9%)	0.4 (+50.0%)	0.0 (+48.3%)		

2011	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	204.8 (-11.1%)	48.8 (-4.8%)	0.8 (-2.0%)	476985.3 (+6.6%)	
Baltic Proper	125.2 (-13.4%)	29.2 (-6.4%)	0.5 (-2.7%)	284561.5 (+8.1%)	
Kattegat	44.9 (-3.8%)	10.7 (-1.8%)	0.2 (-.9%)	101417.6 (+3.0%)	
Gulf of Finland	20.9 (-9.7%)	5.9 (-.1%)	0.1 (+2.0%)	60997.0 (+8.2%)	
Gulf of Bothnia	12.0 (-15.5%)	2.7 (-10.8%)	0.0 (-7.2%)	24243.1 (+.8%)	
Gulf of Riga	1.7 (+1.6%)	0.4 (+3.3%)	0.0 (+4.2%)	5766.1 (+8.7%)	
RoRo-Passenger vessels	15.1 (+14.9%)	4.9 (+12.8%)	0.1 (+13.6%)	20025.8 (+16.2%)	756.4 (-1.1%)
Vehicle carriers	1.2 (+21.2%)	0.5 (+19.6%)	0.0 (+20.4%)	4660.2 (+23.7%)	254.3 (-2.0%)
RoRo-cargo vessels	23.1 (-16.2%)	4.6 (-11.6%)	0.1 (-8.3%)	30650.1 (+4.5%)	752.8 (-19.8%)
Bulk carriers	34.9 (-5.3%)	7.2 (-2.1%)	0.1 (+1.8%)	75359.0 (+15.2%)	463.2 (-17.8%)
General cargo	15.6 (-23.0%)	3.5 (-20.6%)	0.1 (-16.1%)	62595.1 (-3.3%)	248.8 (-20.3%)
Container ships	13.8 (+51.9%)	6.6 (+27.2%)	0.1 (+24.3%)	75065.3 (+22.8%)	183.5 (+23.8%)
Reefers	1.0 (-10.9%)	0.6 (-11.8%)	0.0 (-11.7%)	4030.5 (-11.8%)	245.0 (+1.0%)
Tankers	94.2 (-18.0%)	18.8 (-13.4%)	0.3 (-9.3%)	203070.8 (+1.7%)	463.7 (-19.4%)
LNG tankers	0.0 (+41.4%)	0.0 (+40.6%)	0.0 (+48.1%)	53.8 (+39.5%)	776.7 (+1.4%)
Gas tankers	1.3 (-15.9%)	0.3 (-19.6%)	0.0 (-17.4%)	1474.8 (-6.6%)	879.0 (-9.9%)
Passenger ships	0.1 (+5.7%)	0.0 (+3.2%)	0.0 (+3.8%)		
Cruisers	2.4 (-29.0%)	0.7 (-16.0%)	0.0 (-9.8%)		
Fishing vessels	0.1 (-17.8%)	0.1 (-10.7%)	0.0 (-10.7%)		
Service ships	0.1 (+46.6%)	0.1 (+34.2%)	0.0 (+36.0%)		
Unknown	0.1 (+62.2%)	0.1 (+42.9%)	0.0 (+42.6%)		
Misc	1.3 (+37.0%)	0.6 (+63.1%)	0.0 (+58.6%)		

2012	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	172.1 (-15.9%)	44.5 (-8.9%)	0.7 (-6.3%)	494556.4 (+3.7%)	
Baltic Proper	102.8 (-17.9%)	26.3 (-10.0%)	0.4 (-7.0%)	295300.9 (+3.8%)	
Kattegat	38.3 (-14.8%)	9.9 (-7.5%)	0.2 (-5.5%)	102955.9 (+1.5%)	
Gulf of Finland	19.2 (-8.1%)	5.6 (-4.7%)	0.1 (-2.4%)	66331.3 (+8.7%)	
Gulf of Bothnia	10.2 (-15.4%)	2.3 (-12.9%)	0.0 (-11.4%)	23809.5 (-1.8%)	
Gulf of Riga	1.7 (+.6%)	0.4 (+.5%)	0.0 (+.7%)	6158.8 (+6.8%)	
RoRo-Passenger vessels	14.5 (-4.4%)	4.8 (-3.3%)	0.1 (-3.2%)	19540.2 (-2.4%)	741.0 (-2.0%)
Vehicle carriers	1.3 (+5.6%)	0.5 (+8.1%)	0.0 (+6.9%)	5095.2 (+9.3%)	245.7 (-3.4%)
RoRo-cargo vessels	13.0 (-43.6%)	3.0 (-35.7%)	0.0 (-31.4%)	27254.8 (-11.1%)	477.2 (-36.6%)
Bulk carriers	33.2 (-4.9%)	7.0 (-3.3%)	0.1 (-1.0%)	84208.0 (+11.7%)	394.3 (-14.9%)
General cargo	13.2 (-15.4%)	3.1 (-13.5%)	0.1 (-11.4%)	60202.4 (-3.8%)	218.8 (-12.1%)
Container ships	16.3 (+18.0%)	7.5 (+13.7%)	0.1 (+12.8%)	79586.5 (+6.0%)	204.2 (+11.3%)
Reefers	1.0 (+4.0%)	0.7 (+6.5%)	0.0 (+7.4%)	5422.5 (+34.5%)	189.3 (-22.7%)
Tankers	74.1 (-21.3%)	16.1 (-14.3%)	0.3 (-10.2%)	211602.9 (+4.2%)	350.2 (-24.5%)
LNG tankers	0.1 (+63.4%)	0.0 (+63.6%)	0.0 (+65.6%)	92.4 (+72.0%)	738.1 (-5.0%)
Gas tankers	1.1 (-12.3%)	0.2 (-10.2%)	0.0 (-6.3%)	1551.4 (+5.2%)	733.0 (-16.6%)
Passenger ships	0.1 (+10.8%)	0.0 (+13.0%)	0.0 (+13.8%)		
Cruisers	2.7 (+12.1%)	0.7 (+10.1%)	0.0 (+9.3%)		
Fishing vessels	0.1 (-21.2%)	0.1 (-18.7%)	0.0 (-18.8%)		
Service ships	0.1 (-43.6%)	0.0 (-35.7%)	0.0 (-37.8%)		
Unknown	0.2 (+25.7%)	0.1 (+16.4%)	0.0 (+17.1%)		
Misc	1.0 (-23.2%)	0.6 (-14.2%)	0.0 (-15.0%)		

2013	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	160.7 (-6.7%)	42.3 (-5.0%)	0.7 (-4.6%)	499121.9 (+.9%)	
Baltic Proper	95.6 (-7.0%)	24.8 (-5.7%)	0.4 (-5.4%)	296292.1 (+.3%)	
Kattegat	35.2 (-8.1%)	9.1 (-7.8%)	0.1 (-7.0%)	102527.6 (-.4%)	
Gulf of Finland	18.7 (-2.8%)	5.7 (+1.9%)	0.1 (+2.1%)	69538.6 (+4.8%)	
Gulf of Bothnia	9.9 (-3.1%)	2.3 (-2.2%)	0.0 (-2.0%)	24610.1 (+3.4%)	
Gulf of Riga	1.4 (-16.3%)	0.4 (-6.3%)	0.0 (-5.3%)	6153.5 (-.1%)	
RoRo-Passenger vessels	13.4 (-7.8%)	4.5 (-5.6%)	0.1 (-5.4%)	18948.4 (-3.0%)	704.9 (-4.9%)
Vehicle carriers	1.1 (-10.7%)	0.5 (-3.2%)	0.0 (-2.4%)	5044.6 (-1.0%)	221.6 (-9.8%)
RoRo-cargo vessels	13.3 (+2.0%)	3.0 (+.7%)	0.0 (+.2%)	27616.1 (+1.3%)	480.6 (+.7%)
Bulk carriers	29.5 (-11.2%)	6.5 (-6.5%)	0.1 (-4.3%)	89126.8 (+5.8%)	330.9 (-16.1%)
General cargo	13.2 (+.4%)	3.0 (-1.1%)	0.1 (-2.9%)	60178.7 (-.0%)	219.8 (+.5%)
Container ships	16.3 (+.5%)	7.2 (-4.2%)	0.1 (-5.2%)	77531.3 (-2.6%)	210.7 (+3.2%)
Reefers	0.9 (-14.4%)	0.6 (-11.3%)	0.0 (-12.4%)	3867.6 (-28.7%)	227.1 (+19.9%)
Tankers	67.3 (-9.3%)	15.3 (-5.3%)	0.3 (-4.2%)	214731.9 (+1.5%)	313.2 (-10.6%)
LNG tankers	0.3 (+377.1%)	0.1 (+302.4%)	0.0 (+213.7%)	117.9 (+27.5%)	2761.7 (+274.2%)
Gas tankers	1.8 (+56.4%)	0.3 (+45.4%)	0.0 (+39.3%)	1958.7 (+26.3%)	907.7 (+23.8%)
Passenger ships	0.1 (-51.7%)	0.0 (-38.9%)	0.0 (-39.5%)		
Cruisers	2.4 (-12.3%)	0.7 (-2.7%)	0.0 (-1.7%)		
Fishing vessels	0.1 (-16.0%)	0.0 (-15.9%)	0.0 (-15.6%)		
Service ships	0.0 (-33.3%)	0.0 (-36.9%)	0.0 (-36.2%)		
Unknown	0.0 (-82.7%)	0.0 (-81.2%)	0.0 (-80.7%)		
Misc	0.7 (-31.2%)	0.3 (-44.6%)	0.0 (-41.5%)		

2014	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	171.9 (+7.0%)	45.1 (+6.7%)	0.7 (+4.8%)	521084.9 (+4.4%)	
Baltic Proper	101.9 (+6.7%)	26.5 (+6.9%)	0.4 (+4.7%)	308952.0 (+4.3%)	
Kattegat	39.0 (+10.7%)	9.8 (+7.7%)	0.2 (+4.8%)	106660.5 (+4.0%)	
Gulf of Finland	19.8 (+5.7%)	6.0 (+6.0%)	0.1 (+6.0%)	73317.2 (+5.4%)	
Gulf of Bothnia	9.7 (-1.3%)	2.3 (+.3%)	0.0 (+.5%)	25243.4 (+2.6%)	
Gulf of Riga	1.6 (+10.6%)	0.5 (+11.0%)	0.0 (+10.7%)	6911.8 (+12.3%)	
RoRo-Passenger vessels	11.6 (-12.9%)	4.2 (-6.2%)	0.1 (-6.4%)	18019.1 (-4.9%)	645.6 (-8.4%)
Vehicle carriers	1.0 (-7.0%)	0.5 (-2.7%)	0.0 (-3.5%)	4794.8 (-5.0%)	216.8 (-2.2%)
RoRo-cargo vessels	12.5 (-5.9%)	2.9 (-1.9%)	0.0 (+.2%)	28219.7 (+2.2%)	442.7 (-7.9%)
Bulk carriers	31.7 (+7.4%)	7.1 (+9.2%)	0.1 (+10.9%)	104628.5 (+17.4%)	302.6 (-8.5%)
General cargo	12.1 (-8.5%)	2.9 (-4.5%)	0.1 (-2.5%)	61623.7 (+2.4%)	196.5 (-10.6%)
Container ships	29.5 (+80.8%)	9.8 (+35.2%)	0.1 (+22.9%)	83462.3 (+7.6%)	353.8 (+67.9%)
Reefers	0.8 (-13.9%)	0.5 (-11.7%)	0.0 (-11.9%)	3517.7 (-9.0%)	215.1 (-5.3%)
Tankers	63.9 (-5.0%)	14.7 (-3.7%)	0.2 (-3.0%)	213055.5 (-.8%)	300.0 (-4.2%)
LNG tankers	0.4 (+34.2%)	0.1 (+38.2%)	0.0 (+44.9%)	285.8 (+142.5%)	1528.6 (-44.6%)
Gas tankers	3.9 (+118.4%)	0.7 (+102.6%)	0.0 (+93.9%)	3477.9 (+77.6%)	1116.6 (+23.0%)
Passenger ships	0.1 (+2.1%)	0.0 (+20.9%)	0.0 (+18.4%)		
Cruisers	2.7 (+12.4%)	0.7 (+3.9%)	0.0 (+2.5%)		
Fishing vessels	0.1 (+17.5%)	0.1 (+24.2%)	0.0 (+23.0%)		
Service ships	0.1 (+22.5%)	0.0 (+36.6%)	0.0 (+34.0%)		
Unknown	0.2 (+472.4%)	0.1 (+535.2%)	0.0 (+516.9%)		
Misc	0.9 (+24.2%)	0.5 (+61.2%)	0.0 (+53.1%)		

2015	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	173.3 (+.8%)	45.2 (+.4%)	0.7 (+.5%)	526097.1 (+1.0%)	
Baltic Proper	104.1 (+2.1%)	26.7 (+.8%)	0.4 (+.6%)	311393.2 (+.8%)	
Kattegat	39.9 (+2.4%)	10.0 (+2.0%)	0.2 (+2.7%)	111280.9 (+4.3%)	
Gulf of Finland	19.8 (+.3%)	6.1 (+.2%)	0.1 (+.2%)	72842.8 (-.6%)	
Gulf of Bothnia	7.9 (-18.4%)	2.0 (-12.3%)	0.0 (-10.0%)	23724.4 (-6.0%)	
Gulf of Riga	1.6 (+4.6%)	0.5 (+5.3%)	0.0 (+4.1%)	6855.9 (-.8%)	
RoRo-Passenger vessels	11.2 (-4.1%)	4.1 (-2.6%)	0.1 (-3.2%)	17474.7 (-3.0%)	638.5 (-1.1%)
Vehicle carriers	0.7 (-36.3%)	0.3 (-36.0%)	0.0 (-35.8%)	3197.8 (-33.3%)	207.0 (-4.5%)
RoRo-cargo vessels	11.3 (-9.7%)	2.7 (-6.8%)	0.0 (-3.6%)	28108.0 (-.4%)	401.1 (-9.4%)
Bulk carriers	32.0 (+1.2%)	7.4 (+4.0%)	0.1 (+3.9%)	109513.8 (+4.7%)	292.4 (-3.4%)
General cargo	10.8 (-10.7%)	2.7 (-7.9%)	0.1 (-6.7%)	60807.7 (-1.3%)	177.8 (-9.5%)
Container ships	30.4 (+2.9%)	9.8 (+.4%)	0.1 (+.5%)	80230.8 (-3.9%)	378.6 (+7.0%)
Reefers	0.7 (-7.2%)	0.5 (-5.1%)	0.0 (-5.4%)	3254.6 (-7.5%)	215.7 (+.3%)
Tankers	67.6 (+5.8%)	15.5 (+5.4%)	0.3 (+4.9%)	219322.6 (+2.9%)	308.3 (+2.8%)
LNG tankers	0.8 (+79.9%)	0.1 (+78.9%)	0.0 (+64.5%)	481.8 (+68.6%)	1631.5 (+6.7%)
Gas tankers	3.7 (-3.9%)	0.7 (+.0%)	0.0 (+2.4%)	3705.3 (+6.5%)	1006.7 (-9.8%)
Passenger ships	0.0 (-45.1%)	0.0 (-58.0%)	0.0 (-55.9%)		
Cruisers	3.1 (+17.8%)	0.8 (+11.8%)	0.0 (+10.1%)		
Fishing vessels	0.1 (+59.6%)	0.1 (+27.5%)	0.0 (+26.9%)		
Service ships	0.1 (+32.5%)	0.1 (+49.2%)	0.0 (+45.5%)		
Unknown	0.1 (-54.3%)	0.1 (-55.4%)	0.0 (-55.4%)		
Misc	0.7 (-17.9%)	0.3 (-31.2%)	0.0 (-28.0%)		

2016	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^-1 nm^-1]
Total	192.0 (+10.7%)	49.3 (+9.0%)	0.8 (+7.2%)	544180.1 (+3.4%)	
Baltic Proper	113.6 (+9.2%)	28.8 (+8.0%)	0.5 (+6.5%)	319686.9 (+2.7%)	
Kattegat	48.2 (+20.9%)	11.9 (+18.7%)	0.2 (+14.7%)	119736.5 (+7.6%)	
Gulf of Finland	20.3 (+2.4%)	6.1 (+.4%)	0.1 (+.4%)	74236.7 (+1.9%)	
Gulf of Bothnia	8.3 (+4.3%)	2.1 (+3.9%)	0.0 (+3.4%)	23953.4 (+1.0%)	
Gulf of Riga	1.5 (-7.1%)	0.5 (-2.2%)	0.0 (-2.8%)	6566.6 (-4.2%)	
RoRo-Passenger vessels	11.0 (-1.1%)	4.1 (-1.1%)	0.1 (-.8%)	17567.6 (+.5%)	628.0 (-1.7%)
Vehicle carriers	0.6 (-12.2%)	0.3 (-2.6%)	0.0 (-2.1%)	3222.1 (+.8%)	180.3 (-12.9%)
RoRo-cargo vessels	12.4 (+9.9%)	2.9 (+7.1%)	0.0 (+6.1%)	28584.6 (+1.7%)	433.3 (+8.0%)
Bulk carriers	33.1 (+3.4%)	7.7 (+3.7%)	0.1 (+3.7%)	113246.9 (+3.4%)	292.4 (-.0%)
General cargo	11.2 (+3.7%)	2.7 (+1.7%)	0.1 (+1.8%)	61303.9 (+.8%)	183.0 (+2.9%)
Container ships	41.9 (+37.9%)	12.3 (+26.1%)	0.2 (+21.9%)	89581.4 (+11.7%)	467.4 (+23.5%)
Reefers	0.8 (+12.0%)	0.6 (+13.2%)	0.0 (+12.8%)	3568.2 (+9.6%)	220.3 (+2.1%)
Tankers	69.6 (+3.0%)	15.8 (+1.8%)	0.3 (+1.6%)	221606.4 (+1.0%)	314.2 (+1.9%)
LNG tankers	1.8 (+124.0%)	0.3 (+128.9%)	0.0 (+128.0%)	1302.5 (+170.4%)	1351.9 (-17.1%)
Gas tankers	4.4 (+16.9%)	0.8 (+16.0%)	0.0 (+15.2%)	4196.5 (+13.3%)	1039.2 (+3.2%)
Passenger ships	0.1 (+85.1%)	0.0 (+142.8%)	0.0 (+135.5%)		
Cruisers	3.2 (+3.4%)	0.8 (+3.1%)	0.0 (+2.7%)		
Fishing vessels	0.1 (-33.1%)	0.1 (-18.7%)	0.0 (-18.1%)		
Service ships	0.1 (-5.9%)	0.0 (-25.1%)	0.0 (-24.2%)		
Unknown	0.8 (+978.5%)	0.5 (+732.6%)	0.0 (+718.0%)		
Misc	0.6 (-19.9%)	0.3 (-14.8%)	0.0 (-15.4%)		

2017	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	199.9 (+4.2%)	50.3 (+2.0%)	0.8 (-2.1%)	564920.9 (+3.8%)	
Baltic Proper	108.1 (-4.9%)	27.1 (-5.9%)	0.4 (-8.2%)	295300.9 (-7.6%)	
Kattegat	62.9 (+30.4%)	14.6 (+23.1%)	0.2 (+12.5%)	102955.9 (-14.0%)	
Gulf of Finland	20.0 (-1.4%)	6.0 (-1.2%)	0.1 (-1.3%)	66331.3 (-10.6%)	
Gulf of Bothnia	7.4 (-11.1%)	1.9 (-10.5%)	0.0 (-9.9%)	23809.5 (-.6%)	
Gulf of Riga	1.6 (+6.8%)	0.7 (+44.5%)	0.0 (+38.5%)	6158.8 (-6.2%)	
RoRo-Passenger vessels	10.7 (-3.2%)	4.1 (+.7%)	0.1 (+.5%)	17579.0 (+.1%)	607.7 (-3.2%)
Vehicle carriers	1.4 (+134.6%)	0.5 (+72.1%)	0.0 (+66.8%)	4237.2 (+31.5%)	321.6 (+78.4%)
RoRo-cargo vessels	11.8 (-4.5%)	2.8 (-4.7%)	0.0 (-4.1%)	27415.2 (-4.1%)	431.5 (-.4%)
Bulk carriers	36.3 (+9.6%)	8.4 (+9.3%)	0.1 (+9.1%)	124276.8 (+9.7%)	291.9 (-.2%)
General cargo	12.1 (+7.6%)	2.9 (+7.2%)	0.1 (+5.9%)	62556.4 (+2.0%)	192.8 (+5.4%)
Container ships	46.3 (+10.6%)	13.8 (+12.0%)	0.2 (+11.4%)	90639.7 (+1.2%)	510.8 (+9.3%)
Reefers	0.8 (-2.3%)	0.5 (-1.9%)	0.0 (-2.0%)	3572.8 (+.1%)	214.9 (-2.4%)
Tankers	27.9 (-59.9%)	6.1 (-61.1%)	0.1 (-60.0%)	213763.9 (-3.5%)	130.7 (-58.4%)
LNG tankers	1.7 (-1.8%)	0.3 (+5.8%)	0.0 (+9.6%)	1597.0 (+22.6%)	1083.3 (-19.9%)
Gas tankers	3.5 (-19.7%)	0.7 (-18.4%)	0.0 (-18.0%)	3452.9 (-17.7%)	1014.4 (-2.4%)
Passenger ships	0.0 (-100.0%)	0.0 (-100.0%)	0.0 (-100.0%)		
Cruisers	6.1 (+88.4%)	1.3 (+55.7%)	0.0 (+43.1%)		
Fishing vessels	0.1 (+13.1%)	0.1 (+10.4%)	0.0 (+9.4%)		
Service ships	0.0 (-100.0%)	0.0 (-100.0%)	0.0 (-100.0%)		
Unknown	1.7 (+101.4%)	0.4 (-14.6%)	0.0 (-13.9%)		
Misc	0.2 (-62.2%)	0.1 (-65.4%)	0.0 (-65.8%)		

2018	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	213.6 (+6.8%)	55.9 (+11.2%)	0.9 (+12.8%)	558238.5 (-1.2%)	
Baltic Proper	130.3 (+20.5%)	33.7 (+24.0%)	0.5 (+23.3%)	330128.0 (+11.8%)	
Kattegat	52.9 (-15.8%)	13.1 (-10.5%)	0.2 (-5.0%)	119050.9 (+15.6%)	
Gulf of Finland	20.4 (+1.8%)	6.5 (+8.0%)	0.1 (+7.2%)	77826.6 (+17.3%)	
Gulf of Bothnia	8.7 (+18.5%)	2.3 (+23.4%)	0.0 (+21.2%)	24962.3 (+4.8%)	
Gulf of Riga	1.3 (-21.4%)	0.4 (-38.9%)	0.0 (-34.8%)	6270.7 (+1.8%)	
RoRo-Passenger vessels	10.4 (-3.0%)	4.1 (+.1%)	0.1 (+.3%)	17831.5 (+1.4%)	581.1 (-4.4%)
Vehicle carriers	1.1 (-18.5%)	0.5 (-10.3%)	0.0 (-9.3%)	4093.1 (-3.4%)	271.3 (-15.6%)
RoRo-cargo vessels	16.6 (+39.9%)	3.5 (+24.4%)	0.0 (+18.2%)	27348.8 (-.2%)	605.3 (+40.3%)
Bulk carriers	35.3 (-2.7%)	8.5 (+1.0%)	0.1 (+1.4%)	127299.5 (+2.4%)	277.2 (-5.0%)
General cargo	13.3 (+10.3%)	3.2 (+10.1%)	0.1 (+8.7%)	67974.1 (+8.7%)	195.7 (+1.5%)
Container ships	60.6 (+31.0%)	17.7 (+27.7%)	0.2 (+26.0%)	99004.6 (+9.2%)	612.5 (+19.9%)
Reefers	0.6 (-25.8%)	0.4 (-23.3%)	0.0 (-23.4%)	2810.1 (-21.3%)	202.7 (-5.7%)
Tankers	59.5 (+112.8%)	14.3 (+133.4%)	0.2 (+128.0%)	207169.8 (-3.1%)	287.1 (+119.6%)
LNG tankers	3.2 (+82.7%)	0.5 (+67.6%)	0.0 (+42.5%)	1707.4 (+6.9%)	1851.1 (+70.9%)
Gas tankers	2.8 (-19.2%)	0.5 (-18.3%)	0.0 (-16.9%)	2982.9 (-13.6%)	948.6 (-6.5%)
Passenger ships	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)		
Cruisers	6.2 (+.8%)	1.3 (+1.0%)	0.0 (+2.2%)		
Fishing vessels	0.1 (-1.4%)	0.1 (-2.9%)	0.0 (-2.0%)		
Service ships	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)		
Unknown	2.5 (+48.7%)	0.6 (+40.8%)	0.0 (+39.1%)		
Misc	0.0 (-100.0%)	0.0 (-100.0%)	0.0 (-100.0%)		

2019	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	221.6 (+3.8%)	58.3 (+4.2%)	0.9 (+4.2%)	581576.8 (+4.2%)	
Baltic Proper	125.3 (-3.8%)	32.4 (-3.8%)	0.5 (-2.4%)	338870.7 (+2.6%)	
Kattegat	64.8 (+22.5%)	16.3 (+25.0%)	0.2 (+21.9%)	130433.9 (+9.6%)	
Gulf of Finland	21.8 (+7.1%)	7.0 (+7.5%)	0.1 (+7.9%)	81655.5 (+4.9%)	
Gulf of Bothnia	8.4 (-3.6%)	2.2 (-5.2%)	0.0 (-3.8%)	24722.3 (-1.0%)	
Gulf of Riga	1.2 (-2.9%)	0.4 (-.8%)	0.0 (-.8%)	5894.4 (-6.0%)	
RoRo-Passenger vessels	12.1 (+16.7%)	4.6 (+11.0%)	0.1 (+10.3%)	18682.5 (+4.8%)	647.1 (+11.4%)
Vehicle carriers	1.3 (+14.5%)	0.5 (+18.2%)	0.0 (+16.2%)	4136.5 (+1.1%)	307.4 (+13.3%)
RoRo-cargo vessels	16.3 (-1.3%)	3.4 (-1.9%)	0.0 (-1.8%)	26443.5 (-3.3%)	617.7 (+2.1%)
Bulk carriers	36.1 (+2.2%)	8.5 (+.7%)	0.1 (+.3%)	128487.8 (+.9%)	280.7 (+1.3%)
General cargo	11.6 (-12.6%)	2.9 (-10.4%)	0.1 (-7.8%)	65949.6 (-3.0%)	176.3 (-9.9%)
Container ships	63.2 (+4.2%)	18.1 (+2.4%)	0.2 (+2.7%)	112477.9 (+13.6%)	562.0 (-8.2%)
Reefers	0.7 (+17.3%)	0.5 (+18.4%)	0.0 (+17.7%)	3080.4 (+9.6%)	216.9 (+7.0%)
Tankers	60.3 (+1.3%)	14.7 (+2.8%)	0.2 (+3.6%)	216058.7 (+4.3%)	278.9 (-2.9%)
LNG tankers	3.3 (+4.0%)	0.6 (+10.7%)	0.0 (+29.3%)	3003.0 (+75.9%)	1094.8 (-40.9%)
Gas tankers	2.8 (-.5%)	0.6 (+2.4%)	0.0 (+3.1%)	3256.8 (+9.2%)	864.2 (-8.9%)
Passenger ships	0.0 (+.0%)	0.0 (+.0%)	0.0 (+.0%)		
Cruisers	9.2 (+49.5%)	1.8 (+34.6%)	0.0 (+25.5%)		
Fishing vessels	0.1 (+2.5%)	0.1 (+1.9%)	0.0 (+2.4%)		
Service ships	0.2 (+.0%)	0.1 (+.0%)	0.0 (+.0%)		
Unknown	2.6 (+4.9%)	1.2 (+108.2%)	0.0 (+110.8%)		
Misc	1.3 (+.0%)	0.5 (+.0%)	0.0 (+.0%)		

	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]

2020	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	174.9 (-21.1%)	48.2 (-17.4%)	0.8 (-13.8%)	554730.0 (-4.6%)	
Baltic Proper	103.6 (-17.3%)	28.1 (-13.4%)	0.4 (-10.6%)	322361.3 (-4.9%)	
Kattegat	42.2 (-34.9%)	11.3 (-31.0%)	0.2 (-25.0%)	119568.3 (-8.3%)	
Gulf of Finland	20.2 (-7.5%)	6.4 (-8.3%)	0.1 (-7.8%)	81905.9 (+.3%)	
Gulf of Bothnia	8.0 (-5.0%)	2.1 (-3.7%)	0.0 (-3.1%)	25743.0 (+4.1%)	
Gulf of Riga	1.0 (-21.5%)	0.3 (-19.1%)	0.0 (-18.3%)	5151.6 (-12.6%)	
RoRo-Passenger vessels	10.8 (-10.5%)	3.9 (-14.7%)	0.1 (-14.8%)	17086.5 (-8.5%)	633.3 (-2.1%)
Vehicle carriers	0.7 (-42.8%)	0.4 (-34.1%)	0.0 (-33.5%)	3048.4 (-26.3%)	238.5 (-22.4%)
RoRo-cargo vessels	14.8 (-9.2%)	3.2 (-6.4%)	0.0 (-5.2%)	26176.6 (-1.0%)	566.4 (-8.3%)
Bulk carriers	36.1 (+.1%)	8.6 (+.9%)	0.1 (+1.6%)	132869.3 (+3.4%)	271.8 (-3.2%)
General cargo	11.7 (+.4%)	2.9 (+2.6%)	0.1 (+1.6%)	68489.7 (+3.9%)	170.5 (-3.3%)
Container ships	33.8 (-46.5%)	12.0 (-33.5%)	0.2 (-27.2%)	98213.7 (-12.7%)	344.5 (-38.7%)
Reefers	0.7 (+1.0%)	0.5 (+3.7%)	0.0 (+3.4%)	3121.0 (+1.3%)	216.3 (-.3%)
Tankers	54.1 (-10.2%)	13.2 (-10.5%)	0.2 (-10.1%)	199625.1 (-7.6%)	271.2 (-2.8%)
LNG tankers	4.7 (+43.2%)	0.8 (+37.9%)	0.0 (+28.0%)	3494.0 (+16.3%)	1347.1 (+23.0%)
Gas tankers	1.9 (-33.6%)	0.4 (-28.2%)	0.0 (-26.5%)	2605.6 (-20.0%)	716.7 (-17.1%)
Passenger ships	0.1 (+30.6%)	0.0 (+36.7%)	0.0 (+33.3%)		
Cruisers	1.0 (-89.4%)	0.2 (-88.4%)	0.0 (-88.2%)		
Fishing vessels	1.1 (+1046.1%)	0.3 (+378.4%)	0.0 (+361.2%)		
Service ships	0.1 (-57.7%)	0.0 (-38.9%)	0.0 (-43.9%)		
Unknown	2.2 (-16.0%)	1.0 (-12.3%)	0.0 (-11.8%)		
Misc	0.9 (-33.1%)	0.4 (-28.5%)	0.0 (-27.2%)		

2021	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	180.9 (+3.4%)	48.8 (+1.3%)	0.8 (+1.7%)	573797.3 (+3.4%)	
Baltic Proper	110.4 (+6.6%)	29.0 (+3.5%)	0.5 (+3.6%)	340567.4 (+5.6%)	
Kattegat	41.3 (-2.1%)	11.0 (-2.6%)	0.2 (-1.1%)	117966.5 (-1.3%)	
Gulf of Finland	19.4 (-3.9%)	6.3 (-2.2%)	0.1 (-1.6%)	85159.3 (+4.0%)	
Gulf of Bothnia	8.9 (+10.9%)	2.2 (+6.6%)	0.0 (+4.7%)	24825.4 (-3.6%)	
Gulf of Riga	0.9 (-5.1%)	0.3 (-12.0%)	0.0 (-10.9%)	5278.7 (+2.5%)	
RoRo-Passenger vessels	11.4 (+5.4%)	4.0 (+3.4%)	0.1 (+3.4%)	17515.0 (+2.5%)	651.1 (+2.8%)
Vehicle carriers	0.9 (+27.9%)	0.4 (+5.2%)	0.0 (+6.6%)	3327.3 (+9.1%)	279.5 (+17.2%)
RoRo-cargo vessels	17.8 (+19.7%)	3.7 (+15.8%)	0.1 (+12.3%)	27626.9 (+5.5%)	642.5 (+13.4%)
Bulk carriers	42.6 (+18.1%)	9.6 (+11.5%)	0.2 (+9.9%)	141243.6 (+6.3%)	301.9 (+11.1%)
General cargo	13.8 (+18.3%)	3.3 (+13.6%)	0.1 (+13.3%)	74822.0 (+9.2%)	184.6 (+8.3%)
Container ships	28.9 (-14.5%)	10.6 (-12.1%)	0.2 (-11.1%)	91491.6 (-6.8%)	316.0 (-8.3%)
Reefers	0.6 (-14.7%)	0.4 (-15.1%)	0.0 (-14.9%)	2880.2 (-7.7%)	199.9 (-7.5%)
Tankers	51.1 (-5.5%)	12.9 (-2.5%)	0.2 (-1.9%)	208448.4 (+4.4%)	245.3 (-9.5%)
LNG tankers	4.3 (-7.8%)	0.8 (-3.9%)	0.0 (+4.9%)	3643.3 (+4.3%)	1190.9 (-11.6%)
Gas tankers	2.1 (+10.5%)	0.4 (+3.2%)	0.0 (+2.8%)	2799.1 (+7.4%)	737.2 (+2.9%)
Passenger ships	0.1 (+21.7%)	0.0 (+.8%)	0.0 (+2.9%)		
Cruisers	3.2 (+224.2%)	0.6 (+193.8%)	0.0 (+187.6%)		
Fishing vessels	0.1 (-90.1%)	0.1 (-79.5%)	0.0 (-78.5%)		
Service ships	0.1 (+48.8%)	0.1 (+68.3%)	0.0 (+66.8%)		
Unknown	2.3 (+8.0%)	1.2 (+19.0%)	0.0 (+18.3%)		
Misc	1.1 (+20.0%)	0.5 (+23.8%)	0.0 (+23.1%)		

2022	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	185.7 (+2.7%)	51.3 (+5.1%)	0.8 (+5.3%)	583877.0 (+1.8%)	
Baltic Proper	111.3 (+.9%)	30.3 (+4.2%)	0.5 (+4.7%)	346548.1 (+1.8%)	
Kattegat	44.1 (+6.8%)	11.9 (+8.6%)	0.2 (+9.0%)	127878.7 (+8.4%)	
Gulf of Finland	20.2 (+3.8%)	6.3 (+1.1%)	0.1 (+.2%)	80787.1 (-5.1%)	
Gulf of Bothnia	9.0 (+1.5%)	2.4 (+8.0%)	0.0 (+7.0%)	23730.5 (-4.4%)	
Gulf of Riga	1.1 (+18.3%)	0.4 (+27.9%)	0.0 (+23.6%)	4932.6 (-6.6%)	
RoRo-Passenger vessels	11.0 (-3.3%)	4.2 (+4.9%)	0.1 (+5.5%)	17602.6 (+.5%)	626.7 (-3.7%)
Vehicle carriers	0.7 (-28.8%)	0.2 (-34.2%)	0.0 (-37.2%)	2075.4 (-37.6%)	319.0 (+14.1%)
RoRo-cargo vessels	18.1 (+1.8%)	4.2 (+14.5%)	0.1 (+17.0%)	29758.4 (+7.7%)	607.1 (-5.5%)
Bulk carriers	36.7 (-14.0%)	9.0 (-6.7%)	0.2 (-5.6%)	141666.4 (+.3%)	259.0 (-14.2%)
General cargo	12.3 (-11.0%)	3.0 (-11.2%)	0.1 (-11.7%)	66038.1 (-11.7%)	186.1 (+.8%)
Container ships	23.0 (-20.4%)	9.1 (-14.4%)	0.1 (-13.5%)	71783.9 (-21.5%)	320.4 (+1.4%)
Reefers	0.5 (-6.3%)	0.4 (-3.5%)	0.0 (-3.9%)	2813.2 (-2.3%)	191.8 (-4.0%)
Tankers	63.6 (+24.4%)	15.9 (+23.4%)	0.3 (+21.9%)	242512.0 (+16.3%)	262.3 (+6.9%)
LNG tankers	7.2 (+66.6%)	1.3 (+70.3%)	0.0 (+70.9%)	6813.1 (+87.0%)	1061.2 (-10.9%)
Gas tankers	2.0 (-2.1%)	0.4 (+2.2%)	0.0 (+1.8%)	2813.9 (+.5%)	718.0 (-2.6%)
Passenger ships	0.2 (+163.4%)	0.1 (+78.9%)	0.0 (+72.6%)		
Cruisers	5.0 (+58.4%)	1.1 (+74.2%)	0.0 (+85.1%)		
Fishing vessels	0.1 (+.4%)	0.1 (+2.3%)	0.0 (+2.5%)		
Service ships	0.1 (-29.7%)	0.1 (-36.3%)	0.0 (-37.0%)		
Unknown	3.3 (+39.6%)	1.5 (+18.7%)	0.0 (+18.3%)		
Misc	1.3 (+23.4%)	0.6 (+24.8%)	0.0 (+19.0%)		

2023	E(noise, 63Hz) [GJ]	E(noise, 125 Hz) [GJ]	E(noise, 2000 Hz) [GJ]	Transport Work [10^6 tonne nm]	Unit emissions [millijoules tonne^{-1} nm^{-1}]
Total	196.9 (+6.0%)	56.9 (+11.0%)	0.9 (+10.1%)	629047.9 (+7.7%)	
Baltic Proper	118.2 (+6.2%)	33.7 (+11.4%)	0.5 (+10.4%)	370186.1 (+6.8%)	
Kattegat	49.1 (+11.4%)	13.7 (+14.5%)	0.2 (+13.5%)	144125.7 (+12.7%)	
Gulf of Finland	20.9 (+3.6%)	6.9 (+9.7%)	0.1 (+9.2%)	88912.0 (+10.1%)	
Gulf of Bothnia	7.7 (-14.2%)	2.2 (-7.0%)	0.0 (-6.5%)	21250.7 (-10.4%)	
Gulf of Riga	0.9 (-13.8%)	0.4 (+3.6%)	0.0 (+1.6%)	4573.5 (-7.3%)	
RoRo-Passenger vessels	10.2 (-7.2%)	3.9 (-7.3%)	0.1 (-6.9%)	16732.6 (-4.9%)	612.1 (-2.3%)
Vehicle carriers	0.5 (-20.5%)	0.2 (-.8%)	0.0 (-.4%)	1705.0 (-17.8%)	308.7 (-3.2%)
RoRo-cargo vessels	12.7 (-29.7%)	3.5 (-17.6%)	0.1 (-12.2%)	26477.9 (-11.0%)	479.8 (-21.0%)
Bulk carriers	33.8 (-7.8%)	9.0 (+.2%)	0.2 (+1.7%)	153120.1 (+8.1%)	221.0 (-14.7%)
General cargo	12.1 (-1.6%)	3.0 (+.1%)	0.1 (-.5%)	64541.0 (-2.3%)	187.3 (+.6%)
Container ships	31.1 (+35.3%)	12.4 (+37.3%)	0.2 (+35.4%)	80135.9 (+11.6%)	388.3 (+21.2%)
Reefers	0.7 (+32.5%)	0.6 (+32.2%)	0.0 (+32.0%)	3438.4 (+22.2%)	207.9 (+8.4%)
Tankers	74.4 (+16.9%)	18.7 (+17.9%)	0.3 (+15.0%)	271193.1 (+11.8%)	274.4 (+4.6%)
LNG tankers	10.4 (+43.2%)	1.9 (+42.9%)	0.0 (+41.7%)	9221.8 (+35.4%)	1122.6 (+5.8%)
Gas tankers	1.5 (-26.5%)	0.3 (-19.6%)	0.0 (-16.2%)	2482.2 (-11.8%)	598.7 (-16.6%)
Passenger ships	0.2 (+54.3%)	0.1 (+67.6%)	0.0 (+66.0%)		
Cruisers	4.1 (-18.9%)	0.8 (-22.2%)	0.0 (-25.4%)		
Fishing vessels	0.1 (+20.5%)	0.1 (+13.4%)	0.0 (+13.3%)		
Service ships	0.1 (-16.3%)	0.1 (-.6%)	0.0 (-1.6%)		
Unknown	3.3 (+.6%)	1.6 (+6.7%)	0.0 (+7.5%)		
Misc	1.1 (-21.0%)	0.5 (-14.3%)	0.0 (-13.9%)		