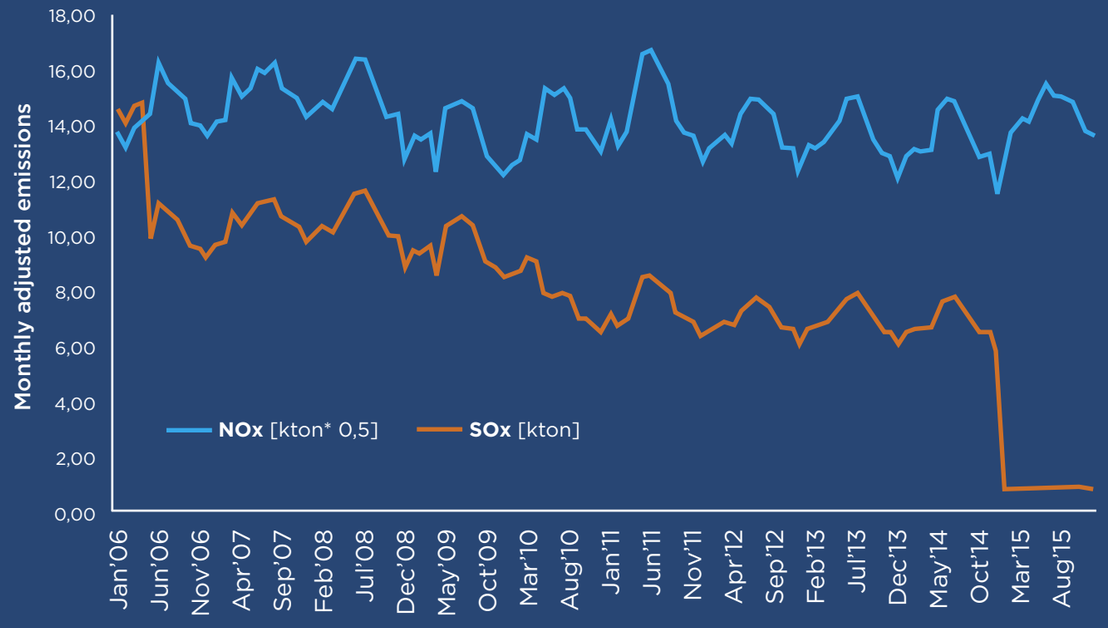
CLEANER EXHAUST GASES FROM BALTIC SHIPPING

– THE NEW NECA REGULATIONS

HELCOM – BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION



Seasonal variation of ship emissions of NOx and SOx in the Baltic Sea during the period 2006–2015.

NOx AND SOx EMISSIONS FROM SHIPS IN THE BALTIC SEA 2006-2015

Baltic Sea Sulphur Oxide (SOx) Emission Control Area (SECA) was applied in May 2006 and the more stringent limit of 0.1% sulphur content in ship fuel oil was introduced in January 2015. Redrawn from Johansson & Jalkanen 2016: Emissions from Baltic Sea shipping in 2015. HELCOM Baltic Sea Environment Fact Sheet 2016, Published in September 2016. www.helcom.fi

"NOx emissions from shipping is a major source of airborne deposition of nitrogen, worsening eutrophication which is the main environmental concern in the Baltic.

BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION (HELCOM)

HELCOM's main goal is to protect the marine environment of the Baltic Sea from all sources of pollution, and to restore and safeguard its ecological balance while supporting a wide range of sustainable economic and social activities.

Building on its experience and deriving from its key position in bridging science and policy making, HELCOM today leads and coordinates various processes for an improved marine environment that benefits all.

HELCOM members are all the nine Baltic coastal nations: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden as well as the EU. HELCOM's co-operation is unique in bringing together actors from different institutions, sectors and interest groups.

photo: SWEDISH COAST GUARD

photo: SHUTTERSTOCK

TIMELINE: HELCOM work to reduce ships exhaust emissions (NOx and SOx) in the Baltic Sea

1975

HELCOM's Maritime group is established (as Working Group II of the HELCOM Interim Commission) to consider measures to reduce pollution from ships and other sea-based pollution sources. According to the priorities of the period, pollution from ships exhaust gases are given less attention.

1989–1996

A targeted expert group, MC AIR, under the lead of Sweden, convenes under HELCOM Maritime to consider the reduction of airborne pollution, particularly SOx, from ships in the Baltic Sea. The group develops a proposal to IMO on a Baltic Sea SECA, as part of the overall work for a new MARPOL Annex VI on air pollution. The Baltic SECA proposal is sent to MEPC 37 in 1995, however the decisions on Annex VI are postponed by IMO.

1997

The HELCOM countries provide supplementary information on the proposed Baltic SECA to IMO MEPC 39.

1998

Based on the proposal by the coastal countries, the Baltic Sea is designated as a SECA by IMO as part of the new MARPOL Annex VI on air pollution.

2005

MARPOL Annex VI and the Baltic Sea SECA enters into force. IMO agrees to revise it with the aim of significantly strengthen the emission limits in light of technological improvements and implementation experience.

2007–2010

The 2007 HELCOM Ministerial Meeting in Cracow decides to carry out cost-benefit analyses and consider the possibility to designate the Baltic Sea as a NOx emission control area (NECA) by 2012. The studies are consequently carried out under the lead of Finland.

2010

The HELCOM Ministerial Meeting in Moscow agrees to work towards submitting a joint NECA application by the Baltic Sea countries to IMO. Work starts within the HELCOM Maritime Group, under the lead of Finland, to draft a Baltic NECA proposal.

2012

HELCOM (the coastal countries and EU) considers the proposal for a Baltic Sea NECA as ready for submission. Timing of the submission to IMO is left for later decision.

2013

The HELCOM Ministerial Meeting in Copenhagen considers the Baltic Sea NECA proposal, but decides to postpone submission to a future date.

2014

IMO MEPC 66 decides to leave the implementation dates of future NECA areas to be decided on a case by case basis. Denmark submits a roadmap for a Baltic NECA to HELCOM Maritime. A parallel NECA submission by Baltic and North Sea countries is preferred by the meeting.

2015

A technical meeting on the prospects of a parallel designation of North & Baltic Sea NECAs is organised in Finland. Denmark submits to HELCOM the meeting outcome – a roadmap for parallel North and Baltic Sea NECA submissions to IMO in 2016. The proposed implementation date is set by HELCOM to 1 January 2021.

2016–2017

At the March HELCOM Annual Meeting, all coastal countries and the EU agree to submit the NECA proposal to IMO MEPC 70. After finalising the proposal in a series of workshops, hosted by Denmark and the Russian Federation, the HELCOM delegates request Finland to submit the application to IMO MEPC 70.

IMO MEPC 70 2016 approves the NECA proposals by the Baltic Sea and North Sea countries for circulation. Final adoption is made during MEPC 71 in July 2017.

LESS NOx MEANS LESS ALGAE

Nitrogen Oxide (NOx) Emission Control Area (NECA) regulations, including measures to limit NOx emissions via exhaust gases of ships sailing in the Baltic or North Seas, have been approved by the International Maritime Organization (IMO) in October 2016, and are expected to be adopted in May 2017. These foreseen NECA regulations target new ships built in or after 2021 and do not address existing ships.

WHAT WILL CHANGE?

New ships, built 2021 or later, and sailing in the Baltic and the North Sea NECAs, have to meet the Tier III standards of MARPOL Annex VI. This corresponds to approximately 80% reduction in NOx emissions compared to current levels and can be achieved by technologies such as selective catalytic reduction (SCR) or using liquefied natural gas (LNG) as a fuel.

WHY IS NOX A PROBLEM?

NOx emissions from shipping are important from a marine environment perspective since they are a major source of airborne deposition of nitrogen, worsening nutrient pollution – and therefore eutrophication – which is a serious environmental concern for the Baltic Sea.

SIGNIFICANT REDUCTION OF POLLUTION

According to recent estimates by the European Monitoring and Evaluation Programme (EMEP), compared to a non-NECA scenario, the reduction in annual total nitrogen deposition to the Baltic Sea region will be 22,000 tonnes – as a combined effect of the Baltic and North Seas NECAs. Out of this total anticipated reduction in nitrogen deposition, 7,000 tonnes is estimated to be reduced from direct deposition to the Baltic Sea surface and the remaining 15,000 tonnes is estimated to be decrease from deposition to the terrestrial areas draining to Baltic Sea. An undetermined share of the latter will end up to the Baltic Sea.

The EMEP estimation is based on deposition modelling using the NECA and non-NECA emission levels of Baltic and North Sea shipping in the latest published emission scenarios (Jonson et al 2015). However, a lengthy two-decade long period of fleet renewal is needed before the regulation will show this effect.

The initiative to cut NOx emissions from ships by a Baltic Sea NECA under MARPOL Annex VI emerges from the HELCOM Baltic Sea Action Plan, agreed by the nine Baltic coastal countries and the EU in 2007.

The HELCOM Country Allocated Reduction Target (CART) scheme for reducing nutrient inputs to the sea has divided a total load reduction commitment among all of the coastal countries. Reaching the reduction target for the total loads - 118,000 tonnes of nitrogen and 15,000 tonnes of phosphorus - will result in curbing the eutrophication problem in the Baltic.

The estimated effect of the two NECAs within two decades – a reduction of 7,000 tonnes in nitrogen deposition to the surface of the Baltic Sea – is significant in the frame of the HELCOM CART scheme as five out of nine coastal countries have a total annual reduction quota for nitrogen loads which is less than 7,000 tonnes.

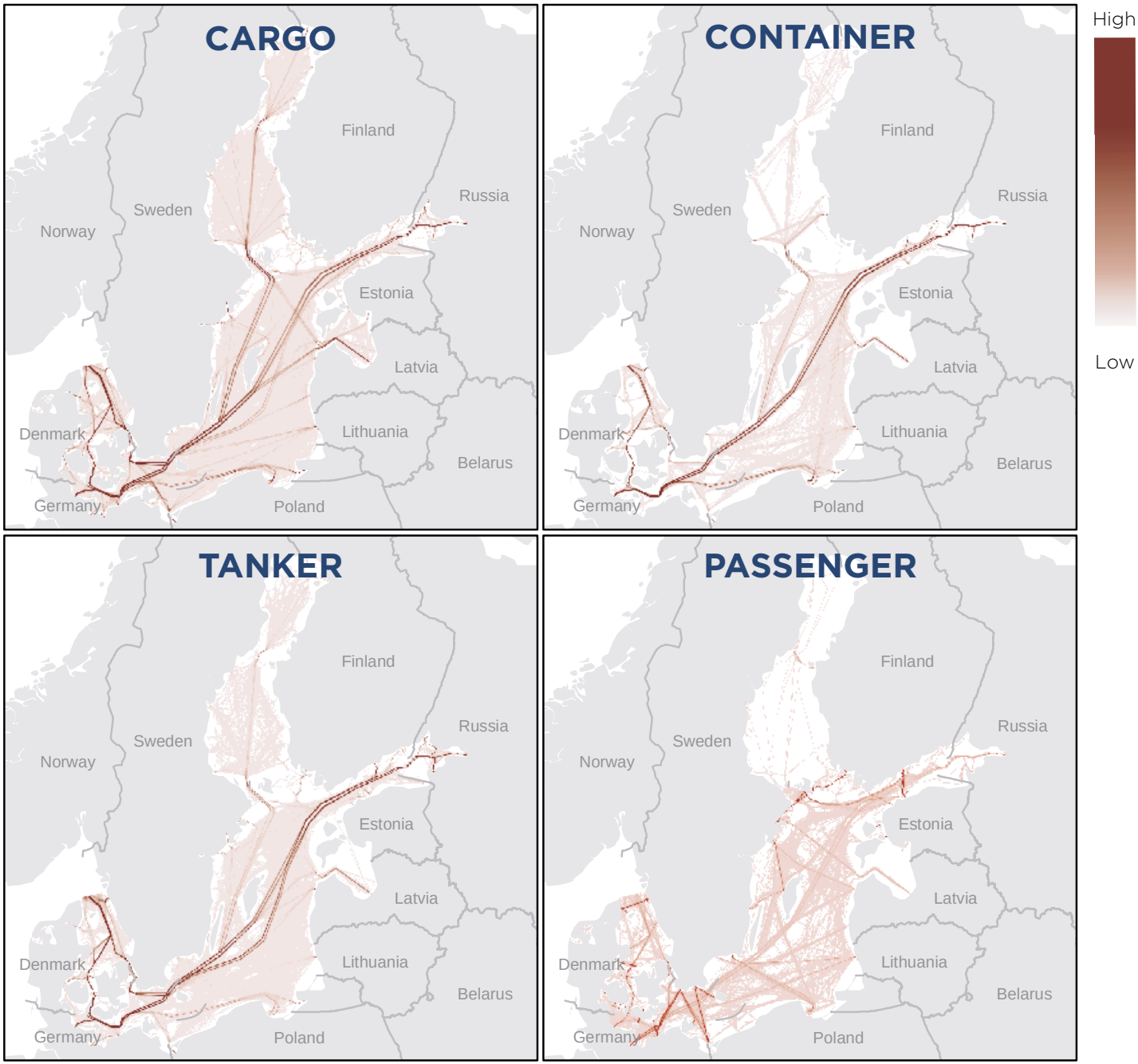
A GENERAL CATALYST FOR CLEAN SHIPPING

Voluntary schemes for existing ships, such as economic incentives, will be essential to achieve additional NOx emission reductions and to speed up the introduction of clean shipping technology. The timelines around the new NECAs will likely increase interest in green shipping technology and alternative fuels, such as LNG, and in general catalyse technological innovations in the field of green shipping. HELCOM Maritime cooperation will for its part contribute to this ongoing green shift in Baltic Sea shipping.

SULPHUR RESTRICTIONS WERE FIRST

The Baltic Sea has already been designated as a Sulphur Emission Control Area (SECA) in 1998, under the same MARPOL Annex VI rules. Like NECA, the Baltic SECA proposal was developed within the HELCOM Maritime Working Group during the 1990s. In 2015, the enforcement of the 0.1% sulphur limit for fuel oil within the Baltic SECA led to drastic 88% reductions in sulphur oxide emissions from shipping, compared with emissions in 2014 when a 1% limit was applied. The IMO agreed in 2016 that a global 0.5% limit in fuel oil sulphur content should be applied from 2020 instead of the current 3.5%.

BALTIC SEA SHIPPING TRAFFIC INTENSITY 2014



EDITOR: HERMANNI BACKER | LAYOUT: YKSINOLLA BRANDING | COVER PHOTO: SHUTTERSTOCK | PRINTING: TRIO-OFFSET

HELCOM.FI | HELCOM – Helsinki Commission | Katajanokanlaituri 6 B, FI-00160 Helsinki, Finland
Phone: +358 207 412 649 | helcom.secretariat@helcom.fi | 2017