



## Press Release

6 March 2023

### SCIPPER project finds high nitrogen oxides emissions of Tier III vessels from remote measurements in North European seas

**Within the activities of the EU HORIZON 2020 project SCIPPER, recordings of NO<sub>x</sub> emissions from vessels were remotely collected and analysed. The data originated from different measurement locations in the Baltic Sea and North Sea within 2022. The analysis shows that 50% of the emission measurements of ships that had to comply with the latest Tier III NO<sub>x</sub> levels, far exceed the expected emission levels. The finding raises concerns on the effectiveness of the NO<sub>x</sub> regulation for shipping and, if further confirmed, overall jeopardises the targets of environmental policies in this sensitive NO<sub>x</sub> Emission Control Area.**



The EU H2020 SCIPPER project comprised an international consortium of academic, research and private sector partners to study various methods and strategies for the monitoring of pollutant emissions from maritime vessels towards enforcement of environmental regulations.

Emissions of ships are important to monitor due to their growing share to air pollution over land and their contribution to eutrophication. Therefore, NO<sub>x</sub> control was added to the European sulphur emission control area (SECA) in 2021. This means that engines installed on ships constructed from 1.1.2021 onwards must comply with the significantly stricter Tier III limits for engines when sailing in the North Sea and Baltic Seas (MARPOL Regulation 13 Annex VI). So far, the number of ships which need to comply with Tier III regulations is limited but growing.

In SCIPPER, the combined dataset for the Baltic Sea and North Sea contains 65 emission measurements on Tier III ships during 2022. Monitoring of NO<sub>x</sub> emissions from Tier III ships is important because these ships are equipped with comprehensive emission control systems, generally involving catalytic exhaust aftertreatment and an external reagent. This involves the risk of leading to high NO<sub>x</sub> emissions when these systems are not well maintained or operated. Furthermore, unfavourable engine conditions (e.g. low engine loads in port areas), can lead to exhaust gas aftertreatment being ineffective, resulting to high emissions of NO<sub>x</sub>.

Remotely measuring the pollutants concentration in the exhaust plume of vessels is a reliable way to monitor emissions in real sailing conditions within the framework of the IMO MARPOL Annex VI emissions legislation. This applies to both SO<sub>x</sub> and NO<sub>x</sub> emissions. The monitoring data compiled within SCIPPER originate from three fixed monitoring stations (on the Great Belt Bridge, in Wedel near Hamburg, and in the area of Rotterdam port) and from airborne drone-based measurements over the Danish waters. A similar pattern was observed in all locations: only about one-third of NO<sub>x</sub> measurements were within the expected Tier III levels. On one hand, this demonstrates that NO<sub>x</sub> emission control can be effective under real sailing conditions. On the other hand, about 50% of measurements of Tier III vessels indicate emission levels that are more than a factor of two, and up to a factor five, higher than the expected Tier III levels.

The SCIPPER consortium would like to raise awareness on potential shortcomings related to the effectiveness of Tier III NO<sub>x</sub> regulation for vessels. We would like to call on international bodies and national authorities to introduce enforcement requirements and to monitor NO<sub>x</sub> emissions levels of Tier III compliant vessels in real use. Otherwise, significant negative impacts may be observed in the air quality of coastal and other affected regions.

For more information, please refer to the SCIPPER website ([www.scipper-project.eu](http://www.scipper-project.eu)) and in particular in the report [D5.5](#) published there.

