

NEPTUNES the way forward to quieter seagoing vessels



ABOUT NEPTUNES

The NEPTUNES project aims to prevent or reduce noise pollution from seagoing vessels. To this end, the project team developed guidelines on noise labeling of ships and a Best Practice Guide on noise abatement measures. The project team also developed a universal measuring protocol because it was missing until recently.

WHY NEPTUNES

Due to the rise of residential areas built closer to ports, enlargement of seaports, and the ever-changing expectations from people living in the residential areas, ports observe an increasing number of complaints. There is a growing awareness that noise can cause health problems. These factors have an impact on sustainable port development and operations.



HOW NEPTUNES WORKS

An inventory conducted within the NEPTUNES project showed that funnels, pumps, compressors, horns, ventilation devices and public addressing systems are

the main noise sources on berthed ships. To compare noise emissions from ships, the NEPTUNES team developed a uniform noise measurement method.

The NEPTUNES project aims to contribute to society in various ways:

- quieter ships, more comfort on board
- less nuisance for the residential areas
- less noise in recreational and natural areas
- better image for ports and port authorities
- possibility to give incentives to ship-owners exploiting quiet ships
- terminals can provide incentives to quieter ships too.

The measured noise levels can be sequentially classified into noise classes of a specific bandwidth.

Using these noise classes, the project team developed a labeling system. For the sake of clarity, the noise emitted by companies present in the port areas, passing ships, traffic, loading and unloading, maintenance, etc., is not taken into account within NEPTUNES.

HOW NEPTUNES HELPS THE PORTS

The Best Practice Guide, developed by NEPTUNES, includes technical solutions and planning activities and also the so-called soft measures. These soft measures are communication, expectation management, and mutual gains approach. Besides that, the Best Practice

Noise Exploration Program To Understand Noise Emitted by Seagoing ships (www.neptunes.pro)

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Guide comprises non-acoustic interventions to create a better understanding of noise and annoyance, affecting the perception of residents living close to the port area. Gaining awareness among urban architects and planners is also part of the Best Practice Guide. Use of an optimized pattern when building residential areas, the influx of port noise, including noise emitted by seagoing vessels, will be reduced.



HOW NEPTUNES HELPS THE SHIPOWNERS

Ports can apply the noise label to the port dues: the lower the ship noise, the lower the port dues for shipping companies and owners. Ports can also consider applying other incentives like priority systems or other benefits. To get quieter vessels and port operations, the project team drafted a Best Practice Guide with more than 50 measures and interventions. When ordering new ships or when commissioning retrofit ships, the Best Practice Guide helps to derive the terms of reference.

HOW NEPTUNES HELPS THE TERMINALS

Embracing the NEPTUNES findings by shipping companies working towards quieter seagoing vessels mind also helps terminals creating a better image. As quieter ships moor at the terminal, fewer complaints can be expected. As part of the logistics chain, terminals can influence customers and clients to deploy seagoing ships that have favorable noise measurements. Terminals may require less silent ships to moor in less sensitive areas, such as at greater distances or in more shielded locations.

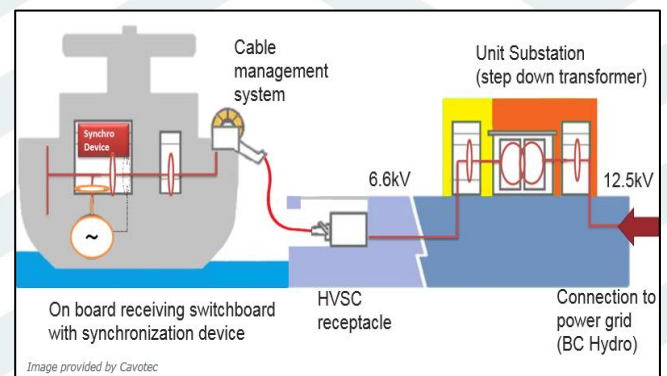
HOW TO PERFORM NOISE MEASUREMENTS

The NEPTUNES team developed a noise measuring protocol with instructions about how to measure onboard or when not viable at a certain distance of the quay. The preferred method is to measure close to the

noise sources; however, sometimes it is not possible to conduct the measurements onboard, e.g., for safety reasons. Then the acoustic expert must swerve to a location at a certain distance. They also provided a format for reporting the noise data obtained during the measurements. Both documents can be found on the NEPTUNES website (neptunes.pro/deliverables). An acoustic expert shall perform the noise measurements. Some countries demand that the acoustic expert is certified or accredited.

HOW TO OBTAIN AN ESI NOISE SCORE

After finalizing the noise measurements and reporting the findings, the shipowner or shipping company sends the results to the Environmental Ship Index (ESI). <https://www.environmentalshipindex.org/> Depending on the total noise emitted by the sources, a score can be assigned to the ship. The score depends on the noise emitted in the frequencies between 20 Hz and 10.000 Hz (wideband noise) and in those between 20Hz and 160 Hz (low-frequency noise). Also, the availability of an acoustic report weighs in on obtaining a noise score. The score methodology is provisional and meant as a first step towards a more mature method.



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MORE INFORMATION

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PARTNERS NEPTUNES

Ports of Amsterdam, Copenhagen-Malmö, Cork, Gothenburg, Hamburg, Koper, New South Wales, Rotterdam, Stockholm, Turku, and Vancouver.