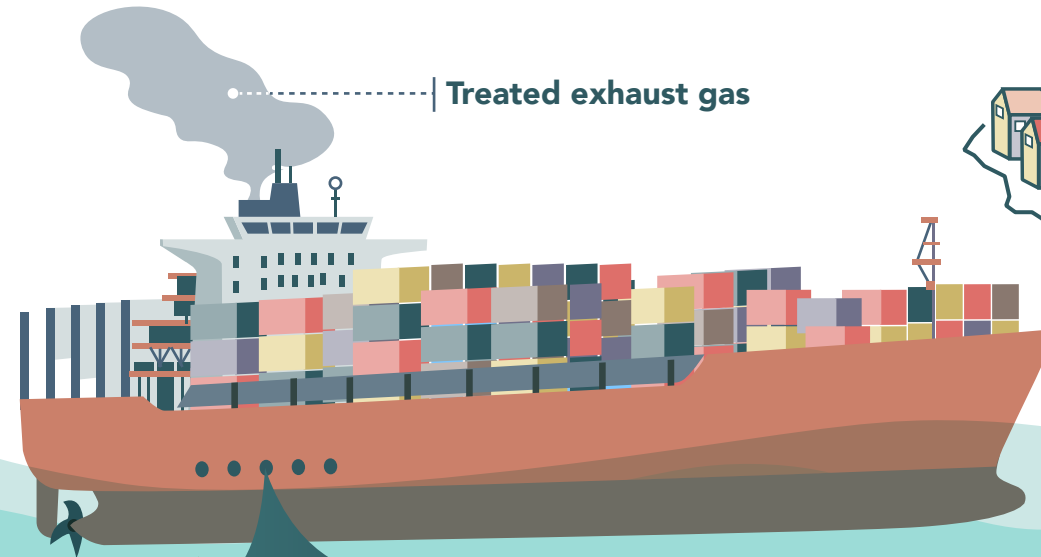
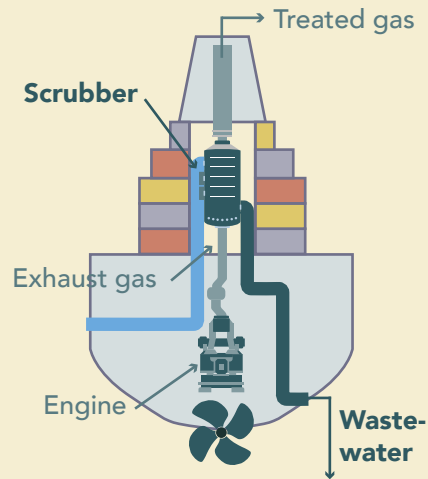


# Why we need to ban scrubbers on ships

Over **10 gigatons** of scrubber wastewater are discharged by ships globally each year.

Discharges from exhaust gas cleaning systems (EGCS) or **scrubbers**, damage the environment and pose a health risk to wildlife and people.

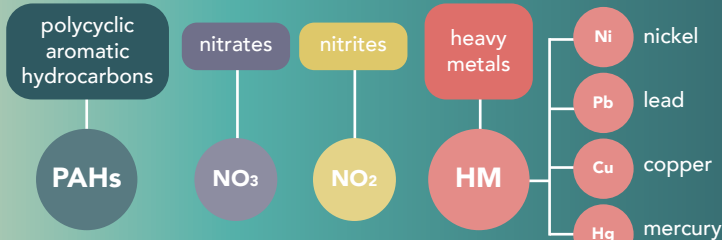


## Impacts on oceans and people

**Coastal and Indigenous communities** who rely on marine wildlife for food security and cultural continuity are put **at risk** by scrubber discharges.

## Impacts of scrubber discharges

Scrubbers discharge large amounts of **acidic wastewater** containing **harmful and persistent substances** that have a devastating impact on seawater and seabed sediments.



## Scrubber wastewater

## Toxic to marine life at very low concentrations

Concentrations as low as 0.0001% of scrubber wastewater are **toxic to marine life**:

Increased rate of **death** and impaired moulting for **marine copepods** - a planktonic animal essential in the marine food web.

Significant **malformations** of larvae of **sea urchins**, segmented **worms**, and **mussels**.

Scrubber discharges lower pH, **increasing seawater acidity**, especially in areas with high shipping traffic density and ports.

**Acidification** negatively affects the **Arctic ecosystem** - seaweed, plankton and fish.

**References:** Hermansson et al., 2023. *Marine Pollution Bulletin*, 189, 114805; EMERGE Deliverable 2.3, 2022.

Produced by Clean Arctic Alliance - [www.cleanarctic.org](http://www.cleanarctic.org)  
Designed by Margherita Gagliardi - February 2024



# The use of scrubbers to limit air pollution is flawed

If ships continue using high-sulphur fuel in combination with scrubbers, ocean pollution will increase.

## Legal concerns

The **MARPOL Convention** requires that maritime nations do not allow damage to the environment, human health, property, or resources, or those of other States.

Scrubbers turn an air pollution problem into a **water pollution** problem which is unacceptable under the **UN Convention on the Law of the Sea**.

## Non-compliance

A study in the southern North Sea found ships emitting **high SO<sub>x</sub>** levels, which is likely due to **malfunctioning of scrubbers**.

These findings are of special concern for **coastal inhabitants** due to impacts of sulphur emissions on human health.

## Progress in regulation

The number of scrubber bans and restrictions is increasing. By February 2023, **45 countries** had introduced over **90 bans and restrictions** on scrubbers.

### Call for action

Noting that reducing pollution at source remains the best option to tackle pollution, we ask that:



**Coastal States and ports** should ban the discharge of scrubber wastewater in their waters



**Maritime authorities** should stop approving scrubbers for use on ships



**Shipowners** should not use high sulphur fuels in combination with scrubbers but opt for cleaner distillate fuels, and not LNG, en route to full decarbonisation



**IMO** should develop regional bans in ecologically, environmentally, and culturally significant areas including the Arctic, and ultimately ban scrubbers globally

## Pay-back time for scrubbers



A recent modelling study showed a strong economic incentive to install scrubbers:

- over **95%** of ships with **open-loop scrubbers** reached **break-even** in less than **5** years after installation
- some vessels reached break-even within **1** year

**BUT**

**the cumulative societal damage associated with scrubber use is not accounted for.**



Reference: PPR 11 INF.20 Submitted by Sweden.