



Report to Council From the Office of Councillor Amy Lubik

Date: June 2, 2022

Subject: Advocacy For Banning Of Exhaust Gas Cleaning Systems, Or Scrubbers, In The Shipping Industry

Purpose

To request Port Moody, as a climate champion port city, advocate through the Federation of Canadian Municipalities for the banning of scrubbers in the shipping industry for use as greenwashing technology as a way to skirt emission reductions with heavy fuel oil instead of using cleaning burning fuels.

Recommendation

WHEREAS the International Council on Clean Transportation (ICCT) recommends that individual governments continue to take unilateral action to restrict or prohibit scrubber discharges from both open-loop and closed-loop systems because Scrubber discharges typically comply with IMO guidelines, but all scrubbers—open-loop, closed-loop, and hybrid—discharge water that is more acidic and turbid than the surrounding water, and contributes to ocean acidification and worsens water quality, has negative impacts on ecosystems and food webs, and is linked to reproductive challenges and cancers in marine mammals; and

WHEREAS the International Maritime Organization's Greenhouse Gas study showed that Particulate matter emissions are nearly 70% higher using heavy fuel oil (HFO) with a scrubber compared with marine gas oil (MGO) and Black carbon emissions are 81% higher using HFO with a scrubber than using MGO in a medium-speed diesel engine and more than 4.5 times higher than using MGO in a slow-speed diesel engine; therefore not equivalently effective at reducing total air pollution emissions compared to using MGO; and

WHEREAS in order to mitigate sulphur air pollution from burning heavy oil, the maritime shipping industry employs exhaust gas cleaning systems (scrubbers) which result in a solution of concentrated acidic sulphates, metals, and other toxins. Cruise and cargo vessel traffic in Canadian jurisdiction annually discharge tens of millions tonnes of this acidic washwater directly into BC's Coastal waters alone;

AND WHEREAS ocean acidification is of major concern to coastal communities, particularly those coastal communities encouraging shellfish harvesting, aquaculture,

tourism, and commercial and recreational fisheries. Worldwide, authorities have variously banned or are moving to limit the dumping of scrubber wash in coastal waters. On the Pacific Coast of North America, California and Washington have implemented stricter protections, and on March 1st, 2022 the Vancouver Fraser Port Authority will introduce phase one (of three) of new exhaust gas cleaning systems washwater discharge requirements in its jurisdiction after conclusive findings showed negative effects on aqualife and concentrations of metals that exceeded safe thresholds:

THEREFORE BE IT RESOLVED THAT City of Port Moody Council request the FCM to advocate to the federal government on the issue of exhaust gas cleaning systems' acidic wastewater discharge, pushing for stronger environmental protections, in line with thriving cruise and cargo waters of our US neighbours, to include preventative measures to stop scrubber dumping from ships and require cleaner fuels be used;

BE IT ALSO RESOLVED THAT City of Port Moody Council request the FCM to send a letter directly to the Minister of Transport, the honourable Omar Alghabra, asking Transport Canada to take action on dumping from vessels including exhaust gas cleaning systems effluent and washwater dumping as part of any plan to encourage growth and increase numbers of large vessels transiting through or coming to Canadian jurisdiction.

Background

Port Moody has consistently lead in environmental and climate activism to safeguard our human and non-human residents, water quality, and air quality. We have declared climate emergency and are moving in policy and practice that will get us to our IPCC targets and are consistently calling on senior levels of government to do the same.

We are also a port city, and with that comes more environmental concerns, not only for our community but for and from our neighbours as well. Recently it has been brought to our attention that a technology is currently being used on many transport and cruise ships that, while intended to decrease sulfur emissions from transportation, in fact increases greenhouse gas emissions and produces toxic discharges in and around ports, even with plug in technology. These systems are called exhaust gas cleaning systems, or scrubbers.

In a new report from the International Council on Clean Transportation (ICCT) “estimated global distribution of ship scrubber [exhaust gas cleaning systems] discharges, the Port of Vancouver ranked fourth in the world with 5.2 million tonnes (Mt) of washwater expected within 1 nautical mile of the port once shipping returns to pre-pandemic levels of operation. The vast majority of this is expected to come from cruise ships* that dock at Port of Vancouver terminals, although other ship types are also discharging throughout the rest of Canada. But it's not inevitable. The Port of Vancouver could take advantage of the Canadian pause on cruises and, [when they return](#)¹ in 2022, they can come back without polluting the port's waters with scrubber washwater.

¹ <https://www.bloomberg.com/news/articles/2021-02-05/canada-says-no-cruises-until-2022-shutting-down-alaska-trips>

The Port of Vancouver is situated in the Salish Sea, where water pollution is a grave issue for the iconic resident killer whales, which are critically endangered and threatened by water contaminants. These marine mammals are protected in both the [Canadian Species at Risk Act](#)² and the [U.S. Endangered Species Act](#)³, and water pollutants are listed as a major cause of decline in the populations. However, while the resident killer whale critical habitat areas overlap with shipping lanes, the protection from these Acts relies on mechanisms and standards from other legislation and this allows scrubber discharge to fall through the proverbial cracks. Meanwhile, the contents of the scrubber discharge, such as polycyclic aromatic hydrocarbons (PAHs) and heavy metals, have been linked to reproductive dysfunction and cancer in marine mammals, including orcas. With this in mind, we previously investigated scrubber discharges in the ranges of British Columbia's resident killer whales and [estimated](#)⁴ that of the 35 Mt of washwater discharged within 200 nautical miles of Canada's west coast, 3.3 Mt was dumped inside the resident killer whales' Canadian critical habitat in 2017. Now ships are expected to dump 108 Mt within 200 nautical miles of the entire Canadian coastline, according to our [report](#)⁵."

Though the Port of Vancouver is much more directly impacted by waste water discharge, this impacts Burrard and Port Moody Inlet and mapping shows fair amount of discharge in our areas (**Attachment 1**).

Discussion

The Port is set to phase in some new regulations; however, a more concerted effort across Canada is needed to protect our communities, waters and species at risk, as well as actually reducing our emission.

From the 2021 report by the ICCT "Global Scrubber Discharges under IMO's 2020 sulfur limit" (**Attachment 2**):

When the International Maritime Organization's (IMO) global fuel sulfur limit came into force on January 1, 2020, it reduced the maximum sulfur content for marine fuels from 3.5% to 0.50%, except for ships that have an exhaust gas cleaning system, also known as a scrubber. While most ships now use 0.50% sulfur fuel, many ship owners have installed scrubbers rather than switch to the more expensive low-sulfur fuel, and the number of ships in the international shipping fleet fitted with scrubbers increased from 243 in 2015 to more than 4,300 in 2020.

Although scrubbers are effective at reducing sulfur dioxide from ship exhaust, previous International Council on Clean Transportation research has shown that using scrubbers results in higher amounts of carbon dioxide, particulate matter, and black carbon compared with using marine gas oil (MGO), the lowest-sulfur fuel used by ocean-going vessels. Additionally, we found that using scrubbers creates water pollution that is not well regulated. The most popular type of scrubber, open loop, constantly discharges large amounts of washwater that is acidic and contains polycyclic aromatic hydrocarbons (PAHs), particulate matter, nitrates, nitrites, and

² <https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/southern-resident-killer-whale-recovery-planning-and#environmental-contaminants>

³ https://www.sararegistry.gc.ca/document/doc1341a/ind_e.cfm

⁴ <https://theicct.org/a-killer-whales-tale-protect-critical-habitats-by-addressing-scrubber-washwater-from-ships/>

⁵ <https://theicct.org/sites/default/files/publications/scrubber-discharges-Apr2021.pdf>

heavy metals including nickel, lead, copper, and mercury, all of which are discharged to the aquatic environment where they can damage marine ecosystems and wildlife and worsen water quality. Closed-loop scrubbers emit the same pollutants in lower volumes, but higher concentrations.

Until this study, there has been no estimate of the amount and location of washwater discharges from ships with scrubbers globally. Shipping traffic is not distributed evenly. Scrubber discharges will be higher in some regions and these might therefore experience a stronger negative effect of scrubber pollution. Although several governments have already banned scrubbers in their ports, internal waters, and territorial seas, many have not. Understanding how much washwater is expected to be discharged within territories, and where, could improve policymaking. To that end, in addition to this report, we are also publishing an online, interactive map showing scrubber washwater discharges. It is available at <https://theicct.org/publications/global-scrubber-discharges-Apr2021>. In this report, we map and rank scrubber discharges by ship type, flag state, national waters, and major ports. We also estimate discharges within IMO-designated Particularly Sensitive Sea Areas (PSSAs), many of which contain coral reef systems that are already negatively impacted by ocean acidification.

Our results model pre-pandemic ship traffic patterns. We used 2019 ship traffic to provide a pre-pandemic baseline of ship activity and estimated the mass of scrubber washwater discharges for ships that had or were expected to have scrubbers installed by the end of 2020. For most ship types, these results are expected to be representative of the distribution and mass of scrubber washwater discharges for the next several years, beginning with 2021. The main exception is cruise ships. Unless and until cruise ships are sailing their typical routes, the amount and location of their scrubber discharges will be different from those presented here. As shown in this report, absent additional regulations, we expect ships to emit at least 10 gigatonnes (Gt) of scrubber washwater in a year. For context, the global shipping sector carries about 11 Gt of cargo each year. Importantly, about 80% of scrubber discharges occur within 200 nautical miles of shore, with hot spots occurring in heavily trafficked regions, including the Baltic Sea, North Sea, Mediterranean Sea, the Strait of Malacca, and the Caribbean Sea. Away from shore, scrubber discharges occur along major shipping routes. Some of these routes pass through PSSAs, including the Great Barrier Reef, where about 32 million tonnes (Mt) of scrubber washwater will be discharged, mainly from ships serving coal terminals in northeast Australia; this represents 5% of the 665 Mt discharged in PSSAs globally.

The above report shows that scrubbers are not a green solution. They dump acidic, hot wastewater full of carcinogens, endocrine-disrupting chemicals, and heavy metals into the ocean. These contaminants accumulate in the blubber of endangered species like orcas and belugas and concentrate up the food web, including into the seafood our residents consume.

Port Moody should lead our fellow cities in calling for a ban on scrubbers and scrubber discharge in our jurisdictions.

Other Option

THAT the report dated June 2, 2022 from Councillor Amy Lubik regarding be received for Advocacy For Banning Of Exhaust Gas Cleaning Systems, Or Scrubbers, In The Shipping Industry information.

Financial Implications

There are no financial implications.

Communications and Civic Engagement Initiatives

There are no communication and civic engagement initiatives.

Attachments

1. ICCT Scrubber discharges April 2021
2. Global Scrubber Washwater Discharges Under IMO's 2020 Fuel Sulfur Limit