A petition for

Cruise Ship Environmental Regulations in Virginia

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Petition Request

Submitted by:

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This petition was developed in collaboration with the members of Protect-Virginia.org.

This petition is submitted under § 2.2-4007 of the Code of Virginia and Office of Regulatory Management Procedures for petitions for new or amended regulations. The petition pertains to Title 9 Environment of the Virginia Administrative Code as it requests new regulations for air and water pollution. The Department of Environmental Quality (DEQ) has regulatory authority for water and air pollution under § 62.1-44.33 and § 10.1-1308. The petitioner has identified the DEQ to address these new regulations based on its policy statement and regulatory authority which includes but is not limited to:

1. To assist in the effective implementation of the Constitution of Virginia by carrying out state policies aimed at conserving the Commonwealth's natural resources and protecting its atmosphere, land, and waters from pollution.
2. To address climate change by developing and implementing policy and regulatory approaches to reducing climate pollution and promoting climate resilience in the Commonwealth and by ensuring that climate impacts and climate resilience are taken into account across all programs and permitting processes.

Statement of Purpose

This petition provides evidence to justify new regulatory rulemaking on ocean-class passenger cruise ships. Specifically, this petition requests that the DEQ and the Commonwealth develop new regulations for cruise ships in Virginia waters as follows: (1) Mandate the use of low-sulphur fuel, (2) Ban the use of Exhaust Gas Cleaning Systems (open-loop scrubbers), (3) Require the use of shore power, (4) Restrict the dumping of graywater, blackwater, and other environmentally detrimental waste products, and (5) Require incident reporting and independent monitoring to ensure compliance.

The EPA has recently posted a new Vessel Incidental Discharge National Standard. According to the EPA website, "The USCG has two years to develop corresponding implementing regulations to ensure, monitor and enforce compliance with the EPA's standards. Until the USCG's regulations are final, effective, and enforceable, vessels continue to be subject to the existing discharge requirements established in the EPA's 2013 Vessel General Permit and the USCG's ballast water regulations, as well as any other applicable state and local government requirements." Unfortunately, both standards fall short and therefore it is left to the states to ensure marine ecosystem and public health are not compromised by cruise ship industry practices. Many states have already acted by augmenting EPA standards. A purpose of this petition is to ensure Virginia is fully aware of the risk this industry poses to the Commonwealth and act appropriately.

These large ships are in a class of their own, essentially floating cities with associated power generation and waste products that directly impact air and water quality on a scale considerably beyond that of other vessels. The waste and pollution generated by large cruise vessels are well documented and there is a worldwide movement to protect the environment and populations from these detrimental effects through regulation. **Virginia is the nation's fourth largest producer of marine products, and a healthy marine ecosystem is vital for its sustainability**. Recently a Princess Cruise Lines lobbyist stated at the public hearing in support of HB1478 that we should "roll out the welcome mat for the cruise industry in Virginia" and just recently wrote in a Daily Press opinion, "we cannot afford not to" welcome cruise ships in Virginia. The industry's plans to expand in Virginia should compel DEQ to examine this issue carefully and to proactively regulate cruise ship impacts, as has been done in port communities, states, and countries.

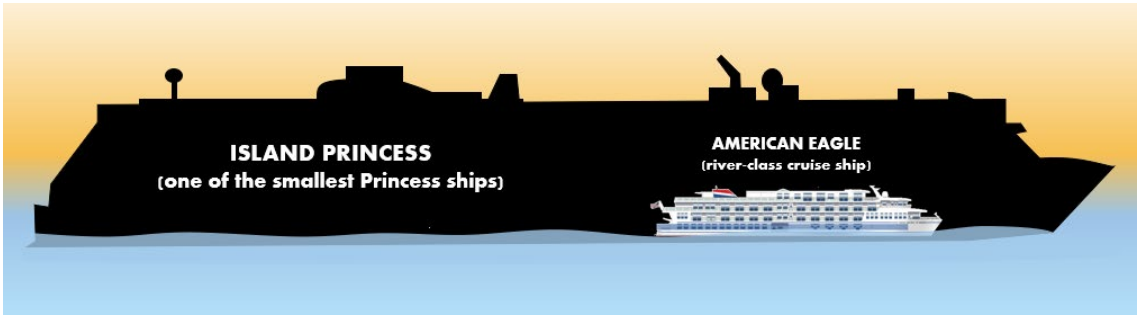
Cruise Industry Background

Carnival Corporation, Royal Caribbean, and Norwegian Cruise Lines own the lion's share of this $25B industry. These three corporations are parent companies to more than 15 subsidiaries. For example, Carnival, the industry leader, is the parent company of Princess Cruises, Holland America, and several others. The sector is projected to see continued growth (estimated to reach $30B this year) through leveraging current markets and finding new ones. This industry generates significant revenue from U.S. markets, yet the ships are registered under foreign flags to avoid taxes. It is very clear that cruise lines are looking to find new ports of call in Virginia. Any cruise ship legislation and regulations should be made with this in mind. Once in a market, the cruise industry will fight vigorously to expand its reach.

An important question when considering regulation of the cruise industry in Virginia is the scale of these ocean-class ships and impacts on the ecosystems they travel through. Their massive size is hard to comprehend from photographs. The smaller ships have over 3,000 people on board (passengers & crew) and the largest one carries over 9,500, with a definitive trend in favor of larger and larger vessels The

Transport & Environment study is projecting this to continue with 345,000 GT ships carrying 10,500 passengers by 2050, with the number of ships also increasing as the industry expands to new markets (i.e. Virginia).

These ships are character-altering at any port they visit. In many small port cities in the U.S., where even one ship can double or triple the population of the port city, multiple ships arrive simultaneously and inundate the port with hundreds of thousands of passengers per year. The ships burn fuel 24 hours a day to generate the power to keep the lights, HVAC, and a multitude of other on-board amenities running. Traditional cruise ships need 10–100 megawatts of power for propulsion, lighting, air conditioning and on-board amenities. The power needed for one ship can be equivalent to power used in 60,000 to 70,000 average homes. Additionally, there is an enormous amount of waste that must be treated and managed.



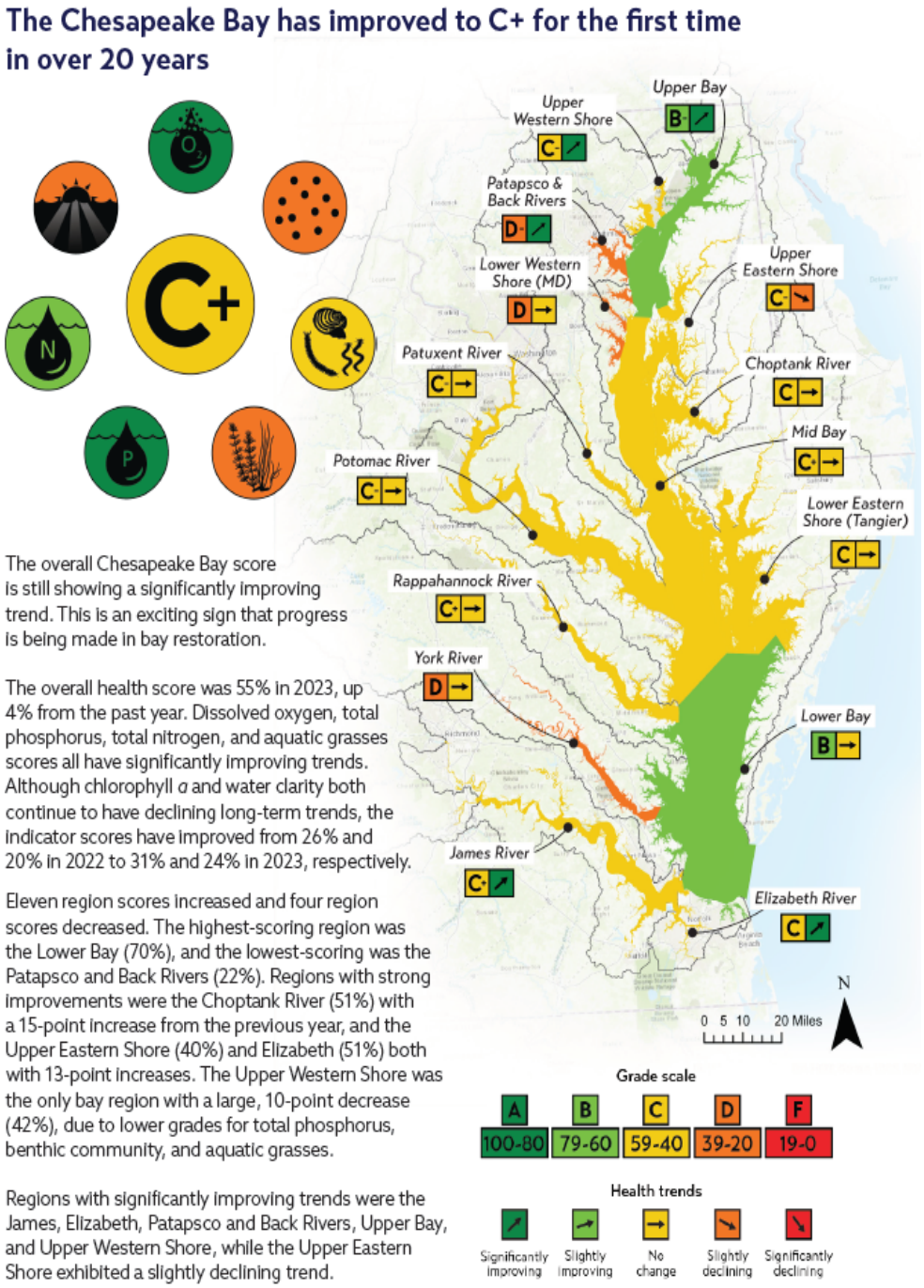
Scale of the Cruise Industry Ships (Island Princess more than 3 football fields long)

It is important to note that this petition is focused on the "mega-class" pleasure cruise ships, not military or merchant ships. Also, there are smaller river-class vessels, with business models that minimize the negative impacts of their ships. For example, the ships of American Cruise Lines, a U.S. based company, burn low sulphur fuels, do not scrub exhaust pollutants into the water, are shore power equipped, and have hull designs to minimize noise. Another example is Uncruise, a cruise ship company with a core value of "Do the right thing" and with accountability as a core responsibility. Yet another is Hurtigruten, that was first to ban Heavy Fuel Oil in 2009 and is working toward Net-Zero-Emissions. There are acceptable approaches to cruise ship tourism that manage environmental and human impacts.

Environmental Impacts

The State of Virginia Waters

The 2023/2024 University of Maryland's Chesapeake Bay & Watershed report card shows some improvement from previous years, but many rivers and estuaries still have failing grades. Pollution from cruise ships could potentially reverse the progress that has been made toward a cleaner Chesapeake Bay.

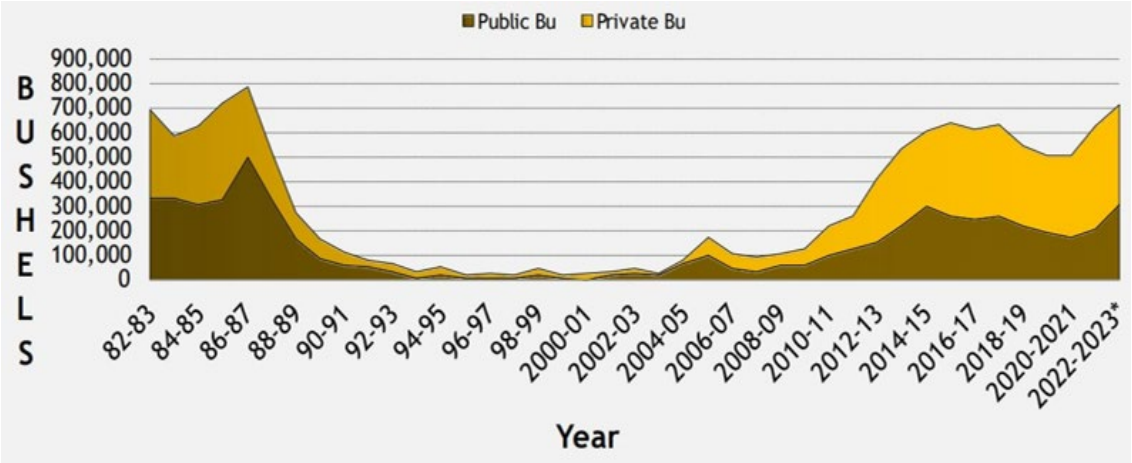


Chesapeake Bay & Watershed Report

Seafood Industry Impacts

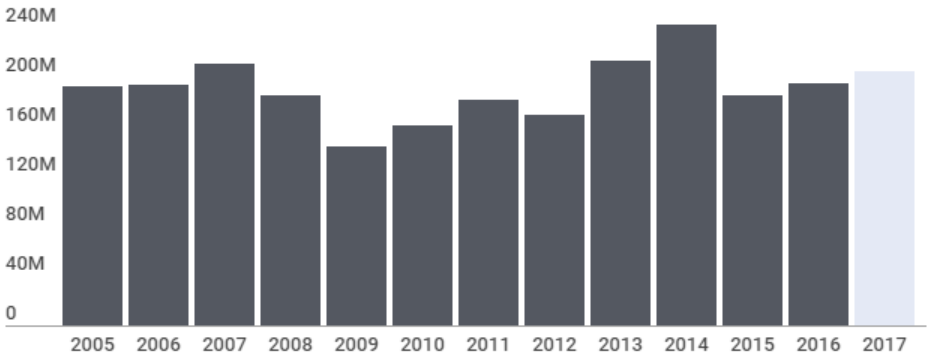
According to VirginiaSeafood.org, "Virginia's watermen harvest 50 commercially valuable species from some 620,000 acres of water. Among these traditional species in order of economic value, are Oysters, Blue Crab, Sea Scallops, Menhaden, Clams, Summer Flounder, Striped Bass, Spot, Black Sea Bass, and Blue Catfish," and "Virginia is the nation's fourth largest producer of marine products with total landings of 321,860,722 pounds in 2020 and is only outpaced by Alaska, Louisiana, and Oregon." The report from the Virginia Cooperative Extension, Economic Contributions of the Virginia Seafood Industry states, "The total economic output effect of the Virginia seafood industry was estimated at $1.1 billion in 2019. The total employment effect of the Virginia seafood industry was estimated to be 7,187 people; with a direct effect of 6,050 jobs, indirect effect of 523 jobs, and induced effect of 614 jobs. In 2019, the Virginia seafood industry generated over $26 million in tax revenue from local, state, and federal taxes." It bears repeating that cruise industry profits will not generate tax revenue since ships typically fly a foreign flag (see Appendix C).

The oyster harvest in Virginia has also improved after years of restoration, according to the Virginia Marine Resources Commission.



Virginia Oyster Production

Additionally, according to VIMS, Virginia not only leads the nation in oyster production but also in hard clams.

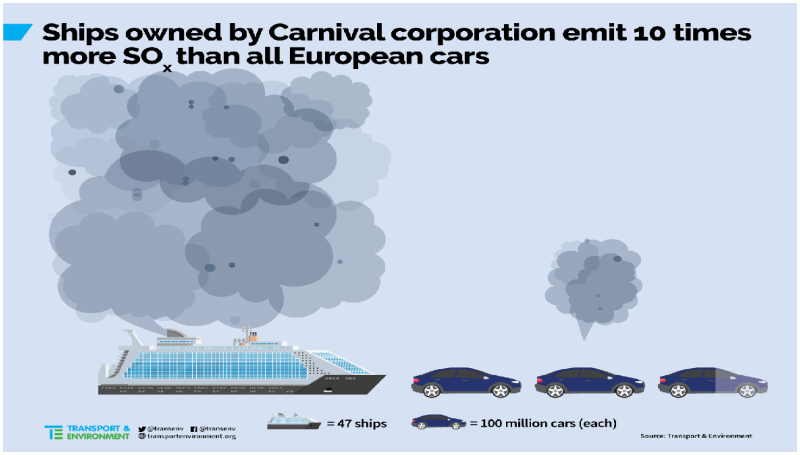


Hard clams sold in Virginia.

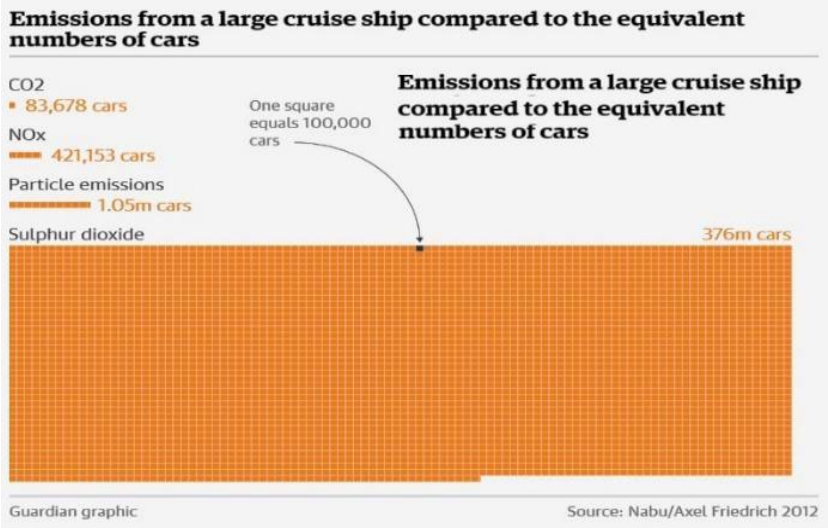
The Virginia seafood industry thrives when our waters are clean and productive. Seafood is a renewable resource, but only if the Commonwealth continues to protect the health of the Bay, rivers, and estuaries. As discussed in the following section, the cruise industry's air and water pollution footprint is significant and can put this industry at risk if not appropriately regulated. Maintaining the seafood industry in a sustainable way is vital for Virginia's economy.

Cruise Ship Pollution

Untreated exhaust from cruise ships produces an inordinate amount of emissions that impact public health, the environment, and the climate. The cruise industry's decision to burn Heavy Fuel Oil (HFO) is the reason for the excessive emissions which do not occur at the same levels with other cleaner fuels used by other vessels (e.g. military vessels). This decision reflects a disregard for public health and the environment in favor of higher profits.



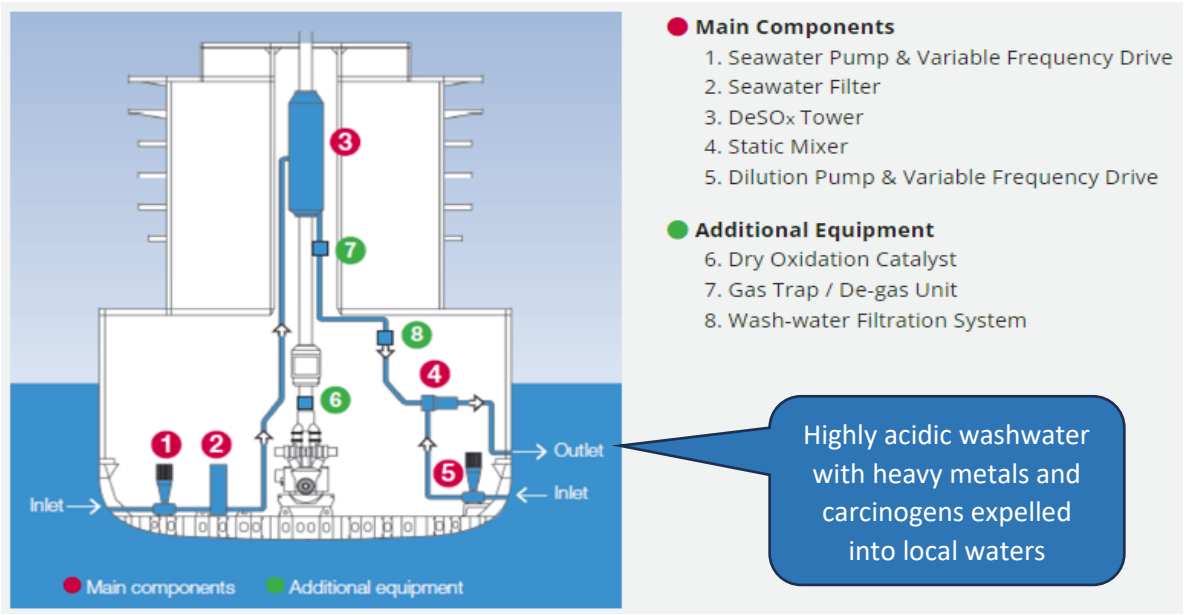
Cruise Ship Sulphur Oxides (SO_x) Emissions



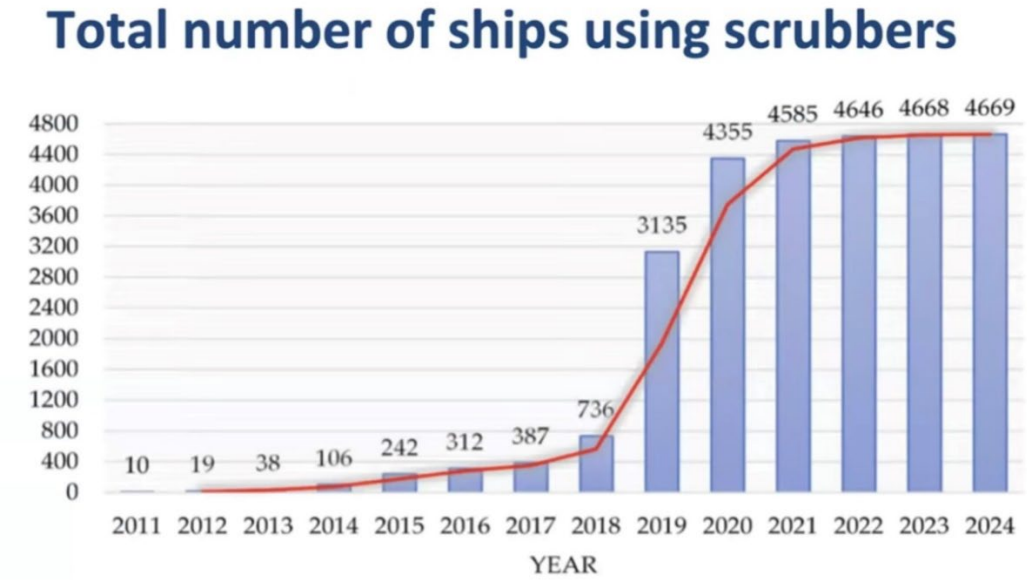
Large Cruise Ship Emissions Comparison to Cars

In 2020, the IMO (International Maritime Organization) set new tougher standards for sulphur emissions, and currently the global shipping fleet is in the process of switching to lighter, cleaner fuels. But the environmental effects of these regulations are offset by increases in ship size, passenger capacity, and by

the loophole allowing vessels to reduce sulphur by using scrubbers, or Exhaust Gas Cleaning Systems. The EPA standards, both current and proposed, do not ban cruise ship scrubbers, thus allowing operation in Virginia waters. The cruise industry has elected to use scrubbers rather than switch to more expensive fuels to "greenwash" the problem while saving money. (see: Shipping's dirty secret: how 'scrubbers' clean the air – while contaminating the sea).



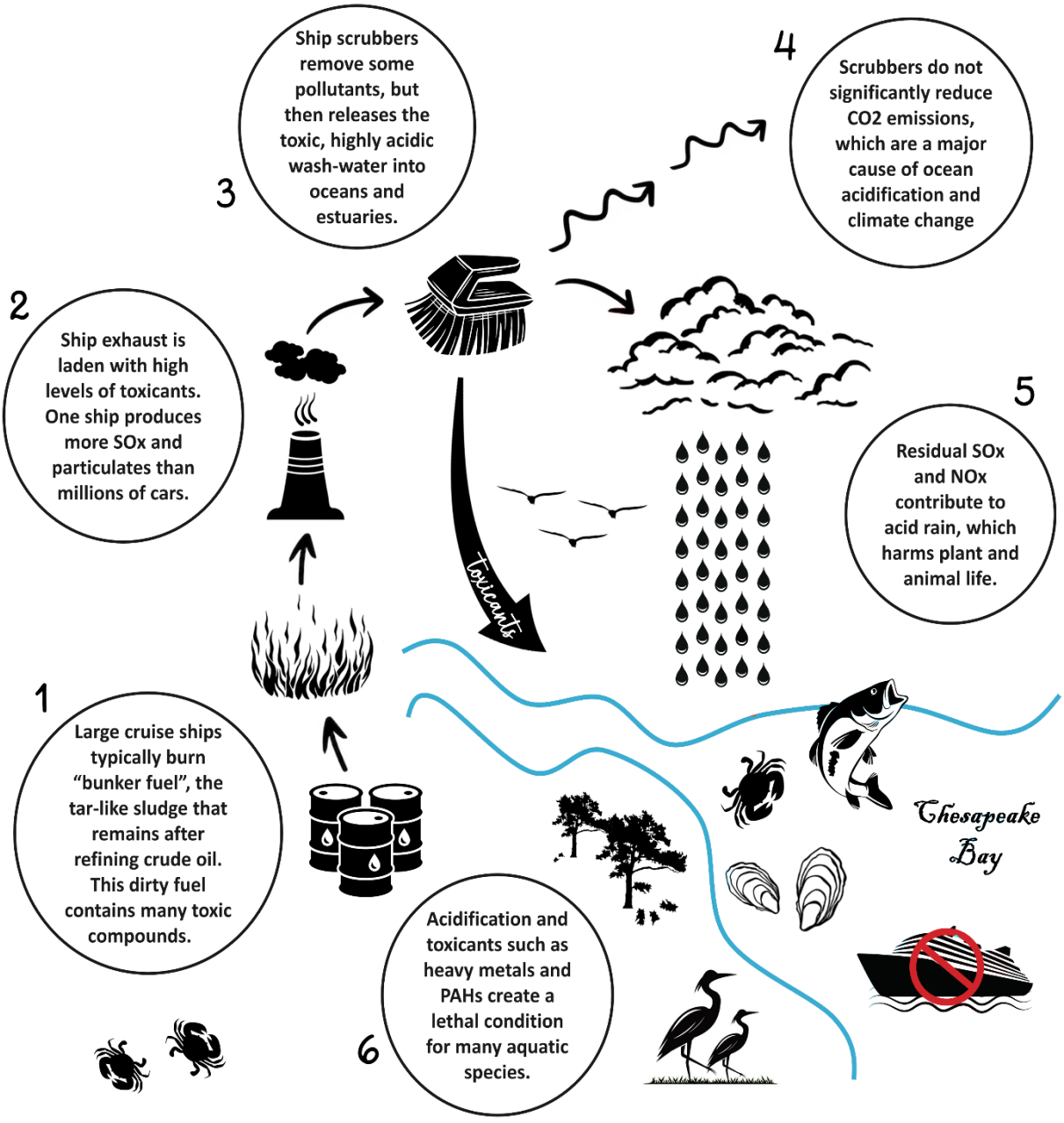
Exhaust Gas Cleaning System, commonly called a Scrubber –Original Source: Carnival



Dramatic increase in ship scrubbers after the IMO's 2020 sulphur regulations

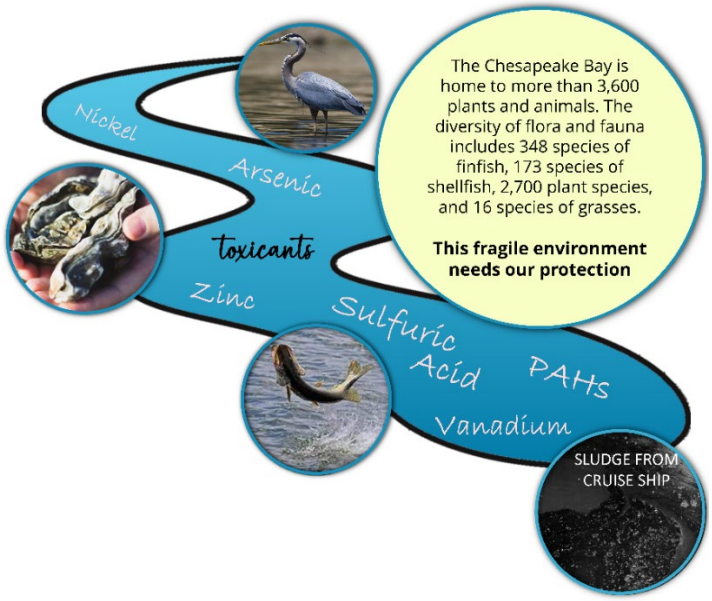
Source: End Scrubbers Use Now Webinar

The types of scrubbers used by 81% of cruise ships are open-loop systems and do not solve the pollution problem. These systems use ambient seawater sprayed into exhaust stacks to remove pollutants, but the highly acidic spray, laden with toxic PAHs and heavy metals, is then flushed back into the water. Scrubbers thereby transfer an air pollution problem into a water pollution problem. Furthermore, scrubbers do not reduce CO_2 or small particulate that is harmful to human health. The International Council on Clean Transportation states that scrubbers are not as effective at reducing total air pollution compared to marine gas oil, and scrubber discharge "contributes to ocean acidification and worsens water quality."



Cruise Ship Pollution from Burning Bunker Fuel

The recent August 2024 Pacific Environment report, Ship Pollution: From air to ocean, summarizes 26 scientific studies that show the harmful impacts of toxic scrubber wastewater – "A growing body of scientific data indicates there is virtually no safe concentration of untreated scrubber effluent and that it negatively affects organisms throughout the marine food chain. The sources referenced found that concentrations of scrubber wastewater as low as 0.0001% have toxic effects on marine life. Scrubber discharges can increase seawater acidity, especially in places with high ship traffic, and discharges contain harmful and persistent substances like polycyclic aromatic hydrocarbons (PAHs), nitrates, nitrites, and heavy metals." Heavy metals can have a devastating effect on zooplankton which menhaden, herring, and other species feed on, and they also bioaccumulate at higher trophic levels. PAHs have been linked to several types of cancers and reproductive dysfunction in marine mammals, including southern resident orca in the north Pacific and beluga whales."



Toxicants released by open-loop scrubbers.

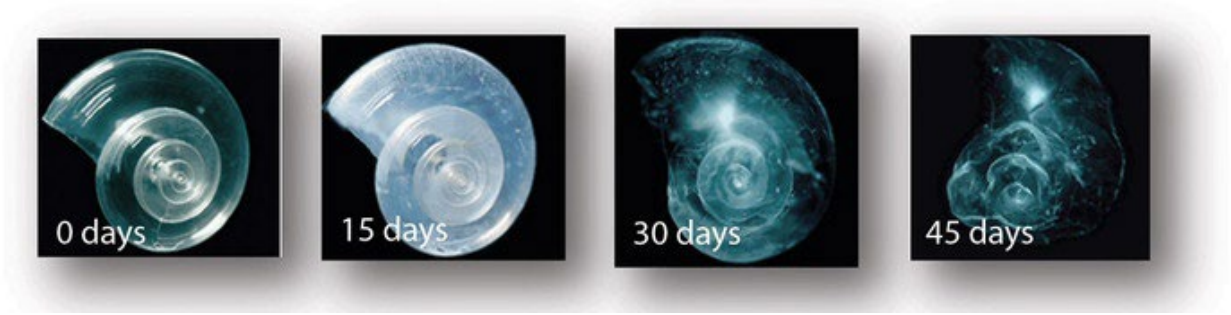
Climate Impacts

CO_2, a greenhouse gas, is also released by cruise ships. As one source states, the CO_2 output from one ship is equivalent to more than from 83,000 cars. Another source states, "just one cruise ship docked for a day at port can emit diesel exhaust equivalent to 34,400 idling trucks." Increasing atmospheric CO_2 is the major cause of global climate change and ocean acidification. Analysis has shown that cruise ship passengers have a carbon footprint eight times more than that of land-based vacationers. Nitrogen Oxide (NO_X), also in cruise ship exhaust, is another important greenhouse gas. One ship can produce more NO_X than 400,000 cars. According to Inside Climate News, NO_X can warm the atmosphere more than 300 times that of CO_2 and damages to the ozone layer.

Climate change is impacting Virginia in multiple ways: increased storm intensity/frequency, heat waves and drought, and sea level rise. Tangier Island may be under water within the next 50 years. Coastal military bases will be impacted. A Military Times article warns, "the Department of Defense says two-thirds of the bases are vulnerable to worsening flooding as the climate warms, and half are vulnerable to increasing drought and wildfires." Homeowners' coastal properties in Virginia are already seeing the impact of extreme weather in their insurance premiums and "climate exceptions" in their policies. Climate

effects will also directly impact the seafood industry. The article Warming water threatens aquatic life in Chesapeake Bay region states that an increase in water temperature by 1.8 degrees would reduce available sturgeon habitat by 65%. In the Bering Sea the impacts to the seafood industry are already being felt by fishermen. An article on the reduction in the crab population by the billions, points to rising water temperatures as the cause.

Ocean and coastal acidification are a global challenge causing harm to marine life, primarily affecting the ability to form shells and skeletons. Coral reefs and shellfish such as oysters are highly susceptible to acidification, and this recent video from a public meeting in Yorktown, Virginia succinctly states the risk to the oyster industry if cruise ships are allowed to expand operations in Virginia waters. This PBS video also demonstrates that the impacts to the shellfish industry are real and present today. The study, Vulnerability and adaptation of US shellfisheries to ocean acidification, cites the Chesapeake Bay as one of the most vulnerable regions to ocean acidification and discusses the "threat to coastal species" and the "emergence of real, economically measurable human impacts." It should also be stressed that potential losses to the Virginia seafood economy are not hyperbole; the study also stated, "Ocean acidification has already cost the oyster industry in the US Pacific Northwest nearly $110 million."



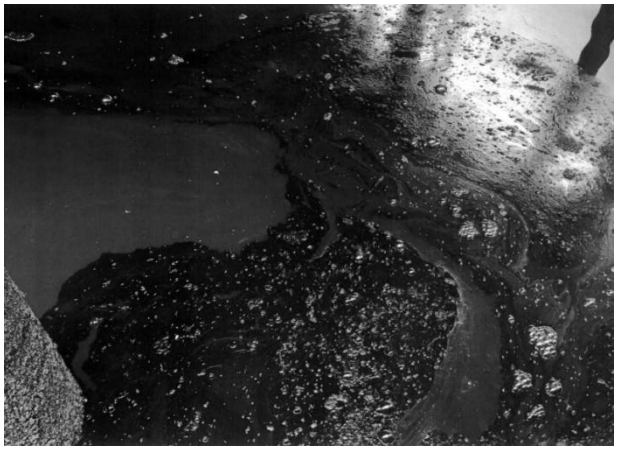
The pteropod's, or "sea butterfly" shell (shown above) dissolves in acidic seawater. Virtually all shellfish (e.g., oysters, scallops, crab, clams, etc.) will be negatively impacted by ocean acidification. Image source: National Geographic

Pollution from waste discharges on cruise ships is also a major problem. A 2008 report by the Congressional Research Service estimated that during an average weeklong cruise, a cruise ship carrying (only) 3,000 passengers and crew can generate 210,000 gallons of raw sewage; 1 million gallons of gray water (from sinks, showers, and washing machines); 130 gallons of hazardous materials; up to 8 tons of solid waste; and 25,000 gallons of oily water. Effluent waste can contain bacterial and viral pathogens and also high nutrient concentrations, which promote algal blooms and cause oxygen-depleted "dead zones." The Bureau of Transportation Statistics' summary of the waste streams can be found here.

Accidents and Violations

The "normal" or operational pollution generated by the cruise industry is significant by any measure and the damage to our environment is still being assessed. In addition, accidents do occur and have significant and direct impacts on local ecosystems and port communities. Many incidents are minor, but serious ones can be devastating. In November 2023 a Carnival cruise ship dumped scrubber sludge into Grand Turk

port waters during a power outage. Another scrubber accident in a port in Ketchikan, Alaska, is shown to the right. Other accidents include fires and damage to pier facilities during bad weather.



Release of Scrubber Sludge [source]

The cruise industry has a history of pollution and felony convictions for violating environmental regulations. In 2016, Princess Cruise Lines paid the largest criminal penalty for deliberate vessel pollution: $40 million dollars. They used a surreptitious "magic pipe" to bypass the oily water separator, which allowed waste liquids to be discharged in contravention of maritime pollution regulations. This violation occurred on multiple ships, pointing to a systemic issue with the industry. Furthermore, even after the large fine, Princess continued to violate regulations six times and received an additional $20M fine in 2022. A history of some of the major cruise ship violations can be found here.

In addition to pollution spills, another all-too-frequent accident is whale strikes. In May 2024 a cruise ship sailed into New York Harbor with a 44-foot dead endangered Sei Whale across its bow. A video of the incident is here. The noise from cruise ships confuses the whales and disrupts their communications. Also this year, eight whales of four species, including the endangered Atlantic Right Whale, washed up in southeastern Virginia and Northeastern North Carolina. Several of these deaths were likely from vessel strikes.

Given this history of criminal violations and accidents, independent monitoring is needed along with incident reporting requirements for ensuring compliance.

Human Health Impacts

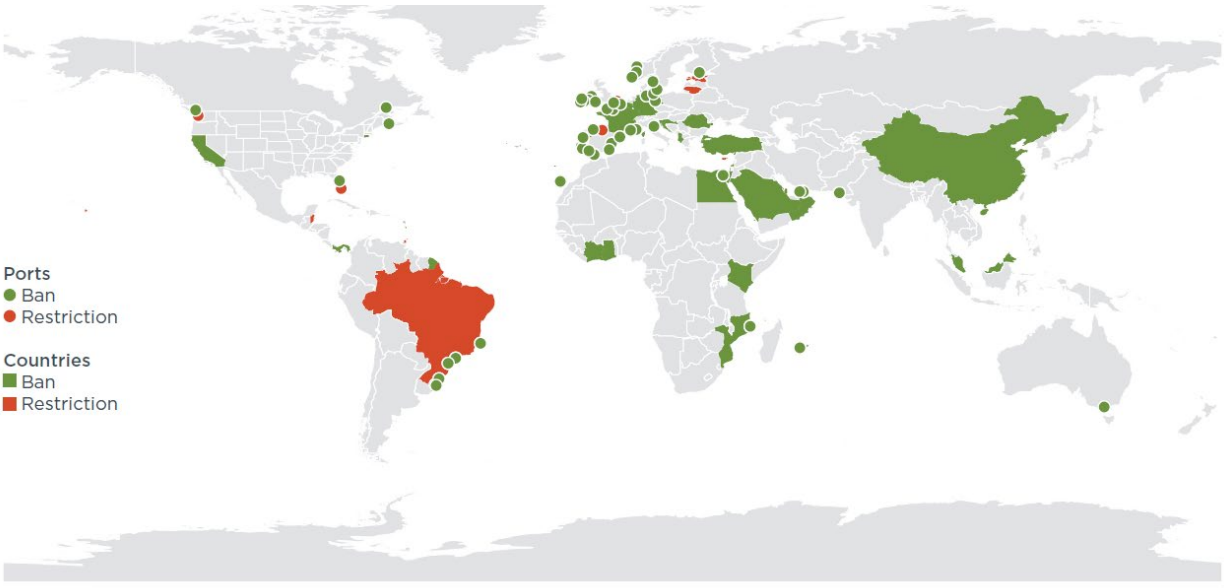
Pollution does not only impact marine life through direct and long-term climate affects; it can also directly impact human health. According to Evirotech, sulphur oxides (SO_x) are notorious for "exacerbating respiratory conditions such as asthma and emphysema." Nanoparticles are fine particulate matter (< 0.1 cubic centimeters) and can enter the bloodstream or brain when inhaled. They can harm the respiratory and circulatory systems, and are especially harmful to children, the elderly, and people with heart or lung issues. One report found ultrafine particles are "200 times higher than would be found in fresh air and 20 times worse than in congested port cities with heavy traffic." According to the EPA, "Breathing air with a high concentration of NO_2 can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma, as well as children and the elderly are generally at greater risk for the health effects of NO_2." A Environmental Health Perspectives Journal article found consistent strong evidence of a relationship between N02 and lung cancer. The report, Importing Harm: U.S. Ports' Impacts on Health and Communities, states that port cities in Southern California are the largest source of SO_x, NO_x, and particulate emissions. "The California Air Resources

Board estimates that there are 3,700 premature deaths per year directly attributed to the ports." The journal publication, Health impact assessments of shipping and port-sourced air pollution on a global scale: A scoping literature review, states, "Globally, ~265,000 premature deaths were projected for 2020 (~0.5% of global mortality) attributable to global shipping-sourced emissions." Large cruises generating megawatts of power by burning fuel in ports will lead to health impacts that are not factored into the economics presented by this industry. And once again this is by choice to maximize profit as cleaner alternatives do exist.

Regulations

The international community now recognizes the damage from cruise ship pollution and has begun to take regulatory action to limit impacts. Existing regulations take many forms: low sulphur fuel requirements, open-loop scrubber bans, shore power requirements, no dumping zones, etc. In addition to these regulations, many port communities are fighting to limit the size and number of ships that visit through passenger limits, pier restrictions, no-cruise-ship-Saturdays, and other methods not addressed in this petition.

The June 2023 International Council on Clean Transportation (ICCT) Policy Update does an excellent job of summarizing scrubber bans and restrictions worldwide. It notes that over 5000 ships use open loop scrubbers to comply with IMO sulphur oxides (SO_x) regulations and projects 81% open-loop (4,097), about 17% hybrid (869), and approximately 1% closed-loop in 2025. The report stated that the number of vessels outfitted with scrubbers is increasing and identifies 93 bans and restrictions across 43 countries in place against scrubbers and associated discharges as of February 2023. Eighty-six percent of the measures are bans rather than more limited restrictions, with most bans focusing on open-loop scrubbers or washwater discharges.

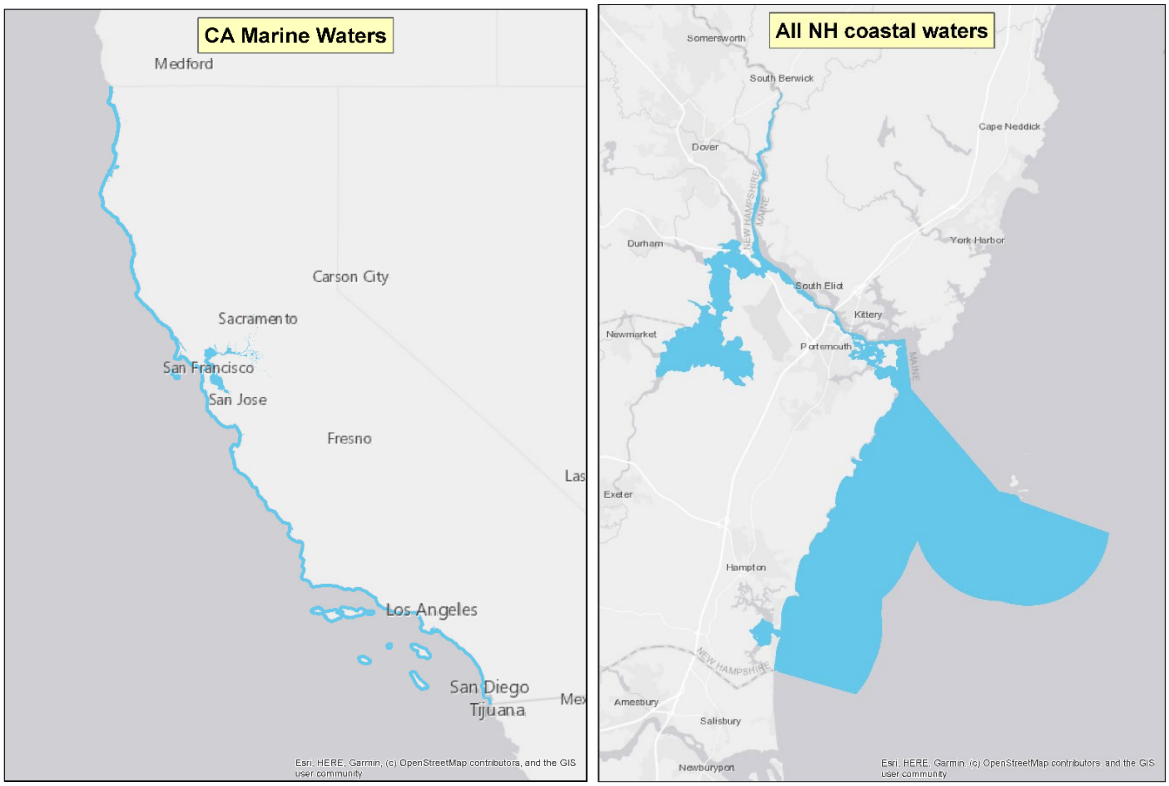


Bans and restrictions on scrubbers by countries and ports.

**This map is presented without prejudice as to the status of or sovereignty over any territory, the delimitation of international frontiers and boundaries, and the name of any territory, city, or area.*

The approaches taken by different countries vary, but all have the same goal of protecting the environment. For example, in Germany, inland waterways are regulated by the Strasburg Waste Convention (CDNI) which classifies scrubber washwater discharges as “hazardous substances” and thus prohibited. China’s Maritime Safety Administration has prohibited washwater discharges from open-loop scrubbers in inland river and coastal port Emission Control Areas (ECAs) since 2019. Egypt bans all scrubber types in its territorial waters and ports.

The U.S. has regulations in five states (Connecticut, California, Florida, Hawaii, and Washington) that target cruise ship pollution. Connecticut has a statewide scrubber ban. Hawaii controls discharge through official license and permitting. Florida and Washington State have port-level measures in place. California has passed a series of statutes limiting vessel discharges. California Senate Bill 771, the Clean Coast Act enacted into law in 2005, prohibited all commercial ships from dumping hazardous waste, sewage sludge, oily bilge water, “gray water” from sinks and showers, and sewage in state waters. The bill also required California to petition the federal government for “No Discharge Zones” to enforce the bill’s anti-dumping provisions, ultimately leading to action by the federal government. California now has 11 No Discharge Zones; the latest in 2012 protects the entire California coastline. New Hampshire has taken a similar approach with 2 No Discharge Zones, one for coastal waters and another for all in-land waterways, thereby protecting the entire state and coastline.



California’s 11th and New Hampshire’s 2nd No Discharge Zones covering coastal waters.

Note that the California law goes beyond scrubber discharges; it also includes sewage and gray water. This is also very important to secure the health of Virginia waters. As pointed out in the pollutions section and reiterated here, effluent waste can contain bacterial and viral pathogens and high nutrient concentrations

which promote algal blooms and cause oxygen-depleted "dead zones," which are especially harmful to sessile organisms like oysters.

Virginia has only four No Discharge Zones to protect against discharge. According to the EPA website they are: Sarah Creek and Perrin River; Smith Mountain Lake; Lynnhaven River; and Broad Creek, Jackson Creek and Fishing Bay. This is a sound practice, but these zones cover only a small fraction of Virginia territorial waters.

Many States augment the EPA's Vessel General Permit (2013 VGP section 6.0) for discharges to protect their waters and the associated ecosystems. Provisions address black and gray water, bilge water, "hazardous wastes which poses a potential threat to human health or the environment," and other types of pollution. Connecticut directly targets scrubbers stating, "Discharge of exhaust gas scrubber washwater into Connecticut waters from any vessel covered under the VGP or sVGP is prohibited." In total, 25 states have augmented the VGP to add protections not found in the 2013 VGP. Many States have been effective at closing gaps in the dated VGP, but Virginia has no additional provisions in the VGP. When the EPA's new standard becomes regulations, the 2013 VGP will be deprecated, but states will still be allowed to enact stricter regulations for their territorial waters.

More information on scrubber bans around the world is presented in Appendix A. Another article by LITECH states that "more than 120 ports worldwide have banned open-loop scrubber discharge," yet Virginia has no such restrictions. A list of ports and countries banning scrubbers can be found in Appendix B.

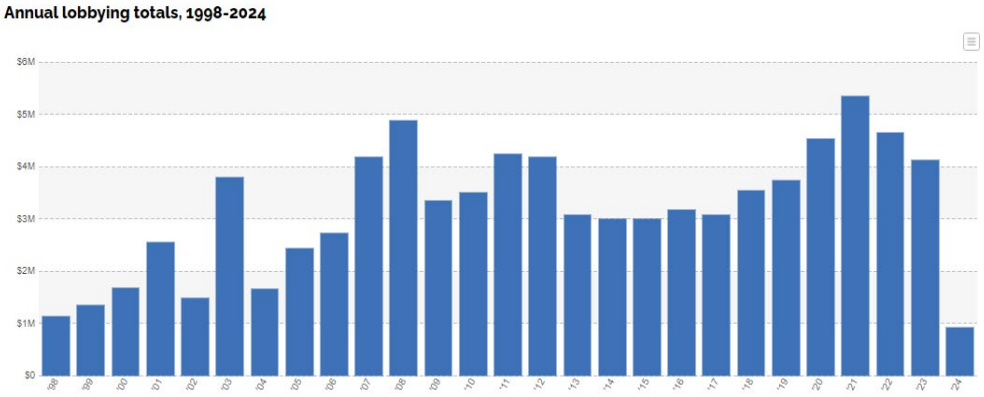
As previously stated, the carbon footprint of large cruise ships is enormous; one ship is approximately equal to 80,000 cars. The industry is growing rapidly. A recent article by The Guardian states, "Cruise ships pumped out 17% more carbon dioxide in 2022 than they did in 2019." The industry also claims their newest ships are green as they transition to Liquid Natural Gas (LNG) but "methane emissions rose 500% over the same time period." According to the documentary, The Cruise Ship Industry: A Floating Grave?, 3% of methane is uncombusted and methane is 25 time more potent than CO_2 as a green house gas.

Infrared capture of methane emission from a cruise ship
Source: The Cruise Ship Industry: A Floating Grave?

This is an ominous trend that will exacerbate climate change and effects like ocean acidification. The cruise industry could have chosen to use cleaner fuel but elected to put profit first. Shore-based power generation is often much cleaner than ship-board generation. For example, Dominion Energy has renewable energy programs for users, in which cruise ships could participate. The Port of Seattle is taking this approach, with a goal to phase out seaport-related emissions by 2050. A shore power connection allows cruise ships to plug into cleaner, land side electrical power and turn off engines, reducing diesel emissions by 80% and CO_2 emissions by 66% on average. New York has also recently proposed a bill "to compel cruise terminal operators to require that cruise ships use shore power." It should be noted that scrubber bans also incentivize the use of shore power by allowing ships to turn off generators in port. Alternatively, they encourage clean fuels which do not require scrubbing to meet IMO sulphur emissions standards.

Cruise Industry Lobbying

There is truly a need for federal legislation protecting the environment from the cruise industry. Unfortunately, this has been thwarted by the cruise industry's powerful lobby, thus making it essential for the Commonwealth to act. According to Open Secrets, the cruise industry currently has 29 registered lobbyists in the U.S. and has been spending millions of dollars per year.



Annual Cruise Industry Funding for Lobbyists

U.S. Congressman Sam Farr tried four times to get federal cruise ship environmental legislation passed, but he never got enough support to get beyond the cruise lobby.

"The lobbying work," Farr said in an interview with Univision News, "has prevented Congress from even considering reviewing a third bill — the Clean Cruise Ship Statute — which seeks to prohibit cruise ships, regardless of their flag or the nationality of their owner company, from dumping wastewater, garbage and other polluting substances into the waters near the coasts of the United States. Preventing all of this is costly, and cruise lines don't want to spend money operating wastewater treatment plants on their ships." The U.S. currently requires ships to be only three miles from shore before dumping raw sewage, whereas UN international regulations (under MARPOL Annex IV, to which the U.S. is not a signatory) sets the limit at twelve miles.

Virginia now has three registered lobbyists working on behalf of Princess Cruise Lines to promote the cruise industry in the Commonwealth. In late 2022 and 2023, they successfully lobbied for legislation to fund a cruise ship pier in Yorktown, Virginia. This was all done behind the scenes and without citizen input. It was only through a petition and a concerted effort from the community, after Princess Cruise Lines had already announced Yorktown as a port of call, that the project was halted and the funding rescinded.

In addition to paid lobbyists, the cruise sector has a powerful trade organization, Cruise Lines International Association (CLIA), which promotes the industry and shapes messaging around "environmental sustainability", highlighting use of liquid natural gas (LNG) and shore power which are barely used by most cruise ships and which are not the panacea CLIA claims them to be. For example, LNG contains methane, a greenhouse gas, which the EPA states "is more than 28 times as potent as carbon dioxide at trapping heat in the atmosphere." According to the International Council on Clean Transportation, methane emissions, or "methane slip," from LNG-fueled ships have more than doubled in recent years. The cautionary topics in this petition are not part of the industry and CLIA's message.

A variety of regulatory approaches have been used in attempts to curb the air and water pollution that is so prevalent in this industry. More and more regions are dealing with these impacts and have taken action. Further study of the right approach for Virginia is warranted, but California's approach seems the most comprehensive, strongly targeting vessel discharges via extensive No Discharge Zones. Preventing the cruise industry's large capacity passenger ships, due to the volume of toxic effluents they produce, from discharging waste in Virginia's territorial waters seems compelling and appropriate. The No Discharge Zone approach should be considered as an effective approach to protect Virginia and our marine-based economy.

Conclusion

The large capacity ships used by the cruise industry hold thousands of passengers, burn HFO, generate megawatts of power, exhaust an unhealthy mixture (SO_x, N_x, CO_2, particulates) into the air and toxicants (Zinc, PAHs, Arsenic, Nickel, etc.) into the water on a scale unparalleled by other vessels. Their practices and scale put them in a class by themselves, requiring stringent regulatory controls.

The seafood industry significantly contributes to the Commonwealth's economy creating jobs and revenue. The cruise industry has clearly stated and demonstrated that it wants to expand in Virginia, and if poorly regulated, this expansion will have detrimental impacts on Virginia waters and our marine resources, while also significantly contributing to climate change and associated ocean acidification on a global scale. The dismal record of cruise ship pollution is clear, and countries and ports around the world have acted to limit the environmental impacts of these massive ships. The large volumes of pollutant discharges and the known climate, acidification, and oxygen-depleted "dead zone" impacts make a strong case for DEQ regulations. I respectfully request that you consider this petition for new cruise industry regulations.

Thank you for your consideration.

Protect Virginia Steering Committee: Robert Hodson, Theresa Hodson, Jacques van Montfrans, Elizabeth Wilkins, Mary Jo O'Bryan, Angier Brock, Alyssa Adams, Barbara Luck, Betsy Taylor, Bill Taylor, Carolyn Weekley, David Douglas, Lyn Douglas, Tom Des Lauriers, George Bennett, Maureen Moss, Herb Moss, George Handley, Susan Handley, Lea Gryk, Jose Longoria

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Appendix A: Current Global Bans and Restrictions Against Scrubbers

Source: [June 2023 International Council on Clean Transportation (ICCT) Policy Update]

EUROPEAN UNION, UNITED KINGDOM, AND NORWAY

There is some kind of restriction or ban on scrubbers in seventeen EU countries, the United Kingdom, and Norway (Figure 5). Eight of these countries ban or restrict scrubbers in their territorial waters and/or port areas, and four countries have bans in their territorial waters and have further measures implemented by local ports with stricter targets (e.g., France and Norway in the fjord area). In the case of Germany, inland waterways are regulated by the Strasburg Waste Convention (CDNI) which classifies scrubber washwater discharges as "hazardous substances."[7] According to another regulation, the SeeUmwVerhV, this classification also applies to the maritime sector and the ban would therefore also apply to seas and oceans.[8] Thus, vessels in Germany are only allowed to use closed-loop scrubbers and washwater discharges are prohibited. In the remaining seven countries, the bans are implemented at the port level. One example is the Port of Gothenburg in Sweden; in its regulation, updated in 2022, the port prohibits washwater discharges and only allows the use of closed-loop mode in the port area.[9]

In the case of restrictions in this region, these usually require that vessels get authorization before entering the port or the territorial area (e.g., Estonia and Port of Bilbao), require the use of closed-loop scrubbers only (e.g., Port of Felixstowe), or require proof that the discharged water will not harm the environment and that the pH of the discharged water be below 8.0 (e.g., Lithuania).[10]

Figure 5. Bans and restrictions on scrubbers in Europe.

**This map is presented without prejudice as to the status of or sovereignty over any territory, the delimitation of international frontiers and boundaries, and the name of any territory, city, or area.*

ASIA

Bans against open-loop washwater discharges have been adopted in China, Malaysia, and Singapore (Figure 6). In Malaysia, the ban applies to territorial waters and in Singapore, the ban was published by the Port Authority of Singapore and applies only to the port area.

Since 2019, China's Maritime Safety Administration has prohibited washwater discharges from open-loop scrubbers in inland river ECAs, waters of the ports in coastal ECAs, and in the Bohai water area. Before entering these areas, ships are to switch to low-sulfur fuels and record information about the fuels used before and after the switch, as well as the time it took to make the switch. In Hong Kong, there is a restriction on scrubber use and authorities need to be "satisfied" with the effectiveness of the sulfur abatement technologies in use on the vessel before they grant access to territorial waters.

Figure 6. Countries and ports that have a ban or restriction on scrubbers in Asia.

**This map is presented without prejudice as to the status of or sovereignty over any territory, the delimitation of international frontiers and boundaries, and the name of any territory, city, or area.*

AMERICAS

In the United States, measures against scrubbers are applied in five states (Figure 7). California bans scrubbers within 24 nm of its coast.[11] According to the Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP), in Connecticut, the washwater from any vessel included is prohibited.[12] In Hawaii, discharging is allowed if ship owners obtained an official license or permit when entering territorial waters. In Florida and Washington State, port-level measures are in place. The Port of Seattle in Washington does not allow washwater discharges from cruise ships and the Port of Canaveral in Florida prohibits washwater discharges.[13]

In Canada, the Vancouver Fraser Port Authority amended its port information guide in 2021 to promote safer and more efficient navigation in its area.[14] One of the amendments states that discharges from fuel combustion machinery into the environment are not permitted while a vessel is at anchorage or at berth, and this applies to water from both open-loop and closed-loop scrubbers. Also, ships fitted with hybrid scrubbers should switch as soon as possible to closed-loop mode and operate the scrubber in zero-discharge mode. Bleed-off water from closed-loop scrubbers is prohibited and should be disposed of in an adequate facility; if not, vessels must switch to compliant fuel or shore power. Lastly, vessels outfitted with scrubbers are required to submit a pre-arrival declaration to the port.

There are limits on the use of scrubbers in five countries in Central and South America (Figure 7). (Argentina previously had a ban on washwater in its territorial waters and ports, but it was suspended due to COVID-19, and thus is not counted). Bermuda bans washwater and residues from scrubbers in its territorial waters and Panama bans them at the Panama Canal. Trinidad & Tobago allows the discharge of washwater, but only with prior approval. In Belize, washwater cannot be discharged into territorial waters and or at ports. A national regulation in Brazil requires that scrubbers have an approved compliance plan and documentation, and additional measures against washwater discharges from scrubbers are taken at the port level. For example, at Vale S.A. ports, within 24 nm of the coastline ships should use only low-sulfur fuel and not discharge any washwater into the ocean. Also, the ports of Rio Grande, Pelotas, and Porto Alegre ban any discharges or bleed-off water, from both open-loop and closed-loop scrubbers, within the polygon of the Ports of Rio Grande do Sol, Lake Guaíba, and Lagoa dos Patos waterway.

Figure 7. Bans and restrictions on scrubbers in the Americas.

**This map is presented without prejudice as to the status of or sovereignty over any territory, the delimitation of international frontiers and boundaries, and the name of any territory, city, or area.*

OCEANIA

The Port of Hastings in Australia is the only place in Oceania that applies any measure on scrubbers (Figure 8). It prohibits the discharge of any offensive and contaminated liquid or waste matter from every vessel type in its port area.[15] This would include discharges from scrubbers.

In 2021, New Zealand's Ministry of Environment released guidelines for the use of scrubbers in territorial waters and they are "discouraged." Ships outfitted with scrubbers should avoid discharges when possible and carry compliant fuels onboard.

Furthermore, they are encouraged to use closed-loop scrubbers in zero-discharge mode and retain the sludge until it can be disposed of in a port facility. Because this is not a formal ban or restriction, it was not counted in our study.

Figure 8. Bans and restrictions on scrubbers in Oceania.

**This map is presented without prejudice as to the status of or sovereignty over any territory, the delimitation of international frontiers and boundaries, and the name of any territory, city, or area.*

AFRICA AND THE MIDDLE EAST

There are bans on open-loop scrubber operations in four African countries (Figure 9). Egypt bans all scrubber types in its territorial waters and ports, and the Suez Canal bans them in the port area. Kenya applies the ban to open-loop scrubbers in all ports and the port of Mombasa in Kenya applies further rules and requires that ships switch to compliant fuels or use closed-loop mode for hybrid scrubbers.

Mozambique allows open-loop scrubbers in its territorial waters if they work properly and follow the regulations; ships must use compliant fuels instead of open-loop scrubbers within ports, bays, and estuaries. Additionally, open-loop scrubbers are banned in all port areas in Mozambique. The Port of Nacala is the only port in Mozambique that has further requirements, and it bans all scrubber discharges in its area.

In the Middle East, Bahrain has a Marine Notice that encourages the use of closed-loop scrubbers in its territorial waters and exclusive economic zone and allows discharges from open-loop scrubbers only if vessel operators can prove that the discharges will not bring any harm to the marine ecosystem. Additionally, open-loop discharges are prohibited in the port of Bahrain and at anchor. In six other countries, ports ban the discharge of washwater from open-loop scrubbers and instead recommend the use of closed-loop scrubbers or compliant fuels. In the ports under the jurisdiction of the Ports, Customs and Free Zone Corporation in the United Arab Emirates, all scrubber use is banned in territorial waters and in Oman, scrubber use is banned in territorial waters only.

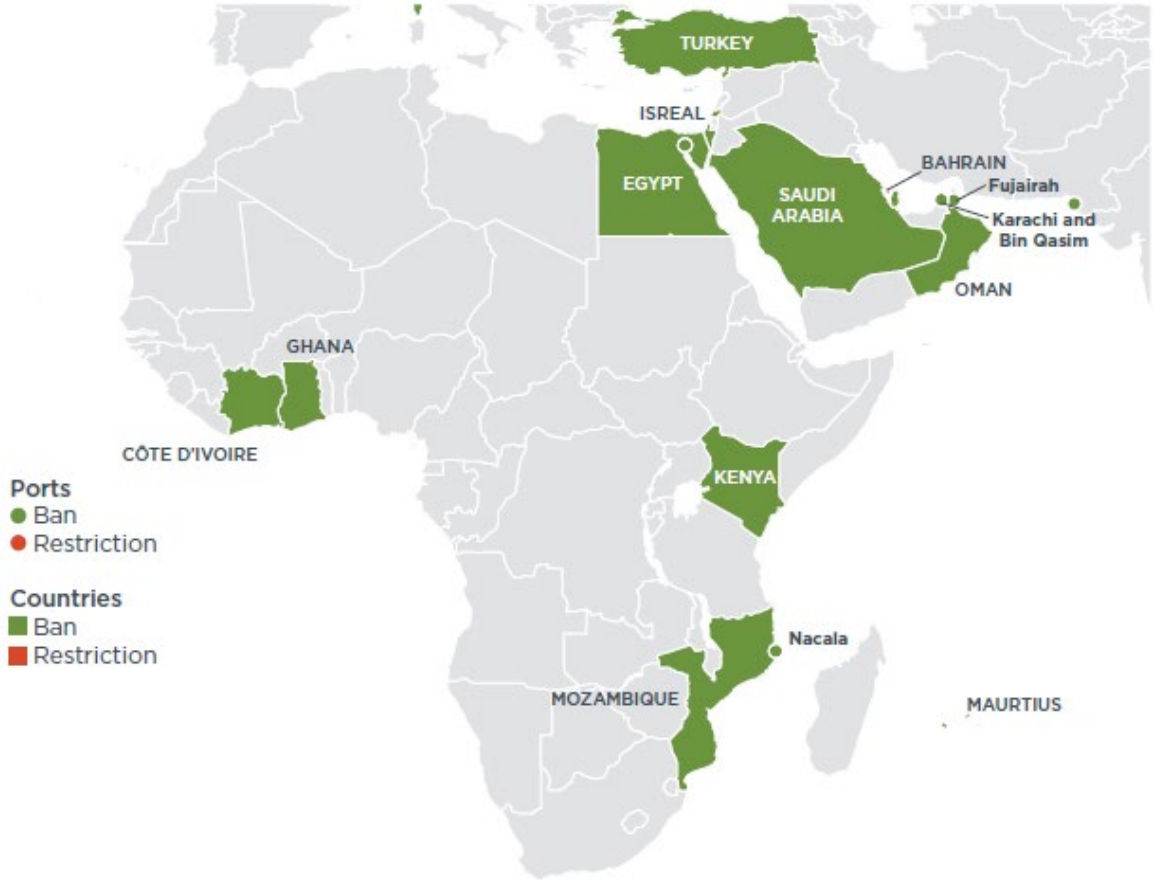


Figure 9. Bans and restrictions on scrubbers in Africa and the Middle East.

**This map is presented without prejudice as to the status of or sovereignty over any territory, the delimitation of international frontiers and boundaries, and the name of any territory, city, or area.*

7 CDNI, "The CDNI Convention - Convention on the Collection, Deposit and Reception of Waste Generated during Navigation on the Rhine and Other Inland Waterways," 2018, https://www.cdni-iwt.org/the-cdni-convention/?lang=en.

8 Federal Ministry of Transport and Digital Infrastructure and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety in agreement with the Federal Ministry of Finance, "SeeUmwVerhV - Verordnung Über Das Umweltgerechte Verhalten in Der Seeschifffahrt," accessed March 30, 2023, https://www.gesetze-im-internet.de/seeumwverhv/BJNR137110014.html.

9 "Permits and Regulations," Port of Gothenburg, 2022, accessed March 10, 2023, https://www.portofgothenburg.com/maritime/permits-and-regulations/.

10 "Shipmasters Information and Emergency Procedure Guide," Port of Felixstowe, July 2020, https://www.portoffelixstowe.co.uk/files/8015/9351/1985/Shipmasters_information_booklet_July_2020.pdf.

11 "Ocean-Going Vessel Fuel Regulation," California Air Resources Board, accessed March 29, 2023, https://ww2.arb.ca.gov/our-work/programs/ocean-going-vessel-fuel-regulation.

12 U.S. Environmental Protection Agency, "Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP)," 2013, https://www3.epa.gov/npdes/pubs/vgp_permit2013.pdf.

13 Port of Seattle, "Terminal Tariff No. 5: Rates, Charges, Rules and Regulations for Services Performed by and at the Port of Seattle and at Terminals of Participants," effective January 1, 2023, https://www.portseattle.org/sites/default/files/2022-12/Terminals%20Tariff%205%2001.01.23.pdf; Canaveral Port Authority, "Tariff No. 16: Governing Rates, Rules & Regulations of Marine and Port Services Provided by the Canaveral Port Authority," effective October 1, 2020, https://www.portcanaveral.com/Cargo/Port-Tariff/CPA-Tariff-16-FY21-FINAL-(1).aspx.

14 Vancouver Fraser Port Authority, "Notice of Amendment: Port Information Guide."

15 Port of Hastings, "Port Operating Book," 2017, https://static1.squarespace.com/static/592f5720f5e2317ce97cec2c/t/59559f78d1758e3b9a29aa6d/1498783617943/POH-OPR-PRO-001+Port+of+Hastings+Operating+Handbook_Rev0.pdf.

Appendix B: Regulatory Details of Worldwide Scrubber Bans

The table below summarizes the positions taken by ports that have prohibited the use of scrubbers.

Source: NorthStandard, published June 7, 2024

Country	Comments
American Samoa	In February 2024, a club member shared advice they had received, informing that open loop EGCS operation was not permitted in Pago Pago.
Bahrain	MARINE NOTICE: PMA/03/2019 states that open loop operation not allowed in port or at anchor Open loop operation is allowed in Bahraini territorial waters and exclusive economic zone (EEZ) as long as it can be proved that the discharge of washwater complies with MEPC.259(68) and there is no negative impact on marine ecosystems. The Clean Shipping Alliance advise: Vessels must obtain a permit from the Marine Safety & Environment Protection Directorate before discharging washwater anywhere in Bahrain waters.
Belgium	Belgian federal law states discharge only allowed in coastal and open seawaters when at least 3nm off coast. Discharges must not imperil EU Water Framework Directive objectives. Flemish regional law also confirms discharge not allowed in ports or inland waters.
Belize	The Clean Shipping Alliance advise: Discharge of Exhaust Gas Cleaning Wash Water prohibited in territorial waters and port areas (Marine Circular 01/2018 – BPA/MS/23-1/2018(98) dated 12/12/2018).
Bermuda	Ships equipped with Exhaust Gas Cleaning Systems (EGCS) shall seek the prior approval of the Environmental Authority before its use in Bermuda's territorial waters. Washwater and residue from the EGCS shall be not disposed of in Bermuda or discharged into Bermuda's waters but shall be stored on board the ship until outside of Bermuda's waters. See Government of Bermuda's Environmental Policy for Ships at https://www.gov.bm/environmental-policy-ships.
Canada	The Vancouver Fraser Port Authority's (VFPA) will prohibit the discharge of washwater from exhaust gas cleaning systems when vessels are anchored in the port or moored at a berth from 1 March 2022. The VFPA have indicated that the VFPA's Harbour Patrol crew will be responsible for enforcement activities through random checks on vessels.

China (P.R.)	China MSA guidance prohibits the discharge of water washings from open-loop scrubbers in certain areas. The prohibited areas are: Inland river Emission Control Areas (ECAs); Port areas within coastal ECAs; and Bohai Sea – the sea area within lines connecting the junction point of shorelines of Dandong, Dalian and shorelines of Yantai, Weihai. The guidelines also prohibit the incineration of the water washing residues from any type of exhaust gas scrubber. Ships are required to keep accurate records of the stowage and disposal of the washing washings. If a vessel is not able to store the washing water it is required to switch to low sulphur fuel (not exceeding 0.5%) prior to entering the above areas. The guidelines also state that under certain circumstances a vessel may apply for an exemption if it uses fuel that does not meet the MSA's requirements. A copy of the MSA's guidelines for ships operating within the ECAs, including enforcement details can be found here.
Croatia	The Clean Shipping Alliance advise that the Ministry of the Sea, Transport and Infrastructure Notice from 27/10/2017 states that only loop operation is allowed.
Denmark	In April 2024, the government has reached an agreement on a ban on the discharge of scrubber water into Danish territorial waters 12 nautical miles from coast). The ban will take effect on July 1, 2025. Under the agreement, ships must switch to either compliant fuel or closed-loop scrubbers. It is expected that the ban will extend to cover closed scrubbers from July 1, 2029.
Egypt	Suez Canal: Suez Canal Authority has issued Circular 08/2019. Clarification on this circular is provided here. The authority puts no conditions or restrictions on marine fuels until Egypt ratifies MARPOL Annex VI – as such, sulphur cap is not in force. Washwater from open-loop scrubbers is not permitted to be discharged during transit of the canal.
Finland	The Clean Shipping Alliance advise: Open loop discharge not permitted in harbor area of port of Porvoo. Ministry of Transport and Communications informs: Under Finnish legislation, the discharge of wash waters from open-loop scrubbers is allowed in Finnish ports and territorial waters. However, some ports have restricted the discharge in the port area under their own competence.
France	In July 2021, the French authorities issued Proposed Amendments to Division 213 – Pollution Prevention – Prohibition of the discharge of open loop scrubbers from the limit of 3 nautical miles.

	The Budd Group advises that the prohibition took effect on 1 January 2022, and applies to all French and foreign commercial vessels with open loop scrubbers. To comply, the ships concerned must, during their operations in the coastal area and in the port enclosures, stop using their scrubbers and use fuel with a sulphur content that complies with the regulatory ceilings. Compliance with the measure will be monitored by ship safety inspectors. The penalties applicable in the event of an infringement may start at 4,000 euros for the Master of the vessel and go up to 7 years' imprisonment and a fine of 10.5 million euros depending on the vessel concerned.
Germany	EGCS discharge is not permitted according to the convention on the collection, deposit and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI Convention). Restrictions apply to all inland waterways intended for general traffic except for the German part of Lake Constance and the stretch of the Rhine upstream of Rheinfelden.https://www.cdni-iwt.org/presentation-of-cdni/?lang=en.
Ghana	The Clean Shipping Alliance advises: Ghana Maritime Authority informed the CSA that the Administration does not allow the operation of open-loop scrubbers in Ghanaian waters.
Gibraltar	Closed loop scrubbers are permitted in Gibraltar waters. Hybrid scrubbers operating in closed loop mode are also permitted. Open loop scrubbers are temporarily not permitted as a precautionary measure until the Gibraltar Government arrives at a definitive policy decision with regards to (solely) open loop scrubbers.
Ireland	Dublin: Refer to Port of Dublin's NOTICE TO MARINERS No. 37 of 2018 Prohibition on the Discharge of Exhaust Gas Scrubber Wash Water http://www.dublinport.ie/wp-content/uploads/2018/06/37-2018-Prohibition-on-the-Discharge-of-Exhaust-Gas-Scrubber-Wash-Water.pdf. Waterford: Port of Waterford weblink http://www.portofwaterford.com/news/marine-notices-prohibition-on-the-discharge-of-exhaust-gas-scrubber-wash-wa. The Clean Shipping Alliance advise: Cork: Notice to Mariners 15/2018 dated 12/01/2018 "Prohibition on the Discharge of Exhaust Gas Scrubber Wash Water" can be read here.
Israel	Official notice MP27 dated 11 January 2023 issued by the State of Israel Ministry of Transport regarding the new fuel sulphur regulations states that discharging of washwater from open loop mode EGCS (scrubber) is prohibited when ship is berthing alongside in any Israeli port, including ports anchorage area. Read the notice here.
Ivory Coast	No formal documentation sighted or referenced, but Abidjan agents have advised open loop operation is prohibited in territorial waters.

Kenya	The Clean Shipping Alliance advises: Kenya's National Guidelines for Implementation of IMO 2020 December 2019 include: 7.1. The discharge of washwater from open-loop scrubbers is prohibited in the Kenyan Ports limits. This is to maintain the standard of Kenya marine water quality. 7.2 While in the port of Mombasa, ships fitted with hybrid type of scrubbers shall switch to the closed- loop mode of operation. Ships fitted with open-loop scrubbers shall switch over to compliant fuel oil.
Malaysia	Malaysia shipping notice MSN 07/2019 prohibits the use of open loop scrubbers within 12 nautical miles from land. Vessels calling at Malaysian ports must operate in closed loop mode or change over to compliant fuel before arrival.MSN072019 (2).pdf.
Mauritius	The Clean Shipping Alliance advise: Merchant Shipping Notice 2 of 2019 includes: 3.9 …except in the case of innocent passage, ships proceeding to Mauritius or other islands forming part of the territory of Mauritius that use high sulphur fuel oil (HSFO) in combination with open-loop scrubber shall changeover from HSFO to compliant fuel oil whenever they enter the territorial waters of Mauritius i.e. within 12 nautical miles from the shore. Environmental legislation presently in force in Mauritius prohibits the discharge of wash water from open loop scrubbers.
Mozambique	The Clean Shipping Alliance advise: As per Decree 45/2006, the COO of the Nacala Port stated in March 2021 that the discharge of washwater is not allowed in the Nacala Port. Harbor Master for the Port of Maputo informs in March 2021 that: a) Open loop scrubbers are allowed in the Mozambique territorial waters as long as they are working properly and following all the regulations. b) Within ports, estuaries or bays where the water salinity values fall from the standard ones considered for salt water (1,025 or more), open loop scrubbers are not allowed and the ships must operate using compliant fuel.
Norway	The World Heritage Fjords sea areas of Geirangerfjord and Nærøyfjord restrict the use of open loop scrubbers, but not closed loop. Section 14b of the relevant Norwegian Maritime Authority's regulation can be accessed at: https://www.sdir.no/en/shipping/legislation/directives/amendments-to-the-regulations-on-environmental-safety-for-ships-and-mobile-offshore-units/. Eidfjord – closed loop operation only: https://www.cruise-norway.no/viewfile.aspx?id=5697
Oman	Open-loop scrubber discharge is not permitted in Oman territorial waters The Clean Shipping Alliance advise: Marine Notice No. 09/2020 includes:

	1. Ships that use open loop ship exhaust gas cleaning systems are prohibited from discharging washing water into Omani ports and territorial waters. 2. Ships that use hybrid exhaust gas cleaning systems must switch from the open loop mode to the closed loop mode when they reach the territorial waters and keep the washing residues on board and dispose of them in the designated facilities at the port. 3. Ships using closed loop exhaust gas cleaning systems must keep the washing residues onboard when they reach territorial water and dispose of it at designated facilities at the port.
Pakistan	The Government of Pakistan Ministry of Maritime Affairs (Ports and Shipping) Circular 001/2020 (Click Here) prohibits the discharge of washwater from open loop scrubbers. If closed loop scrubbers are not in use then compliant fuel should be used and changed over before arriving in port waters.
Panama	NT NOTICE TO SHIPPING No. N-1-2020 "Vessel Requirements", Section 31 states the following and can be accessed here. The use of open loop scrubbers or hybrid scrubbers in open loop mode is prohibited in Panama Canal waters. Vessels opting to use closed loop scrubbers or hybrid scrubbers in closed/ zero discharge mode shall submit documents to the panama-canal authority as detailed in section 31 E. Additionally, Section 28 (5) of the same document states: "Residues from the Exhaust Gas Cleaning System (EGCS) washwater are to be collected on board. Discharging these residues into the water bodies under the responsibility of the Panama Canal or incinerating them on board is not permitted."
Papua New Guinea	7 June 2024 – Ministry of Mines and Geology (MMG) representative and appointed surveyor's conduct are less flexible when performing mandatory draft surveys on board vessels loading bauxite. MMG will not hesitate to withhold outward clearance from any vessel which refused to align its and/or their surveyor's draft figures with their own. To mitigate this risk,the recommendation for vessels loading bauxite in Guinea's ports (Conakry, Kamsar, Boffa, Boke etc) is to appoint a surveyor to carry out initial and final draft surveys. The surveyor's presence for the survey to be joint may facilitate communication with the MGM survey to prevent and/or mitigate any figures discrepancies. The Master may also seek assistance for a local surveyor on issuing letters of protest and clausing of the MMG draft results which the vessel will be asked to sign. This can be part of the loading survey which are regularly arranged on board vessels loading bauxite. Precautions need to be taken when discharging ballast water in all Guinean ports, Guinea which ratified the MARPOL Convention. Local authorities prohibit the discharge of harmful substances into the water, and ballasting operations are only allowed subject to verification by the Harbor master's office or the competent authorities. In the event of breaches, Members incur the risk to see fines equivalent to 150% of the vessel's disbursement account being imposed, which can needless to say reach very high amounts. Ballasting and de-ballasting without permission have previously resulted in the imposition of fines by the authorities. Therefore, a

	special permission must be obtained from local authorities if the operation is considered.
Portugal	Use of open loop scrubbers are not allowed in ports of Aveiro, Leixoes, Lisbon and Sines from entry of the ship into the port, along the port channel and at berth (moored), until the ship leaves the port. Only closed loop operation is allowed. The Clean Shipping Alliance advises: Although the Decree-Law no. 170/B/2014 allows the use of the open loop scrubbers as an alternative option to the compliant fuel, the ports' administrations can go beyond the federal regulation and apply additional restrictions. Use of open loop scrubbers are not allowed from entry of the ship into the port, along the port channel and at berth (moored), until the ship leaves the port. Only closed loop operation is allowed.
Qatar	The Clean Shipping Alliance advises: Qatar Petroleum MIC [Mesaieed Industrial City] Port Information and Regulations Guide – January 2020 states: "Also, as per Qatari Environmental Law, wash water originated from the open loop scrubbers, containing chemicals and /or metals are PROHIBITED to be discharged in Qatari waters."
Romania	The Clean Shipping Alliance advises: Information from Romanian Naval Authority dated 30/03/2021 states there is no restriction of using open-loop EGCS into Romanian territorial waters but use is forbidden within port limits.
Saudi Arabia	As detailed in Circular 55-2020, Saudi Port Authorities have banned exhaust wash water discharges from open loop EGCS systems in Saudi ports until an environmental standard is issued in this regard. The Circular also states that Saudi GAMEP authority prevents discharge in territorial waters.
Singapore	Maritime and Port Authority of Singapore (MPA) ban on the use of open loop scrubbers took effect on 1 January 2020. See https://www.mpa.gov.sg/web/portal/home/singapore-registry-of-ships/about-srs-and-what-new/IMO-2020-Fuel-Oil-Sulphur-Limit. The Clean Shipping Alliance advises: This ban does not apply to ships transiting the Traffic Separation Scheme (TSS) without calling into the Port of Singapore.
Slovenia	The Clean Shipping Alliance advises: Information from the Slovenian Maritime Authority dated 23/03/2021 refers to "Water Act" (Official gaz. no. 67/02) in detail: the Article 66, paragraph 4. The discharge of washwater of open-loop EGCS is prohibited, furthermore even the

	use of an open loop EGCS in Slovenian waters is prohibited (only closed loop EGCS is allowed). Article 66 (navigational practices related to water pollution): (4) Waste water generated on vessels shall be prohibited from being discharged into waters directly from vessels, except for unpolluted cooling. water.
Spain	Correspondents advise to check with each particular Harbour Master and Port Authority. They further advise that the use of open loop scrubbers is prohibited at the Spanish ports of Algeciras, Cartagena, Valencia and Huelva. The Clean Shipping Alliance advises in ports of Bilbao and Cadiz the use of EGCS is restricted within port limits. Documentation must be submitted and approved by the harbor master before EGCS can be used in port.
Sweden	While there is no nationwide ban in Swedish waters on the use of open loop scrubbers, some ports have placed local restrictions: Stockholm – North's correspondents advise that there is an open loop scrubber ban in Stockholm. Trelleborg – Chalmers University in Gothenburg advise of ban of open loop scrubbers in port of Trelleborg. See section 29 of the Swedish language version of the Trelleborg port regulations (https://www.trelleborgshamn.se/wp-content/uploads/2020/01/Hamnordning-G%C3%A4llande-fr%C3%A5n-1-januari-2020.pdf). Gothenburg: The Clean Shipping Alliance advise port regulation item 8.10: It is not permitted to discharge contaminated water within the port area. Scrubbers used for exhaust gas cleaning are only permitted if operated in close loop mode. (Click Here). Petroport, Stenungsund – See section 12 of harbor regulations which state "Vessels calling at the Port are not allowed to use Open-loop System for scrubbers". See http://www.petroport.se/wp-content/uploads/2019/11/PetroPort-Harbour-Regulations-2016_v8-nov-2019-1.pdf.
Turkey	Vitsan Mümessillik ve Müşavirlik A.Ş advise that the Ministry of Environment and Urbanization of Turkey announced on 6 April 2021 that washwater discharge of open-loop scrubbers is prohibited in Turkish waters. Vessels operating with open-loop scrubber must switch sulphur-compliant fuels when entering / sailing in Turkish waters. Turkish authorities may impose a pollution fine on vessels that do not comply with the regulation. Vitsan circular regarding the scrubber usage in Turkey can be read here. The Turkish Chamber of Shipping Circular on the subject can be read here.
United Kingdom – England	The PLA allows the use of both open and closed loop scrubbers in the tidal Thames until further evidence is presented. However, open loop scrubbers are not permitted at any berths operated by the Port of Tilbury. Other individual berth operators may have their own restrictions on the use of scrubbers, agents/owners are therefore advised to contact any berth operators directly for

	advice. http://www.pla.co.uk/assets/nabso15of2020-exhaustgascleaningsystems.pdf. Permitted at APB Port of Southampton https://www.southamptonvts.co.uk/Port_Information/Regulations/Environment_Guidance_for_Commercial_Vessels_/. Permitted at Port of Felixstowe – however hybrid systems should operate in closed loop mode https://www.portoffelixstowe.co.uk/company-information/marine-information/
United Kingdom – Scotland	Forth Ports Circular No 45 of 2019 states: "Forth Ports and Port of Dundee Byelaw 59 specifically prohibits the discharge of materials into the Forth and Tay. This applies to discharge water from an "Open Loop" scrubber. Therefore, as a precaution the use of "Open Loop" scrubbers on the Forth and Tay is prohibited until further notice." See: https://www.forthports.co.uk/wp-content/uploads/2019/12/Notice-to-Mariners-No-45-of-2019-Use-of-Scubbers.pdf.
United Kingdom – Wales	Notice to Mariners No.127 of 2019 – Policy on the Use of Open-Loop Exhaust Scrubbers states: MARINERS ARE HEREBY ADVISED that, this Notice to Mariners is to communicate Milford Haven Port Authority's (MHPA) policy on the prohibition of discharge of exhaust gas scrubber wash water. This Notice applies to all vessels within the MHPA jurisdiction as set out in the Milford Haven Conservancy Act 1983 and subsequent legislation.
United States – California	The Californian ARB OGV regulations stipulate only distillate fuels can be used to comply with the 0.1% sulphur limit. Changeover to compliant distillate fuel (MGO or MDO) prior to entering Californian waters.
United States – Connecticut	Discharge of exhaust gas scrubber washwater into Connecticut waters from any vessel is prohibited. VGP 2013: 6.5.9 Discharge of exhaust gas scrubber washwater into Connecticut waters from any vessel covered under the VGP or sVGP is prohibited. This condition is necessary for compliance with CGS section 22a-427, Standards No.1, 2, 9, 12, 14, 15, and 24 of the CT WQS.
United States – Washington State	The Clean Shipping Alliance advises: Port of Seattle Terminals Tariff No. 5, Item 4001 states that passenger cruise ships will not discharge graywater, blackwater, or exhaust gas cleaning system wash water, whether treated or not while at berth in Port Terminals.
United States – Hawaii	Additional requirements under VGP 2013 Section 6.6. The State of Hawaii (Clean Water Branch) issued 'Blanket Section 401' Water Quality Criteria (WQC). This covers 27 categories of effluent discharge from an applicable vessel (EGCS washwater being one) that have received the best control or treatment into waters of the State of Hawaii incidental to the normal operation of the applicable vessels.

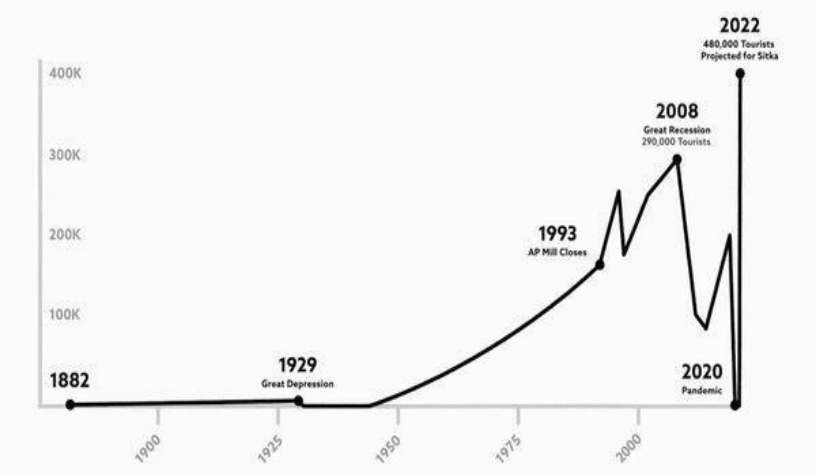
United Arab Emirates – Fujairah	Notice to Mariners No. 252 from Port Fujairah prohibits use of open loop scrubbers in its waters.
United Arab Emirates – Dubai	The Clean Shipping Alliance advises: Guidelines for Vessels Calling to Dubai Territorial Waters states that the use of EGCS is prohibited within Dubai territorial waters.

Appendix C: Other Cruise Industry Considerations

Community Impacts

Key West, Charleston, Venice, Barcelona, Sitka, Juneau, Seattle, Amsterdam, Monterey Bay, Marseille, Bar Harbor, Bergen, and many other cities all tell the same tragic story. The cruise industry has exploited these communities to the breaking point, and yet the citizens in these communities have had little input in the initial decision to bring in large cruise ships. Now they are fighting back.

Sitka, a remote community in Alaska, now has over 560,000 tourists per year (see the following graph). Sitka's story is depicted in the documentary "Cruise Boom", excerpts of which can be found here. The citizens voted down a cruise ship pier and the cruise lines side-stepped the community by helping to finance a business for a privately run pier; this also happened in Key West. In a recent Sitka survey, 63% of respondents said the cruise industry negatively impacted their lives. Despite a clear message from residents, the industry places profits before the will of the people. Bar Harbor, Maine, recently passed a law limiting tourism to 1,000 passengers per day, and it has been fighting costly court challenges. There are growing numbers of such stories worldwide.



Graph of Cruise Industry Over-Tourism in Sitka, Alaska

In Yorktown, Virginia, the cruise industry lobbied local government and legislators outside of the public eye to secure funding for a cruise ship pier on private property (the non-profit Watermen's Museum). After finding out from local media outlets, residents fought back through town educational meetings, a website, and a petition. A resident from Juneau, Alaska read about the effort to stop Princess Cruise Lines from coming to Yorktown and wrote a letter that in part stated,

> *"You are in a critical moment, and I am encouraged to see you organizing so quickly. The industry are colonizers, and they go through stages in their colonization and exploitation. I think you could be in the position to be assertive and in their face and turn them away. If they start coming, they will get locals who sell out and every local who gets money from them will make it harder to stop.*
>
> *"They promise the sun and the moon. They will externalize all costs, make demands that have you giving up what is dear to you, and frame a lot of 'facts' that are not facts."*

A concerned woman from Charleston, North Carolina, shared her experience in a heart-felt letter to the York County Board of Supervisors as well:

> *"Over the years, the cruise ship industry touted economic benefits of cruise traffic, while downplaying the harmful consequences. The boats pollute our air, create effective no-go zones for residents, and tax city infrastructure and public services. All a very sugar-coated, hidden agenda."*

The story in each port city is remarkably similar. The cruise industry's tactic is to work behind the scenes promising economic benefits while downplaying negative impacts. They work to get a foot in the door with local businesses and organizations, asking to start small, maybe with a pilot program. They will lobby local and state officials promoting their agenda, outside of the public eye if possible, and contribute to their campaigns. Once a program is initiated, they make it difficult to back out. Businesses are pitted against citizens, allowing cruise lines to continue to operate and expand. Over time a majority of residents organize and push back but it is costly and difficult to unseat this multibillion-dollar industry once it moves into an area. The cases are well documented in articles and reports. An article from the Business Insider tells the story of these port communities through images.

Foreign-flagged Ships

Most cruise ships are registered outside the United States and fly "flags of convenience." This greatly reduces their U.S. tax burden on gambling profits and their compliance with U.S. labor laws, conferring a competitive advantage over shore-based businesses, including casinos. The article, Economics of Cruise Ships, states: "According to annual report filings, the major cruise lines pay an average tax rate of 0.8%." Thus, the industry exploits U.S. infrastructure but does not give back its fair share (the Federal corporate tax rate is 21%). The various port and permit fees required of cruise lines do not adequately compensate states and localities for use of personnel, infrastructure, or for environmental and cultural impacts.

The Congressional Research Service report warned that the complicated legal structure behind cruise ships and their flags-of-convenience system makes it difficult to enforce international standards to prevent or investigate environmental accidents, due to the poor response in many cases from the countries where the vessels are registered. Although not a cruise ship, the vessel that recently collapsed the Keystone Bridge in Baltimore is a foreign-flagged ship that "follows the regulations enforced by that country despite sailing out of an American port," according to News Nation. The article also states, "the use of a foreign-built ship sailing out of an American port follows a trend in which the U.S. Department of Transportation reported a significant drop in American-built ships being used in international trade."

Cruise Ship Economics

The cruise ship industry talks about economic benefit to the community but that is simply not the case. Research shows the economic benefit to the community is about 5% of what is promised. When detrimental impacts (e.g. pollution) are considered, there is a significant net loss to the community. Cruise ship tourists spend less than virtually all other categories of tourists – even backpacker spend more. This makes perfect sense, remember this industry's sole focus is maximizing profits. Cruise ship tourists typically eat breakfast on-board, are bussed to an excursion, and are back on-board by dinnertime. And even the little spent ashore is minimized by "pay to play" agreements that compel onshore tour operators and retail businesses to pay to do business with the cruise lines.

Appendix D: Letters of Support

Friends of Earth

A Statement on the Cruise Industry in Virginia

Friends of the Earth (FoE) is a non-profit international organization that strives for a healthier and more just world. FoE is a recognized leader for well-reasoned environmental policy analysis and change that describes what needs to be done, rather than what is seen as politically feasible or desirable. Over FoE's 50+ year history, it has supported grassroots efforts, such as Protect-Virginia.org, that are working to affect positive change in their communities that align with sound environmental principles. FoE is a voice to speak uncomfortable truths to policy makers when their decisions have detrimental societal impacts.

We advocate for laws and regulations to stop cruise ships from dumping waste into our oceans and rivers, polluting our beaches, contaminating our coral reefs, and destroying our valuable marine ecology. Cruise ships the size of small cities ply the waters off our coasts, producing and then dumping large amounts of sewage and other wastes into our oceans, polluting our beaches, contaminating our coral reefs, and destroying our valuable marine ecology. Some of that waste is treated prior to dumping; other waste is dumped directly to the ocean without a second thought.

A large cruise ship, in a one-week voyage is estimated to generate 210,000 gallons (or 10 backyard swimming pools) of human sewage and 1 million gallons (40 more swimming pools) of graywater (water from sinks, baths, showers, laundry and galleys). Cruise ships also generate large volumes of oily bilge water, sewage sludge, garbage, and hazardous wastes. In addition, these luxury liners, which allow passengers access to sensitive ecosystems, spew a range of pollutants into the air that can lead to serious public health problems and contribute to global warming. In one week, a cruise ship can produce eight times the CO2 of a land-based vacation.

The rapidly expanding size and number of cruise ships in U.S. waters has triggered a national cruise ship pollution crisis. Environmental laws have not kept pace with growth of the industry. Cruise lines travel the most pristine waters of America, dumping all the way. Current laws are insufficient to prevent environmental damage from this industry.

Due to the global impacts of the cruise industry, FoE has researched this industry and reports on sewage treatment, air pollution, water quality compliance and transparency. Cruise lines currently coming to Virginia include Viking, Princess, Crystal Cruise, Holland America, and Carnival; these lines have pollution ratings of F. D, F, D-, and F respectively.

The Chesapeake Bay, rivers, and estuaries are home to more than 3,000 species of plants and animals. These fragile ecosystems will be further stressed by an industry that has not made substantial changes to address the ecological impacts they incur. Virginia has no regulatory structure in place to protect against the environmental damage this industry will cause. Friends of the Earth strongly opposes cruise industry expansion in Virginia waters and endorses the proposed cruise ship pollution regulations proposed by Protect Viginia.org.

FoE.org

Sierra Club

In Support of Stronger Environmental Regulations
For Large Cruise Ships in Virginia Waters

To Whom it May Concern,

The York River Group, Sierra Club, a grassroots environmental organization of over 900 members located in the Virginia Peninsula area, to include all of Yorktown and the York River, stands in support of Protect Virginia in their Petition for Rulemaking, submitted by Dr. Robert Hodson to the Department of Environmental Quality. This petition requests urgent, more protective regulation of cruise ships in Virginia waters.

The enormous ships, three football fields in length, and carrying thousands of passengers, have a well-known record for contaminating the air and waters. Princess Cruise Lines has a record of illegal discharges of contaminated wastewater, for which they paid the largest ever fines for maritime pollution in 2016, 2019, and 2022. Most ships use bunker fuel, or Heavy Fuel Oil (HFO), a tarry sludge left over from the crude oil refining process. The emissions of toxic nitrogen oxides, sulfur oxides and heavy metals from the burning of HFOs are a threat to human health and to the surrounding marine life. The scrubber process typically used to clean the exhaust merely transfers air pollutants into the water, and emissions of CO_2 contribute to ocean acidification and climate change.

Virginia's coastal waters support a diversity of flora and fauna including 348 species of finfish, 173 species of shellfish, more than 2,700 plant species, and more than 16 species of underwater grasses in the Chesapeake Bay watershed. The cruise ships will generate contaminants that will impact the watermen, sportsmen, and businesses who depend on a healthy marine environment.

Kindly accept these comments for your consideration.

Tyla Matteson
Chair, York River Group
Sierra Club
804-275-6476