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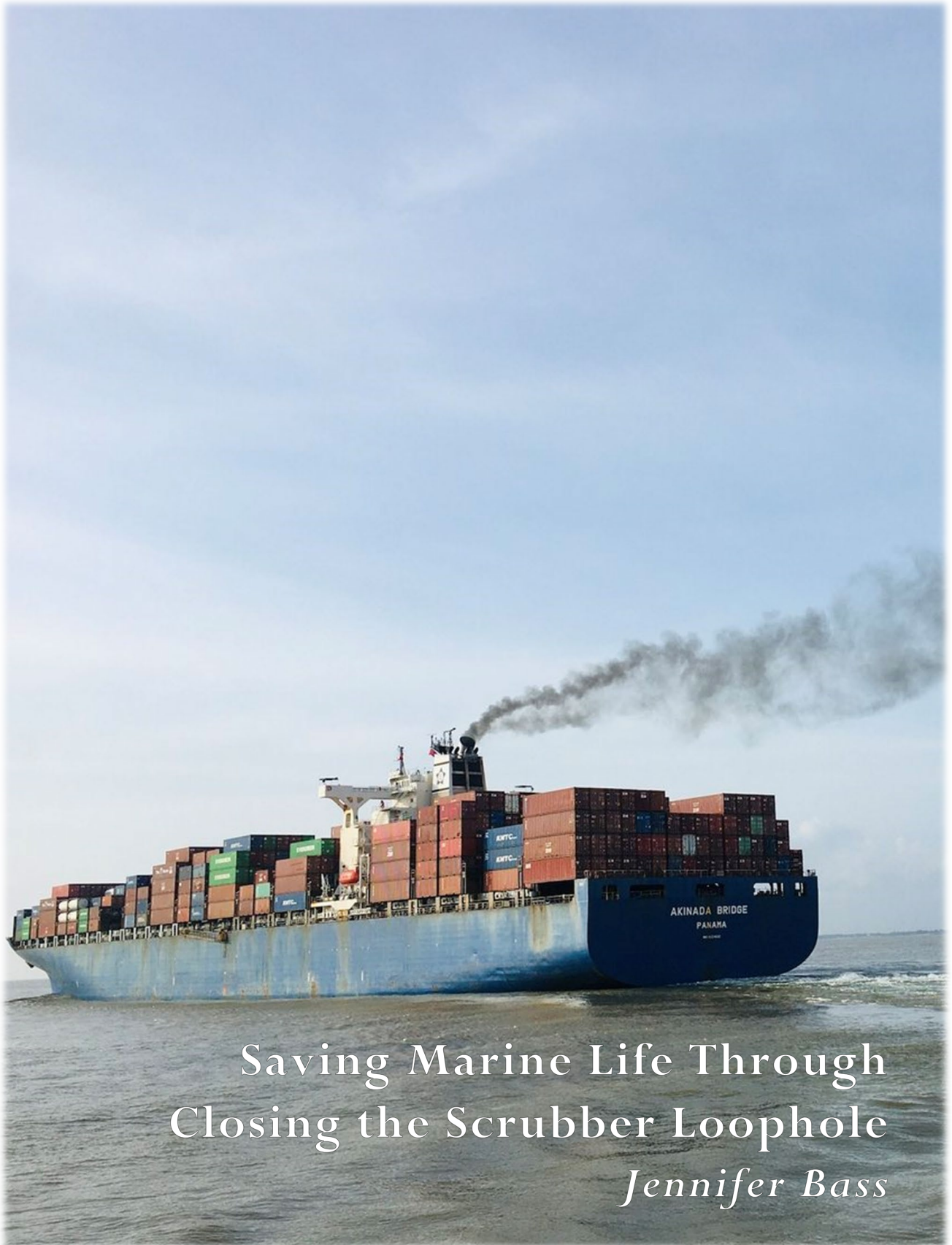
# INTERNATIONAL ANIMAL LAW COMMITTEE NEWSLETTER

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AMERICAN **BAR** ASSOCIATION

International Law Section



Saving Marine Life Through  
Closing the Scrubber Loophole  
*Jennifer Bass*



As a maritime vessel approaches the shore the picturesque rippling blue ocean turns into a “stream of black grease, with a rainbow sheen, bubbling to the surface.”<sup>1</sup> This grease is “up to 100,000 times more acidic than seawater,” contains heavy metals, is sulfur rich, and is highly toxic to marine life.<sup>2</sup> This rainbow sheen comes from Exhaust Gas Cleaning Systems, more commonly called scrubbers.<sup>3</sup> Most scrubbers are open loop scrubbers that use ocean water to scrub chemicals from exhaust.<sup>4</sup> Unfortunately, these chemicals are mainly discharged directly into the ocean.<sup>5</sup> Washwater is harmful to marine life at very low concentrations.<sup>6</sup> Eighty percent of this washwater is dumped within 200 nautical miles offshore, affecting communities and marine life.<sup>7</sup> Ten gigatons of washwater is discharged into the ocean each year and this will rise exponentially given the International Maritime

Organization’s (IMO) new sulfur emissions reduction regulations.<sup>8</sup>

### I. Why Are Scrubbers Used?

How are the IMO’s regulations, whose aim is to reduce emissions, causing more toxins to enter the ocean? The Kyoto Protocol specifies that countries are not individually liable for their international shipping emissions, which equates to three percent of world emissions.<sup>9</sup> Instead, it created the IMO, which is uniquely permitted to promulgate international regulations.<sup>10</sup> In place of directly lowering greenhouse gas emissions, the IMO promulgated a regulation that lowered the amount of permissible sulfur levels in fuels.<sup>11</sup> The regulation set “[t]he upper limit of the sulphur content of ships’ fuel oil was reduced to 0.5% (from 3.5% previously) - under the so-called “IMO 2020” regulation prescribed in the MARPOL Convention.”<sup>12</sup> Unfortunately, this has caused an exponential rise in the use of scrubbers, because it is significantly cheaper to install a multimillion dollar scrubber, than to switch to less viscous fuels.<sup>13</sup>

When they use these viscous fuels, large ships “are powered by two-stroke engines that are four stories tall and run on the cheapest cut from the bottom of the petroleum barrel, a heavy fuel oil (or HFO) that is laden with ash and so viscous it must be heated onboard before

<sup>1</sup> Richas Syal, *Shipping’s Dirty Secret: How ‘Scrubbers’ Clean the Air – While Contaminating the Sea*, GUARDIAN (Jul. 12, 2022), <https://www.theguardian.com/environment/2022/jul/12/shippings-dirty-secret-how-scrubbers-clean-the-air-while-contaminating-the-sea>.

<sup>2</sup> *Id.*

<sup>3</sup> EGCSA, *Exhaust Gas Cleaning System Association, What is an Exhaust Gas Cleaning System?*, <https://www.egcsa.com/technical-reference/what-is-an-exhaust-gas-cleaning-system/> (last visited Feb. 27 2024).

<sup>4</sup> *Id.*

<sup>5</sup> Anna Lunde Hermansson et al., *Cumulative Environmental Risk Assessment of Metals and Polycyclic Aromatic Hydrocarbons From Ship Activities in Ports*, 189 MARINE POLLUTION BULLETIN 114805 (2023).

<sup>6</sup> *Id.*

<sup>7</sup> Liudmila Osipova, Elise Georgeff, & Bryan Comer, *Global Scrubber Washwater Discharges Under IMO’s 2020 Fuel Sulfur Limit*, THE INTERNATIONAL COUNSEL ON CLEAN TRANSPORTATION, 1 (Apr. 2021).

<sup>8</sup> Syal, *supra* note 1.

<sup>9</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, *Article II, Section II*, 2303 U.N.T.S. 162. (Dec. 10, 1997).

<sup>10</sup> *Id.*

<sup>11</sup> International Maritime Organization, *2019 Guidelines for Port State Control Under Marpol Annex Vi Chapter 3, Annex 15*, Resolution MEPC.321(74) (2019).

<sup>12</sup> IMO, *IMO2020 Fuel Oil Sulphur Limit - Cleaner Air, Healthier Plane*, <https://www.imo.org/en/MediaCentre/PressBriefings/Pages/02-IMO-2020.aspx> (last visited Apr. 18, 2024).

<sup>13</sup> Syal, *supra* note 1.

use.”<sup>14</sup> These fuels are toxic enough that they are almost universally banned on land, yet their waste is permitted to flow into the ocean.<sup>15</sup> Though the IMO has issued some regulations on washwater pollutants’ and acidity, it has failed to eliminate these toxins or address all pollutants, including heavy metals.<sup>16</sup> The IMO is tasked with cleaning our air and preventing global warming, not with polluting the oceans.<sup>17</sup>

## II. How Are Scrubbers Harming Animals?

Washwater causes disastrous effects throughout the ocean’s entire food web. This harm starts with plankton, which is the lowest level of the food chain.<sup>18</sup> The washwater causes higher mortality rates and reduced feeding in adult copepods.<sup>19</sup> Copepods are considered to be an important plankton that sustains life in the ocean.<sup>20</sup> The toxins and metals in washwater bioaccumulate, ending up in the rest of the food chain, and are consumed by humans.<sup>21</sup> A study performed in the Port of Copenhagen found that ninety percent or more of over twenty heavy metals were from scrubber washwater. Some of these metals included cadmium, nickel, copper, lead, and mercury.

Other bioaccumulating substances released in scrubber washwater are the carcinogenic polycyclic aromatic hydrocarbons. Besides increasing mortality rates from cancer these chemicals also negatively affect fish and mammals’ ability to reproduce and impairs liver function.<sup>22</sup> For example, washwater is dumped directly into marine safety zones created for the mammals in the Pacific Northwest, which is the home of the critically endangered Southern Resident orcas. These chemicals transferring to calves in utero can negatively affect their health outcomes.<sup>23</sup> These whales have had lower fertility and higher infant mortality rates over time as the result of these and other chemicals.<sup>24</sup>

The release of nitrogen oxides (NOx) and sulfur oxides (SOx) from scrubbers further contributes to ocean pollution and acidification.<sup>25</sup> Certain areas, for instance, the Baltic Sea, already have a measurable PH change from the use of scrubbers.<sup>26</sup> Ocean acidification breaks down carbonate, which is a key ingredient in building shells.<sup>27</sup> The smallest and most crucial members of the ecosystem are shell-based.<sup>28</sup> Animals’ inability to form shells would trigger a full ecosystem collapse, which is one of the reasons ocean acidification is heavily linked with mass extinction.<sup>29</sup> Ocean acidification can also

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<sup>14</sup> Tim Theiss, *Anchors Aweigh: Examining Biofuels for Maritime Shipping*, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY (June 15, 2021) <https://www.energy.gov/eere/bioenergy/articles/anchors-aweight-examining-biofuels-maritime-shipping>.

<sup>15</sup> *Id.*

<sup>16</sup> International Maritime Organization, *2019 Guidelines for Port State Control Under Marpol Annex Vi Chapter 3, Annex 15*, Resolution MEPC.321(74) (2019).

<sup>17</sup> *Id.*

<sup>18</sup> Marja Koski, Colin Stedmon, & Stefan Trapp, *Ecological Effects of Scrubber Water Discharge on Coastal Plankton: Potential Synergistic Effects of Contaminants Reduce Survival and Feeding of the Copepod Acartia Tonsa*, 129 MARINE ENV’T RESEARCH 374-85 (2017).

<sup>19</sup> *Id.*

<sup>20</sup> Jefferson Turner, *The Importance of Small Planktonic Copepods and Their Roles in Pelagic Marine Food Webs*, 43 ZOOLOGICAL STUD 255 (2004).

<sup>21</sup> *Id.*

<sup>22</sup> Masato Honda & Nobuo Suzuki, *Toxicities of Polycyclic Aromatic Hydrocarbons for Aquatic Animals*, 17 INT’L J ENVIRON RES PUBLIC HEALTH 1363 (2020).

<sup>23</sup> *Id.*

<sup>24</sup> Kiah Lee et al., *Polycyclic Aromatic Hydrocarbon (PAH) Source Identification and a Maternal Transfer Case Study in Threatened Killer Whales (Orcinus Orca) of British Columbia, Canada*, 13 SCI. REPORTER 22580 (2023).

<sup>25</sup> Johannes Teuchies et al., *The impact of scrubber discharge on the water quality in estuaries and ports*, 32 ENV’T SCI. EUROPE 103 (2020).

<sup>26</sup> *Id.*

<sup>27</sup> John M. Guinotte & Victoria J. Fabry, *Ocean Acidification and Its Potential Effects on Marine Ecosystems*, 1131 THE YEAR IN ECOLOGY AND CONSERVATION BIOLOGY 2008 320-42 (2008).

<sup>28</sup> *Id.*

<sup>29</sup> NOAA, *Understanding Ocean Acidification*, <https://www.fisheries.noaa.gov/insight/understanding-ocean-acidification> (last visited Apr. 14, 2024).

contribute to algae blooms.<sup>30</sup> Any wastewater should be prevented from entering delicate ecosystems.

### III. Where Are Scrubbers Banned and Are They Legal?

The scrubber loophole must be closed. Though ports, states, and countries have implemented measures against wastewater, there needs to be a global ban. There are “93 measures that have been implemented in 45 countries, and 86% of these measures are bans rather than more limited restrictions.”<sup>31</sup> In the United States “[o]n March 26, 2010, the IMO officially designated waters off North American coasts as an area in which stringent international emission standards will apply to ships. The first-phase fuel sulfur standard began in 2012.”<sup>32</sup> Unfortunately, these standards also have a scrubber exception. Some international scholars find that there should be no need for regulation because the use of scrubbers violates the Law of the Sea.<sup>33</sup> The United Nations Convention on the Law of the Sea’s Article 195 establishes a “[d]uty not to transfer damage or hazards or transform one type of pollution into another.”<sup>34</sup> Given the global trend towards bans of scrubbers and the violation of other treaties, the IMO should remove the scrubber exception in its sulfur reduction regulation.

### IV. Conclusion

Ending the use of scrubbers would not only end the use of our most toxic fuels but could be the domino that saves the ocean. This would stop the most harmful heavy metals from entering the ocean’s food chain. It would further help improve marine life reproductive rates and reduce cancer rates. Finally, it would prevent the rise in acidity of the ocean. Though

regulations have been implemented in some places to prevent wastewater discharges, the only way to end their use entirely is for the IMO to close the sulfur regulation loophole.

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<sup>30</sup> *Id.*

<sup>31</sup> Camilla Carraro, *Global Update on Scrubber Bans and Restrictions*, THE INTERNATIONAL COUNSEL ON CLEAN TRANSPORTATION (June 23 2023), <https://theicct.org/publication/marine-scrubber-bans-and-restrictions-jun23/>.

<sup>32</sup> EPA, *Designation of the North American Emission Control Area for Marine Vessels* (last Updated on Mar. 25,

2024), <https://www.epa.gov/regulations-emissions-vehicles-and-engines/designation-north-american-emission-control-area-marine>.

<sup>33</sup> Shams Al-Hajjaji, *Coastal State vs. Flag State: Countries' Mitigation of Environmental Harm from Scrubbers?*, 47 TUL. MAR. L. J. 185, 189 (2023).

<sup>34</sup> U.N. Convention on the Law of the Sea, art. 195, Dec. 10, 1982, 1833 U.N.T.S. 561 (1982).