

Bilge Dumping — The Environmental Disaster Going On Behind Closed Doors

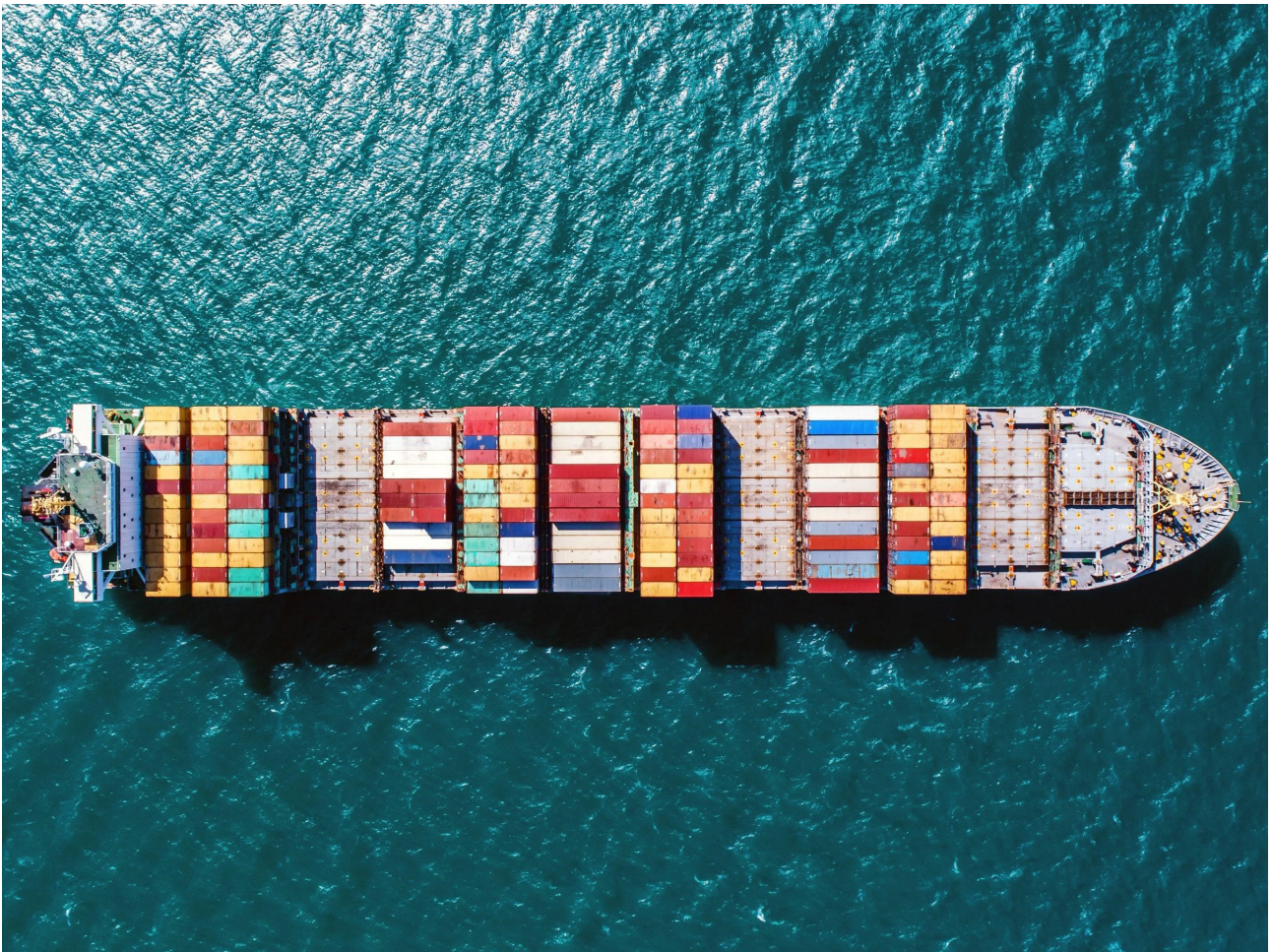


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Pristine waters corrupted by filth. A pelican weighed down by congealed tar. A sea lion gliding through grime. We have all seen pictures of dramatic oil spills, from Exxon Valdez (1989) to BP Deepwater Horizon (2010) — it is no secret that humanity's consumption habits have had negative effects on our environment. Both the unsustainability of our practices and problems in our international supply chains have been widely covered. Yet an issue related to international trade that is five times as devastating as the aforementioned Valdez spill and one that will affect us all beyond shipping delays and lost Christmas presents has been kept secret and unaddressed — bilge dumping.

What is Bilge Dumping?

Merchant ships are the backbone of maritime trade. Their operation and maintenance generate tons of liquid waste stored in designated bilges, large containers generally located in the lower hull of a ship. This liquid waste is referred to as "bilge water" and can consist of oil-byproducts from coach-bus-sized engines, sludge generated by the burning of fuel, cleaning detergents, and chemicals such as arsenic.



A cargo ship of this size can generate at least 8 tons of bilge water per day. As of 2019, there are an estimated 50,000 commercial ships in operation. Image courtesy: GETTY IMAGES via WIRED

The International Convention for the Prevention of Pollution from Ships (MARPOL), enacted in the 1970s, specifies that this toxic concoction must go through oily-water separators (OWS) onboard before the treated water can be discharged. Alternatively, bilge water must be discharged at receiving port facilities that can safely dispose of it.

However, to avoid costly treatments and reduce the time spent sitting at the dock (which equals time spent losing money), what do commercial ships do instead? They dump bilge water directly into the ocean, wreaking havoc on marine ecosystems.

What is more, the deliberate practice of dumping devastating substances into our oceans is not only committed by merchant

ships. Even the U.S. Navy has come forward with records of illegal discharges, and cruises have made headlines with massive bilge-dumping fines such as the Princess Cruises case in 2016 which resulted in a hefty \$40 million penalty.

Bilge Water Hurts Both Environmental and Human Health

Studies have directly linked isolated cases of bilge dumping to smaller plankton populations. Kerstin Magnusson, an ecotoxicologist from the Swedish Environmental Research Institute authored a report that observed significant reductions in feeding and reproduction of *Acartia tonsa* after 48-hour exposure to bilge water. While at first, it may seem that the reduction in plankton numbers has little effect on marine ecosystems, plankton such as *Acartia tonsa* form the foundation of marine food webs and any disruption can have catastrophic effects. Fish populations are also under threat, as oil has deformed their offspring, and algae growth, promoted by bilge water, steals away oxygen from fish.

Environmental problems are accompanied by severe impacts on human health as well. Lead and other toxic substances from bilge water render marine organisms like mussels and shellfish too dangerous for consumption. Oil spills cause eye, skin, respiratory, and skin-related health problems. With bilge dumping being a more frequent occurrence than major oil spills, these effects could be even more widespread than thought.

Bilge Water Threatens Ecotourism-Driven Conservation

This illegal practice should in theory be heavily regulated for its disastrous impacts, yet recent estimates predict that 5,000-7,500 vessels practice bilge dumping worldwide, adding up to 210 million gallons of waste intentionally discharged annually.



Oil waste likely from bilge dumping is routinely cleaned from a beach on the resort island of Bintan, Indonesia, near Singapore. Image courtesy: [Luke Thomas](#)

This presents trouble for the coastal economies of countries such as Indonesia, where its surrounding oceans contribute \$27 billion to its GDP, and Malaysia, where 70% of the population is supported by its shores.

Singaporean waters are a bilge dumping hotspot, leading to oil sheens causing extensive damage to mangroves. A 2015 study found that these threatened plants captured an estimated 1.65 million tons of carbon dioxide from the air. Mangroves are also a great potential source of ecotourism for Singapore. Ecotourism serves as an economic incentive driving the conservation of the environment. For example, in the Galapagos, marine-based tourism annually generates \$178 million which led to the introduction of no-fishing zones in 2016. In short, ecotourism is an increasingly important industry for many less-developed

economies, and its benefits to the environment must be protected from further harm caused by bilge dumping.

How Scum Dumpers Are Getting Away Scot-Free

The illegal practice of bilge dumping has been intertwined with systematic oppression, successfully silencing many would-be whistleblowers and stunting reform.

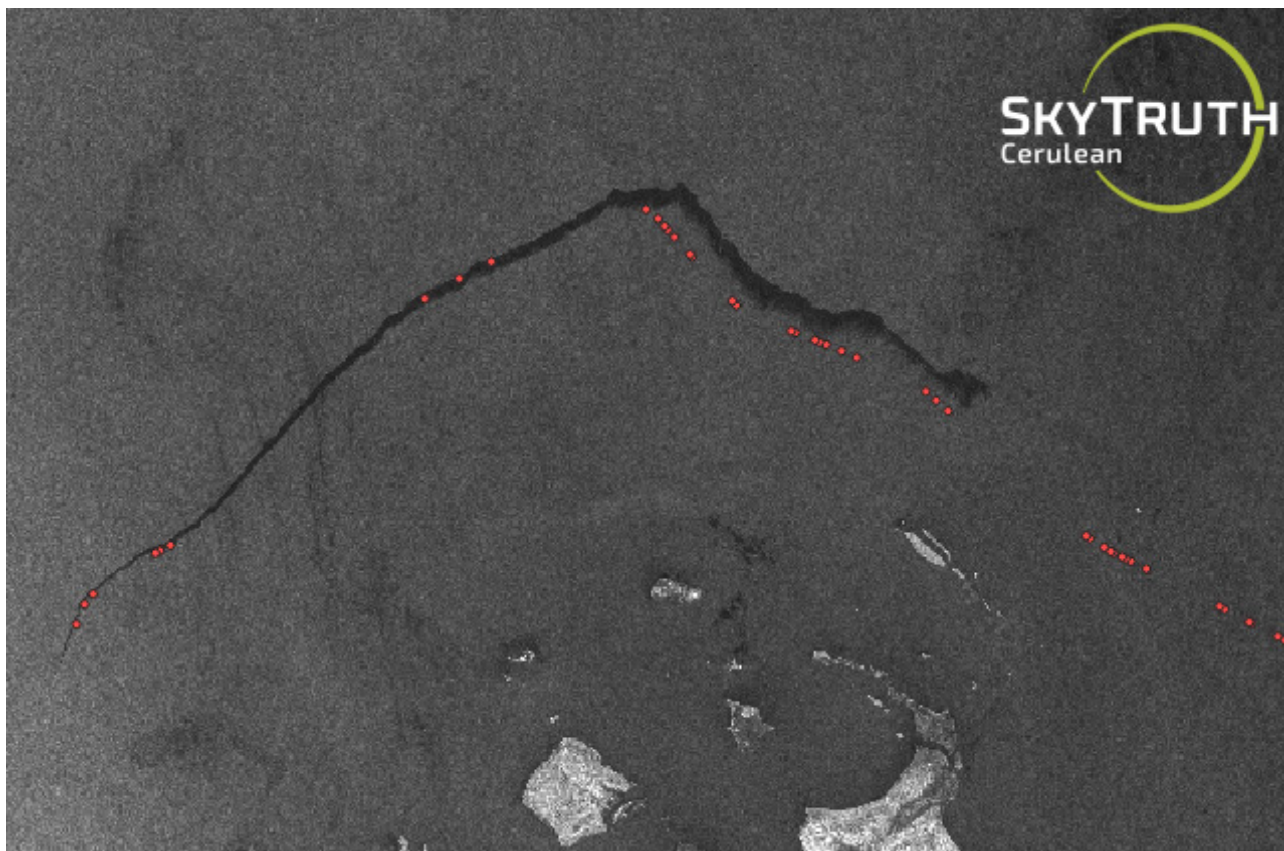
One brave crewmember who came forward anonymously in an interview with Lighthouse Reports detailed how he was warned against speaking out the moment he set foot on the ship he previously worked on, “[The chief engineer] immediately told me: this is how we do it because there is too much water, we cannot do anything. Be quiet, do not speak out, if you speak then it is very much trouble for you.” His contract was terminated without hesitancy as soon as he made attempts to confront the engineer. Another spoke of being detained for 10 days on board when he refused to comply with orders to discharge bilge water into the ocean.

Whistleblowers who worked with the investigators of German media company DW and its partners reported that pumps intended for the collection of oil from the ocean are being used for the absolute opposite. The pumps are additionally described as “portable” and “easy to hide.” Often crews are ordered to falsify mandatory oil logbooks and commence dumping practices at night, in bad weather, and choppy waters. Under these conditions, detecting and reporting the practice is virtually impossible, perpetuating endless impunity and concealing crimes.

To combat these tactics, AI technology such as the European Maritime Safety Agency’s CleanSeaNet, which intends to verify and prevent oil dumping, has been developed. For this technology to fulfill that role, however, reports must be verified within three hours. Data from 2019 reveals that EU member states have verified only 1.5% of potential oil spills reported within that critical time frame. By then, criminals are long gone.

What Must Be Done?

Though larger oil spills are more widely acknowledged, bilge water slicks pose a bigger threat due to a lack of awareness. Additionally, many countries do not have the resources necessary to safely dispose of the oily waste deposited on shores, creating additional incentives for ships to resort to illegal activity.



An oil slick and merchant ship activity overlaid using satellite imagery. SkyTruth hopes to further develop its Cerulean AI programming to better report the far too frequent rate of bilge dumping. Image courtesy: SkyTruth

Existing satellite technology, such as that utilized by SkyTruth, can identify slick trails from above. However, international law lacks a legislative system that can immediately confirm these reports and facilitate the prosecution of bilge dumpers. NGOs have also called for stricter regulations, but is anyone listening? These issues must be highlighted and resolved to put an end to bilge dumping for good.